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## ABSTRACT

The following are among the 34 papers included: "An Assessment of Support Staff Training in Public Two-Year Colleges" (Kuceyeski); "Attitude and Motivation of Vocational Student Teachers toward Teaching Commerce and Entrepreneurship" (Pihie, Elias); "Barriers Adult Office Education Students Encounter in Pursuit of Educational Goals" (Reusch); "Building a University-Government Partnership to Implement the Performance Consulting Model in Municipal Government" (Holton et al.); "Business Education Student Teachers' Perceived Multicultural Teaching Competence Related to Their Background Experiences" (Thabede, Schmidt); "Can We Agree on the Topics Financial Managers Need To Know? Practitioners and Educators Respond" (Hoover); "Case Study of a Staff Development Workshop Examining the Application of Teacher Education and Cooperative Learning Research in Business Education" (King); "College Student Absenteeism" (C. Lundgren, T. Lundgren); "Computer End-User Skills U.S. Corporations Recommend Business Students to Possess Now and Toward 2000" (Zhao); "A Determination of the SCANS (Secretary's Commission on Achieving Necessary Skills) Skills, Competencies, and Personal Qualities Being Included in the Business Curriculums of Nebraska Public Secondary Schools" (Anderson, Barton); "Email"

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(Joiner et al.); "Entrepreneurship Development in Kenyan Technical Education" (Kanyi, Ubelacker); "Factors that Influence Participation in Student Organizations" (McCannon, Bennett); "The Impact of Selected Variables on Office Roles and Responsibilities" (McEwen); "Linking School with the Workplace" (Finch, Schmidt, Moore); "Methods of Teaching Electronic Spreadsheets" (McDonald, Echternacht, Smith); "Perception of Business Educators about Information Systems Competencies Required by Business Professionals" (Loop); "Perceptions of National Industry-Based Skill Standard Technical Committees of the Impact of Skill Standards on Vocational Education" (Bunn, Stewart, Schmidt); "Postsecondary Office Systems Instructors" (Anderson, Atiba-Davies); "Preparing for Employment in the Next Millennium" (Morrison, Oladunjoye, Czarkowski); "The School-to-Work Initiative" (Gbomita); "Selected Student Variables and Computer Achievement" (Erthal, Wiggs, Huter); "Student Attachment/Internship in Entrepreneurship Education" (Ubelacker, Kanyi); "Utilizing Action Research to Assess a Teaching Philosophy" (Everett); "Conducting Doctoral Research" (Bronner); "The Role of Data Analysis and Interpretation in the Research Process" (Echternacht); "Utilizing the Internet for Research" (Smith, Wiedmaier); and "The Web" (Matyska, Jr., Zeliff). (MN)

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ED 411 400



# DELTA PI EPSILON

National Honorary Professional Graduate Society in Business Education

## Proceedings

### 1996 National Research Conference

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## DELTA PI EPSILON

### 1996 NATIONAL RESEARCH CONFERENCE

November 14-16, 1996  
Indianapolis, Indiana

**Conference Chairperson:** Leona M. Gallion  
Indiana State University  
Terre Haute, Indiana

**Committee Members:**  
Lillian Greathouse  
Kathy A. White

Welcome to the 1996 DPE National Research Conference and to Indianapolis. The theme of this year's conference is "Get Connected." The Conference has been planned to allow you to get connected with your colleagues by learning about research studies, innovative research techniques, and computer-assisted research methods. The response to the Call for Proposals was tremendous for both research/computer training presentations and research paper presentations thus allowing an excellent selection of sessions. In addition, presenters at the general sessions include speakers from Mel Simon Group, Eli Lilly and Company, and IBM Corporation. The Research Connection component continues the tradition of providing a research training workshop during the convention.

The Research Conference Committee appreciates the involvement of all those individuals who helped plan and promote this conference. May you find the conference a rewarding professional experience.

Leona M. Gallion

Dear Conference Participant:

On behalf of the DPE National Executive Board, I welcome you to the 1996 DPE Research Conference—"Get Connected in Indianapolis." Once again, DPE provides business educators an opportunity for Developing a Professional Edge.

The conference features an outstanding program of research reports from participants, sessions on research planning and procedures, specialized computer training sessions, and presentations from business representatives with an interest in research. Dedicated business education professionals from across the U.S. will share their expertise on topics that are current, relevant, and innovative, continuing the long-standing tradition of excellence that the Research Conference has enjoyed over the years. And, once again, conference *Proceedings* will be distributed to participants and available for others to purchase.

A special thanks goes to Leona Gallion, Research Conference Chair, and to Lillian Greathouse, Associate Chair. Without their professional commitment and that of others, including Scot Ober, Kathy White, and June Lockett, who helped in various roles, the conference would not be a reality. These professionals deserve a special thanks from all of us who will benefit from the conference. Continuing with the highly successful tradition started at the 1990 DPE Research Conference, participants will have the opportunity to participate in "The Research Connection," a research training workshop for novice researchers and those wishing to fine tune their research skills. "The Research Connection," coordinated by Carolce Sormunen, is designed so that participants can experience real-world research procedures in an accelerated format.

Your input to the Research Projects Committee, chaired by Robert Matyska, is important as they begin the process of identifying a new DPE project to be completed through chapter participation. Further, the Research Projects Committee will be sharing information about their on-going study that addresses international business competencies which students need to develop.

Along with the other members of the DPE Executive Board, I know you will have many rewarding experiences at this year's conference where you will have the opportunity to connect and expand your research interests. By participating in the content-rich sessions, discussing research interests with colleagues, making new acquaintances, and enjoying the social functions, you will have the opportunity to foster and develop long-lasting professional friendships.

Have a great conference as you "Get Connected in Indianapolis."

B. June Schmidt, DPE National President

**Delta Pi Epsilon National Executive Board**

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National Executive Director and <i>Proceedings</i> Editor.....	Robert B. Mitchell (Beta Omega) Delta Pi Epsilon National Office
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# CONFERENCE PROGRAM

**Thursday, November 14**

- 4:00 - 7:30 p.m.    **REGISTRATION** (Fisher Mezzanine)
- 5:00 - 7:00 p.m.    **Orientation to THE RESEARCH CONNECTION** (McClellan Hall)  
(a research training project for novice researchers)
- 7:00 - 8:00 p.m.    **NATIONAL PRESIDENT'S RECEPTION** (Fisher Mezzanine)
- 8:00 - 9:30 p.m.    **GENERAL SESSION I** (Fisher Ballroom)

Chair: Leona M. Gallion, National Research Conference Planning Committee  
Chair, Indiana State University, Terre Haute, Indiana

## **WELCOME AND INTRODUCTIONS**

### **GREETINGS FROM DELTA PI EPSILON**

B. June Schmidt, DPE National President, Virginia Polytechnic Institute  
and State University, Blacksburg, Virginia

### **ROLL CALL OF STATES**

F. Stanford Wayne, DPE National Secretary, Glencoe/Office Technology and  
Communications and Columbus State Community College, Columbus, Ohio

### **Speaker**

Ken Wallach, Manager, Consumer Research, Mel Simon Company, Indianapolis,  
Indiana

Topic: "Circle Centre: An Urban Retail Experience"

## **OVERVIEW OF CONFERENCE**

## **ANNOUNCEMENTS**

Friday, November 15

8:30 - 10:00 a.m. **GENERAL SESSION II (Fisher Ballroom)**

Chair: Lillian Greathouse, Eastern Illinois University, Charleston, Illinois

**SPEAKER**

Mike Wiley, Regional Vice President, IBM Corporation

Topic: "Telecommuting"

10:00 - 10:30 a.m. **REFRESHMENTS (Fisher Mezzanine)**

10:30 - 12:00 noon **CONCURRENT SESSIONS**

**Research Reports A - Pedagogy (Gates Hall)**

Chair/Discussant: Betty J. Brown, Ball State University, Muncie, Indiana

**SELECTED STUDENT VARIABLES AND COMPUTER ACHIEVEMENT**

This study of collegiate computer students provides findings concerning selected student variables and perceived achievement in computer classes. Findings indicate that students' prior computer background, using the computer to prepare assignments for other classes, time spent preparing assignments outside of class, and whether students complete assignments individually or cooperatively appear to affect the achievement level of computer students.

Margaret J. Erthal, Southern Illinois University, Edwardsville, Illinois; Linda Henson Wiggs and Lavonne Huter, Southeast Missouri State University, Cape Girardeau, Missouri

**METHODS OF TEACHING ELECTRONIC SPREADSHEETS: HANDS-ON VS LECTURE/DEMONSTRATION**

The study compared the effectiveness of the hands-on method and the lecture/demonstration method of teaching electronic spreadsheet applications. Two intact sections of computer software applications classes at the collegiate level were studied. A computer generated spreadsheet skills test was used to determine the skill level and the amount of transfer of learning from a familiar to an unfamiliar program. Both sections were taught by the same teacher. No statistically significant differences were found between the hands-on and the lecture/demonstration methods of teaching electronic spreadsheet applications relative to content knowledge achievement, skills performance, and skills/knowledge transfer. However, the mean scores of the hands-on group were consistently higher in the three areas tested. The hands-on method group also indicated a higher perception of the course.

Michael L. McDonald, Kelly Smith, and Lonnie Echternacht, University of Missouri-Columbia, Columbia, Missouri

## TELECOMMUNICATIONS AND SOFTWARE USAGE IN VIRGINIA HIGH AND MIDDLE SCHOOL BUSINESS PROGRAMS

A survey containing questions regarding network and software usage was created and disseminated to Virginia high and middle school business programs. The main purpose of this survey was to obtain demographic data and data regarding computer technology needs specific to Virginia schools. A comparison was made between the data retrieved and what business educators are teaching prospective teachers.

Herbert F. Brown III, James Madison University, Harrisburg, Virginia

## UTILIZING ACTION RESEARCH TO ASSESS A TEACHING PHILOSOPHY

This study was designed to involve students and the instructor in research of a teacher's philosophy of teaching. A survey, e-mail questions, and a teacher's log were used to collect data. Weekly e-mail assignments received at least a 99 percent response from students; the survey was completed by all students; and the teacher's log was completed on a daily and weekly basis (whichever was appropriate to record significant events). The overall results have given important reactions for insight into this teacher's teaching philosophy. This is an ongoing study, however.

Donna R. Everett, Morehead State University, Morehead, Kentucky

## Research Reports B - Training/Education (Conference Room A)

Chair/Discussant: Donna Redmann, Louisiana State University, Baton Rouge, Louisiana

## TRAINING STRATEGIES AND MEDIA FOR THE 21ST CENTURY AND BEYOND WITH IMPLICATIONS FOR TEACHERS AND TRAINERS WHO PROVIDE INSTRUCTION IN BUSINESS DISCIPLINES

This presentation will review factors that influence the selection of teaching strategies in the modern era and will compare and contrast traditional teaching methods with those of modern, informal methods. In addition, research relating to the uses of audiovisual and electronic media in effective teaching will be highlighted.

Sheila C. Porterfield, Jackson State University, Jackson, Mississippi

## **AN ASSESSMENT OF SUPPORT STAFF TRAINING IN PUBLIC TWO-YEAR COLLEGES**

Effective staff development programs for office support staff in the two-year college are critical to meet the challenges of the 1990s and beyond. This study described office support staff training programs and activities in public two-year colleges as perceived by staff developers and support staff. Four areas researched included the following: training programs offered, who determined what training programs are offered, assessment methods used to match training programs with office support staff needs, and the availability of formal staff development programs.

Rose Kuceyeski, Owens Community College, Toledo, Ohio

## **BARRIERS ADULT OFFICE EDUCATION STUDENTS ENCOUNTER IN PURSUIT OF EDUCATIONAL GOALS**

This study examined factors that are perceived by adult office education students as barriers to the achievement of their educational goals. A questionnaire was administered to adult office education students to collect data. Personal factors, school-related factors, academic-related factors, and other related factors were examined as potential barriers. Relationships between student age or receipt of public assistance and perceived barriers were also examined.

Dianna McCall Reusch, Southern Illinois University, Carbondale, Illinois

## **THE IMPORTANCE OF CRITICAL THINKING COMPETENCIES FOR ADMINISTRATIVE SUPPORT EMPLOYEES WITH IMPLICATIONS FOR CURRICULAR REFORM IN BUSINESS EDUCATION**

Research regarding workplace competencies illustrates that employers require employees with critical thinking abilities; however, research does not show what business teachers are doing to include thinking in their instruction. This study examined the perceptions of administrative support employees (ASE), their supervisors, and business education teachers regarding the importance of critical thinking by ASE in completing job responsibilities. Additionally, interviews and observations were used to determine what teachers were doing to develop and enhance critical thinking.

Glenda Kunar, Youngstown State University, Youngstown, Ohio

### **Research Training Session (Conference Room B)**

Chair: Judith Olson Sutton, Madison Area Technical College, Madison, Wisconsin

**CONDUCTING DOCTORAL RESEARCH: SUGGESTIONS FROM THE  
ADVISEMENT TRENCHES**

This presentation will consist of an overview of the conduct of doctoral research and also touch not-so-briefly on other related--yet critical--issues that all doctoral students face during some stage of their work. These issues will include, but are not limited to, selecting and working with the committee, handling rejection and "writer's block," and mechanical "tips of the trade" from more than 100 successful doctoral graduates spanning nearly three decades.

Michael Bronner, New York University, New York, New York

**The Research Connection (McClellan Hall)**

"Defining the Problem"

12:00 - 1:30 p.m. **LUNCHEON (Severin Ballroom)**

Greetings: Janet Treichel, NBEA Executive Director

**SPEAKER**

William E. Christopher, Director of Education Policy for Governor Evan Bayh and Executive Director of the State Student Assistance Commission of Indiana

Topic: "Education in Indiana"

1:30 - 3:00 p.m. **CONCURRENT SESSIONS**

**Research Reports A - Curriculum (Conference Room A)**

Chair/Discussant: Donna Everett, Morehead State University, Morehead,  
Kentucky

**NONTECHNICAL COMPETENCIES OF ADMINISTRATIVE SUPPORT PERSON-  
NEL REQUIRED IN EGYPTIAN AND AMERICAN BUSINESS ENTERPRISES: A  
COMPARATIVE STUDY**

This study analyzed the perceptions of 136 administrative support personnel and 110 executives working in various Egyptian business organizations concerning the importance of 52 selected nontechnical competencies related to administrative support personnel. In addition, the effect of the type and size of business and respondents' characteristics on their perceptions were investigated. A comparison of perceptions of executives working in Egyptian and American business organizations concerning the studied nontechnical competencies will be presented. The implications for the curriculum revision based on the analysis of data will be discussed.

Essam Shaltout, The American University in Cairo, Cairo, Egypt

## A DETERMINATION OF THE SCANS SKILLS, COMPETENCIES, AND PERSONAL QUALITIES BEING INCLUDED IN THE BUSINESS CURRICULUMS OF NEBRASKA SECONDARY SCHOOLS

This research study (1) identified the extent to which students enrolled in business classes in Nebraska secondary schools are being given the opportunity to develop the SCANS skills, personal qualities, and competencies and (2) compared the extent to which the SCANS skills, personal qualities, and competencies are being taught in Nebraska secondary schools of varying sizes.

Janice Barton and Kari Anderson, University of Nebraska- Kearney, Kearney, Nebraska

## PERCEPTIONS OF NATIONAL INDUSTRY-BASED SKILL STANDARD TECHNICAL COMMITTEE MEMBERS OF THE IMPACT OF SKILL STANDARDS ON VOCATIONAL EDUCATION

National industry-based skill standards are meant to improve productivity of U.S. workers and quality in the international marketplace as well as improve vocational education. A goal of these standards is to link instructional content to employment needs and address the basic job-readiness and academic skills that high performance work organizations require. The objective of this study was to determine how technical committee members perceive skill standards will impact the effectiveness of vocational education. The main themes which emerged from the 20 telephone interviews were these: improving curriculum development based on industry needs; improving communication between business and industry and education; producing a better prepared entry-level worker; graduating students who will be better able to make the connection between school and work; adopting the standards which will improve the teaching and learning process; and making vocational educators more accountable.

Phyllis C. Bunn, Delta State University, Cleveland, Mississippi; Daisy L. Stewart and B. June Schmidt, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

## THE IMPACT OF SELECTED VARIABLES ON OFFICE ROLES AND RESPONSIBILITIES

Through a national survey, the study gathered information on the tasks that are frequently performed in office support positions. Two hundred and fifteen respondents including secretaries, administrative assistants, executive secretaries/assistants, and office managers participated in the study. The presentation will include the characteristics of office support personnel, the variables that affect office roles and responsibilities, and a list of the skills most frequently used in office support positions. A list of important professional behaviors and the most desirable personal/professional qualities will also be presented.

Beryl C. McEwen, North Carolina A&T State University, Greensboro, North Carolina



## **Research Reports B - Financial Studies (Conference Room B)**

**Chair/Discussant: F. Stanford Wayne, Columbus State Community College,  
Columbus, Ohio**

### **BUILDING A UNIVERSITY-GOVERNMENT PARTNERSHIP TO IMPLEMENT THE PERFORMANCE CONSULTING MODEL IN MUNICIPAL GOVERNMENT**

This presentation describes an innovative action research project to implement the performance consulting model for Human Resource Development (HRD) practice in a municipal government HRD department. A partnership, "Enterprise Project," was created between the LSU and Baton Rouge City Government. A team of HRD faculty and graduate students worked with the city to develop a strategic plan to implement leading edge practices in city HRD programs. The performance consulting paradigm, partnership development, and consulting team process are described.

**Elwood F. Holton III and Donna H. Redmann, Louisiana State University, Baton Rouge, Louisiana; Mertis A. Edwards and Marion E. Fairchild, Baton Rouge City-Parish**

### **THE ANALYSIS OF CURRENT AND FUTURE COMPUTER TECHNOLOGY USAGE BY FINANCIAL SERVICES' EMPLOYEES IN THE KENT STATE UNI- VERSITY TRUMBULL CAMPUS MARKET AREA FOR THE PURPOSE OF INTEGRATION OF TECHNOLOGY INTO THE BANKING AND FINANCE CURRICULUM**

Employees of financial institutions are being required to use computer and communication technologies more and more in their work environment. This research project surveyed employees of financial institutions located in Trumbull, Columbiana, and Mahoning Counties (Ohio) to determine their current and future use of technology within their profession. The results of this study will be used to design and enhance computer technology applications in the Banking and Finance Technology courses offered at Kent State University Trumbull Campus.

**William C. Ward III, Kent State University Trumbull Campus, Warren, Ohio**

### **CAN WE AGREE ON THE TOPICS FINANCIAL MANAGERS NEED TO KNOW? PRACTITIONERS AND EDUCATORS RESPOND**

This study examined the ranking of 27 finance topics based on practitioners' and educators' perceptions of the importance of the topic to an entry-level position in financial management. A survey was conducted of the financial executives of the *Fortune* 500 companies and a sample of 500 finance educators of the Financial Management Association. The findings indicated an agreement on the topics by practitioners and educators. However, ten highest ranking topics differed between the two groups.

**Gail A. Hoover, Rockhurst College, Kansas City, Missouri**

**FINANCIAL RATIO ANALYSIS OF A NONPROFIT ORGANIZATION: DELTA PI EPSILON, 1980-1995**

The purpose of this study was to determine the financial condition of Delta Pi Epsilon over time. Data analysis and standards confirmation include the following three areas: Statement of Financial Accounting Standards (SFAS) No. 117, Financial Statements of Not-for-Profit Organizations; National Council instituted budget commitments and priorities; and financial ratio analysis of Delta Pi Epsilon including categories of (1) liquidity, (2) debt capacity, (3) sources of funds, (4) uses of funds, and (5) net operating results.

Nancy Buddy and Harry Nowka, Southwestern Oklahoma State University, Weatherford, Oklahoma

**Computer Training (Fisher Ballroom)**

Chair: Dianne McCall Reusch, Southern Illinois University-Carbondale, Carbondale, Illinois

**INTRODUCTION TO USING THE INTERNET FOR RESEARCH**

Computer technology continues to advance at an amazing pace. Global communications have been expanded and opened to all computer users through the expansion of the Internet. The Internet is full of information. The ability to access that information in a productive way is the underlying skill needed to obtain the true benefits behind the overwhelming mass of data available on the Internet. This training session will provide participants with a background on the Internet, explanation of the many tools available to access the Internet, navigation tips, and information on how to disseminate information on the Internet.

Herbert F. Brown III, James Madison University, Harrisonburg, Virginia

**The Research Connection (McClellan Hall)**

“Gathering the Data”

**Research Projects Committee Open Meeting (Gates Hall)**

A meeting for all individuals interested in identifying a new Delta Pi Epsilon research project.

Robert Matyska, Chair, Research Projects Committee

3:00 - 3:30 p.m. **REFRESHMENTS (Fisher Mezzanine)**

3:30 - 5:00 p.m. **CONCURRENT SESSIONS**

**Research Reports A - Information Systems Competencies  
(Conference Room A)**

**Chair/Discussant:** Ellis J. Jones, Gustavus Adolphus College, St. Peter,  
Minnesota

**ORGANIZATIONAL SOCIALIZATION AND ADAPTATION: LEARNING THE  
ROPES IN THE WORKPLACE BY PRIMARY COMPUTER USERS**

The purpose of this study was to determine those factors that influence successful assimilation into the workforce for primary computer users. A full understanding of these factors will be useful to all business teachers in developing curricula appropriate for the workforce of the future. Approximately 65 primary computer users with at least six months but less than five years' experience in their current positions were interviewed to determine when and why they felt competent as well as when and why they felt incompetent.

Judith Lambrecht, University of Minnesota, St. Paul, Minnesota; Donna H. Redmann, Louisiana State University, Baton Rouge, Louisiana; and Wanda L. Stitt-Gohdes, University of Georgia, Athens, Georgia

**PERCEPTIONS OF BUSINESS EDUCATORS ABOUT INFORMATION SYSTEMS  
COMPETENCIES REQUIRED BY BUSINESS PROFESSIONALS**

This study investigated whether or not secondary business educators agree with the national standards for Information Systems (IS). Data were collected from office technology and business education teachers who attended two state-wide conferences in Tennessee. The survey instrument listed essential competencies for the performance of each standard. Participants indicated whether or not they taught each competency or considered it an entry-level task. A percentage of agreement was calculated for each task.

Sandra L. Loop, The University of Tennessee, Knoxville, Tennessee

**COMPUTER END-USER SKILLS U.S. CORPORATIONS RECOMMEND BUSI-  
NESS STUDENTS TO POSSESS NOW AND TOWARD 2000**

The purpose of this study was to determine what end-user computer skills U.S. corporations recommend business students possess now and toward 2000. Eighty-three *Fortune* 500 companies provided their recommendations regarding end-user skills related to hardware, operating systems, word processing, spreadsheets, databases, desktop publishing, programming, telecommunications, and discipline-specific information systems. The findings indicate that 11 end-user skills were "strongly recommended" and 46 end-user skills were "recommended." The respondents also provided additional recommendations.

Jensen J. Zhao, Ball State University, Muncie, Indiana

PERCEPTIONS OF INDIVIDUALS IN BUSINESS AND INDUSTRY REGARDING  
CONTENT AREAS TO BE INCLUDED IN AN INFORMATION SYSTEMS  
CURRICULUM

This international study identified perceptions of individuals in business and industry regarding content areas to be included in an information systems technologies curriculum. Out of 25 content areas, 13 received the mark of extremely important by the largest number of respondents. A chi square test of independence showed significant dependencies between amount of emphasis to be placed on certain content areas and the respondents' age, gender, years of experience, and level of education.

Diane C. Davis and Nancy M. Gonzenbach, Southern Illinois University,  
Carbondale, Illinois

**Research Reports B - Entrepreneurship (Conference Room B)**

Chair/Discussant: Terry D. Roach, Arkansas State University, Jonesboro,  
Arkansas

ENTREPRENEURSHIP DEVELOPMENT IN KENYAN TECHNICAL EDUCATION:  
EXPLORING THE "STATE OF THE ART"

Interest in entrepreneurship education has grown dramatically over the last decade. Entrepreneurship education is seen to address the issues of unemployment that have become nagging to many countries of the world. The research reported here sought to describe how entrepreneurship education is perceived within the Kenyan context. In addition to revealing the meaning accorded entrepreneurship education, the findings of this research also showed the common constraints of its implementation into the Kenyan education system.

Eunice Kanyi and Sandra Ubelacker, University of Alberta, Edmonton, Alberta

ATTITUDE AND MOTIVATION OF VOCATIONAL STUDENT TEACHERS  
TOWARD TEACHING COMMERCE AND ENTREPRENEURSHIP

Apart from having relevant competencies and basic skills to be an entrepreneur, a potential entrepreneurship teacher should have a positive motivation and attitudes toward teaching entrepreneurship. Teacher trainees should be able to differentiate between "traditional" and "progressive" training strategies in preparing students to be able to be self employed. The purpose of this study was to determine the level of motivation and attitude of student teachers and their perception on the most important training techniques to teach entrepreneurship.

Zaidatol Akmaliah Lope Pihie and Habibah Elias, Universiti Pertanian Malaysia,  
Malaysia

## CHARACTERISTICS OF SUCCESSFUL ENTREPRENEURS IN MEXICO

This study used the case method to analyze entrepreneurship in Mexico. Research methods and statistical tools fitted to research in entrepreneurship, one of the newest research areas of management, will be reviewed in this presentation.

Pablo Buitron Morales, Instituto Tecnológico y de Estudios Superiores de Monterrey - Campus Estado de Mexico

## STUDENT ATTACHMENT/INTERNSHIP IN ENTREPRENEURSHIP EDUCATION: A KENYAN CASE STUDY

Attachment/internships are viewed as a means of offering students the opportunity to experience "real life" situations that would crystallize their theoretical learning. The purpose of this research was to determine how students enrolled in a Higher Diploma Entrepreneurship Education programme view their attachment/internship placement. The findings reveal that the students have a positive attitude toward attachment/internship but are concerned about such issues as supervision and the financial outlay involved. Mention is also made of the changes students thought would improve the attachment experience and the programme in general. From these findings recommendations were generated.

Eunice Kanyi and Sandra Ubelacker, University of Alberta, Edmonton, Alberta

### Computer Training (Fisher Ballroom)

Chair: Peter F. Meggison, Massasoit Community College, Brockton, Massachusetts

## UTILIZING THE INTERNET FOR RESEARCH

With the increase of demand for research in educational institutions, educators have looked for more efficient ways of preparing and performing research. Internet offers a viable solution to both of these concerns. This presentation addresses the purpose of the Internet to the researcher and the avenues available. It provides insights on how to utilize the different parts of the Internet. Also the importance of performing searches that will provide the most relevant material from the Internet resources will be discussed.

Kelly L. Smith, University of Missouri-Columbia, Columbia, Missouri, and Cheryl Wiedmaier, Eastern Kentucky University, Richmond, Kentucky

### The Research Connection (McClellan Hall)

"Interpreting and Analyzing the Data"

**Saturday, November 16**

8:30 - 10:00 a.m. **GENERAL SESSION III (Fisher Ballroom)**

Chair: Kathy A. White, JEL Career Center, Indianapolis, Indiana

**SPEAKER**

David W. Crumbacher, Senior Systems Analyst in the Internet Services Group at Eli Lilly and Company

Topic: "The Internet and Intranet at Eli Lilly and Company: Experiences in Applying Internet Technology"

10:00 - 10:30 a.m. **REFRESHMENTS (Fisher Mezzanine)**

10:30 - 12:00 noon **CONCURRENT SESSIONS**

**Research Reports A - School-to-Work Issues (Conference Room A)**

Chair/Discussant: Larry G. Pagel, Emporia State University, Emporia, Kansas

**BUILDING PARTNERSHIPS IN BUSINESS EDUCATION: DETERMINING FACTORS AND STRATEGIES FOR SUCCESS**

This study was designed to evaluate partnerships between business education programs and businesses. Emphasized is the development and maintenance of relationships and addressing business partners' impediments and opportunities.

Nancy Copeland and Ann M. Remp, Eastern Michigan University, Ypsilanti, Michigan

**LINKING SCHOOL WITH THE WORKPLACE: CASE STUDIES OF EXEMPLARY SCHOOL-TO-WORK BUSINESS PROGRAMS**

The School-to-Work Opportunities Act of 1994 allows states to combine federal education and job-training program monies so that meaningful school-to-work activities can be provided to all students. The purpose of this study was to identify and describe exemplary business education school-to-work programs. Case study methodology was used to insure that the context for each exemplary program was captured. Information about school-to-work transition programs was gathered via community profile studies. Findings from the study indicate that exemplary school-to-work programs require commitment on the part of educators, the business community, and students. Besides building alliances with the business community, business educators must accept a number of changes in the ways they have traditionally done things. Selected examples of exemplary school-to-work business programs implemented at the sites we visited have been included.

Curtis R. Finch, B. June Schmidt, and Margaret Moore, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

**THE SCHOOL-TO-WORK INITIATIVE: A RESEARCH-BASED PROTOCOL FOR  
WORK-BASED MENTOR TRAINING IN PENNSYLVANIA**

Over the years mentoring has been used as an effective tool for human development. However, the complexities of the modern workplace and the work-based system now being institutionalized by the School-to-Work Opportunities Act (1994), essentially, require the redefinition of the modern workplace mentoring practice. Pennsylvania's school-to-work initiative seeks to optimize the benefits of the mentoring practice for both providers (organizations) and recipients (proteges). One way to achieve this goal is to identify precisely the characteristics associated with the modern workplace mentoring practice and skills. This paper describes a study that identified the functional role of work-based mentors and established a protocol appropriate for training work-based mentors in the Pennsylvania's school-to-work system.

Victor K. A. Gbomita, Temple University, Philadelphia, Pennsylvania

**PREPARING FOR EMPLOYMENT IN THE NEXT MILLENNIUM: ANALYZING  
PERCEPTIONS OF THE TEMPORARY STAFFING INDUSTRY AS TO THE  
FLEXIBILITY OF GRADUATES OF BUSINESS EDUCATION**

Findings from a survey of 138 temporary staffing agencies suggest that the flexibility required to succeed in a workplace where "job insecurity" prevails and the corresponding need for "cross-training" should be addressed to a greater degree in business education programs. Temp agents appear to be more critical of business education programs than do the 191 classroom business educators who also responded to the survey.

James L. Morrison, University of Delaware, Newark, Delaware; Titi Oladunjoye, Delaware State University, Dover, Delaware; and Michael Czarkowski, Department of Public Instruction, State of Delaware, Dover, Delaware

**Research Reports B - Professional Education (Conference Room B)**

Chair/Discussant: Randy L. Joyner, East Carolina University, Greenville, North Carolina

**BUSINESS EDUCATORS' PERCEPTIONS OF PROFESSIONAL MEETINGS WITH  
IMPLICATIONS FOR PROFESSIONAL ORGANIZATION LEADERS**

This research gathered evidence on the problems of declining member participation in professional meetings by identifying perceptions of active and inactive members of a professional business education organization. A questionnaire that contained demographic characteristics, perceptions concerning professional meetings, and reasons for not attending meetings was used. A profile of active and inactive members was developed, their positive and negative perceptions of professional meetings were compared, and the reasons why members do not attend professional meetings were identified.

Melody W. Alexander, Rodney E. Davis, and Robert A. Underwood, Ball State University, Muncie, Indiana

## FACTORS THAT INFLUENCE PARTICIPATION IN STUDENT ORGANIZATIONS: A COMPARISON OF A TWO-YEAR AND A FOUR-YEAR COLLEGE

Are you an advisor for a student organization? Are you thinking about becoming an advisor? Being a part of an organization takes up a lot of time. It is frustrating when student attendance is low. This presentation will give our findings on why college students may or may not join your organization. It will also present recommendations for promoting your organization and making it more viable for the students.

Melinda McCannon, Georgia College, Milledgeville, Georgia, and Phyllis Bennett, Abraham Baldwin College, Tifton, Georgia

## COLLEGE STUDENT ABSENTEEISM

This presentation focuses on determining feasible procedures for increasing college student attendance rates. A traditional model was used as the framework for survey research into the factors affecting absenteeism at a midwestern university with approximately 11,000 students. Analysis of the results suggested that the traditional model was unsatisfactory, so a new model was developed and tested. The results indicated that teachers are probably unable to affect student attendance rates.

Terry Lundgren and Carol Lundgren, Eastern Illinois University, Charleston, Illinois

## POSTSECONDARY OFFICE SYSTEMS INSTRUCTORS: THEIR EXPERTISE AND THEIR PERCEPTIONS OF PROGRAM COMPETENCIES

This study's focus was community college instructors' perceptions of competencies to be included in office systems programs and how those instructors update their expertise. Research questions included an analysis of perceptions on program competencies and instructor demographic factors. Findings showed these instructors from the Midwest gained their technological teaching expertise primarily through formal education and update their expertise by attending conventions/professional meetings; they ranked highest the traditional technological competencies of keyboarding/word processing and communication competencies of grammar and verbal communication.

Marcia A. Anderson, Southern Illinois University, Carbondale, Illinois, and Yvonne Atiba-Davies, Central Arizona College, Coolidge, Arizona

## Computer Training (Fisher Ballroom)

Chair: Ruthann Dirks, Emporia State University, Emporia, Kansas



**THE WEB: A MEDIUM FOR COLLECTING AND ANALYZING RESEARCH DATA**

The use of electronic media in the data collection phase of descriptive research is now available to researchers. The benefits of using the World Wide Web (WWW), electronic mail, and search tools in the research process will be presented. Construction of electronic forms on WWW pages and the use of HTML authoring programs will be illustrated. Past and current research projects implementing electronic surveys will be highlighted.

Robert J. Matyska, Jr., University of South Carolina, Columbia, South Carolina, and Nancy D. Zelif, Northwest Missouri State University, Maryville, Missouri

**The Research Connection (McClellan Hall)**

“Drawing Conclusions and Writing Implications”

12:30 - 1:30 p.m. **LUNCH (ON YOUR OWN)**

1:30 - 3:00 p.m. **CONCURRENT SESSIONS**

**Research Reports A - Communication (Gates Hall)**

Chair/Discussant: Ann Remp, Eastern Michigan University, Ypsilanti, Michigan

**USING E-MAIL GROUPS TO IMPROVE BASIC SKILLS: THE RESULTS OF AN EXPERIMENT**

This study was designed to determine whether students' ability to locate grammar/style errors improve as a result of working in e-mail groups. Parallels between face-to-face group work and e-mail group work and students' reactions to the project will be presented.

Patricia Merrier, University of Minnesota, Duluth, Minnesota, and Ruthann Dirks, Emporia State University, Emporia, Kansas

**EFFECTS OF KEYBOARDING SKILL ON SELF-REPORTED COMPUTER ANXIETY AMONG TRADITIONAL VERSUS NONTRADITIONAL COLLEGE STUDENTS**

This study was designed to identify factors related to self-reported computer anxiety. The extent to which self-reported anxiety can be predicted or explained by keyboarding skill will be discussed. The more educators and trainer understand correlates of computer anxiety, the better the opportunity for identifying those persons most “at-risk” for developing computer anxiety.

K. Virginia Hemby, Indiana University of Pennsylvania, Indiana, Pennsylvania

## DEVELOPMENT OF TEAM STRUCTURE IN THE BUSINESS COMMUNICATION CLASSROOM

This study investigated the development of effective and realistic teams in the classroom. The presentation will discuss the trend of team environments in the workplace and the need for students to learn more about how to structure a team in a diverse workplace, how to delegate or accept responsibility for quality work, how to plan and maintain a workable team timetable, and how to evaluate team effectiveness.

Larry G. Pagel, Emporia State University, Emporia, Kansas, and Jean A. Mausehund, University of Wisconsin-Whitewater, Whitewater, Wisconsin

## THE HUMAN FACTORS EFFECTS OF USING A MOUSE DEVICE FOR COMPUTER INPUT

The objectives of this study were to create awareness and offer techniques to be taught by business educators related to ergonomic and medical issues of the mouse as an input device. In this study teachers taught work habits and relaxation techniques, varied class assignments, covered an ergonomics unit, and provided adjustable monitors or chairs to relieve the stress and heighten awareness of working at computers. Pain and stiffness in hands, wrists, arms, or shoulders appeared to be the complaints heard from students when using computers. Students preferred the mouse as an input device, probably due to familiarity with the design.

Lonnie J. Echternacht, University of Missouri-Columbia, Columbia, Missouri, and Donna R. Everett, Morehead State University, Morehead, Kentucky

## Research Reports B - Teaching Techniques and Multicultural Education (Conference Room A)

Chair/Discussant: Rodney E. Davis, Ball State University, Muncie, Indiana

## BUSINESS EDUCATION STUDENT TEACHERS' PERCEIVED MULTICULTURAL TEACHING COMPETENCE RELATED TO THEIR BACKGROUND EXPERIENCES

The purpose of this study was to determine whether a relationship existed between business education student teachers' background experiences and their perceptions of their multicultural competence. The results of the study indicated that a relationship did exist between the respondents' multicultural background, racial/ethnic origin, instruction received that addressed multicultural issues, gender, locale of student teaching, and their multicultural competence. A relationship did not exist between the student teachers' ages and their perceptions of multicultural competence.

Jacobeth N. Thabede and B. June Schmidt, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

**A STUDY TO IDENTIFY THE INTERNATIONAL BUSINESS COMPETENCIES BEING TAUGHT IN MIDDLE, JUNIOR HIGH, AND SENIOR HIGH VOCATIONAL-TECHNICAL AND COMPREHENSIVE SCHOOLS IN WESTERN PENNSYLVANIA**

This study identified the international business competencies being taught in schools in Western Pennsylvania. The results showed that of the 48 international business competencies examined, only 7 competencies are included in the curriculum by 80 percent or more of the school districts. The study also showed that 79 percent of the school districts reported that international business competencies are integrated throughout the various courses and are not taught in separate courses.

Gamma Upsilon Chapter, Delta Pi Epsilon, Robert Morris College, Coraopolis, Pennsylvania, presented by Patricia Brown

**CASE STUDY OF A STAFF DEVELOPMENT WORKSHOP EXAMINING THE APPLICATION OF TEACHER EDUCATION AND COOPERATIVE LEARNING RESEARCH IN BUSINESS EDUCATION**

The problem of the case study was to determine whether an inservice education workshop was an effective educational experience as perceived by secondary business education teachers and their students. The workshop applied the five critical steps identified by research that are necessary for learning a new teaching skill, i.e. cooperative learning, and made the business teachers partners in the research process. The findings describe the business teachers' and students' perceptions of their educational experience. The workshop also appears to foster the idea of classroom level research by encouraging teachers to do empirical inquiry on how to operationalize a new teaching/learning strategy in instructional units that they developed and taught immediately in their classes. In addition, the business teachers transferred their new teaching techniques to other business courses.

Margaret King, Northern Illinois University, DeKalb, Illinois

**E-MAIL: A RELEVANT TEACHING/LEARNING TOOL FOR FACILITATING "REAL WORLD" SIMULATED DISTRIBUTED COLLABORATIVE WORK ACTIVITIES**

Instructional strategies for today's students must be perceived by students as being relevant and practical as well as preparing them for the workplace. Moreover, business education is a likely discipline to provide educational activities to develop the ability to solve problems and to make decisions that students perceive as relevant and practical. Therefore, this study was designed to evaluate students' perceptions of the use of telecommunications in selected business classes toward its relevance in providing them a practical learning environment for the world of work. Specifically the research addressed: Do students perceive e-mail as a relevant teaching/learning tool in preparing them for the workplace?

Randy L. Joyner, East Carolina University, Greenville, North Carolina; Mary Jean Lush and Jerry Kandies, Delta State University, Cleveland, Mississippi; Allen D. Truell, California State University-San Bernardino, California; and Vivian Arnold, East Carolina University, Greenville, North Carolina

## **Computer Training (Fisher Ballroom)**

Chair: Carol Lundgren, Eastern Illinois University, Charleston,  
Illinois

### **DATA ANALYSIS USING SPSS FOR WINDOWS**

This session provides an introduction to using the Statistical Package for the Social Sciences (SPSS) for Windows (which also runs on a Windows 95 platform) for data analysis. Workshop topics include steps in data analysis, steps in using SPSS (entering data, variable names, and variable labels), running statistics (including frequencies, descriptives, correlations, t-tests, linear regression, multiple regression, and discriminant analysis), creating simple charts and graphs, and exporting data to other applications.

Carol Blaszczynski, California State University--L.A., Los Angeles, California

## **The Research Connection (McClellan Hall)**

Concluding Session

## **International Business Research Project Information Meeting (Conference Room B)**

This session will discuss the plans of the DPE Research Projects Committee for implementing a national research project relating to international business, which has been funded by the DPE Research Foundation, Inc. Anyone interested in the research design or in participating in the data collection phase of the project is encouraged to attend.

Robert Matyska, Chair, Research Projects Committee

3:00 - 3:30 p.m. **REFRESHMENTS (Fisher Mezzanine)**

3:30 - 5:00 p.m. **GENERAL SESSION IV (Fisher Ballroom)**

Chair: Lillian Greathouse, Eastern Illinois University, Charleston,  
Illinois

Awards Presentation for Best Paper

The Research Connection - Overview of Proposals

**RESEARCH CONFERENCE BANQUET**  
(Fisher Ballroom)

6:00 - 7:00 p.m.      Social Hour

7:00 - 9:00 p.m.      Banquet

Entertainment: "Counterpoints"  
North Central High School  
Indianapolis, Indiana

Host Chapters: Theta Chapter  
Indiana University

Pi Chapter  
Ball State University

Beta Zeta Chapter  
Indiana State University

# THE RESEARCH CONNECTION

## Research Training Workshop (McClellan Hall)

*Carolee Sormunen, Coordinator, Ball State University*  
*Mary Ellen Adams, Indiana State University*  
*David Dauwalder, Central Washington University*  
*Lonnie Echternacht, University of Missouri--Columbia*  
*Wanda Stitt-Gohdes, University of Georgia*

### Thursday, November 14

5:00 - 7:00      Session I  
Welcome and Introduction--Carolee Sormunen  
Conference Overview and Organization  
[presentations on School-to-Work Transitions (Judith Lambrecht) and  
Technology (Terry Lundgren)]

### Friday, November 15

10:30 - noon      Session II  
"Defining the Problem"  
Team Leader--Mary Ellen Adams  
(teams work on statement of problem)

1:30 - 3:00      Session III  
"Gathering the Data"  
Team Leader--Wanda Stitt-Gohdes  
(teams work on designing study)

3:30 - 5:00      Session IV  
"Interpreting and Analyzing the Data"  
Team Leaders--Lonnie Echternacht and David Dauwalder  
(teams continue work on developing proposal)

### Saturday, November 16

10:30 - noon      Session V  
"Drawing Conclusions and Writing Implications"  
Team Leaders--Lonnie Echternacht and David Dauwalder

3:30 - 5:00      Presentation of Proposals (Fisher Ballroom)  
(teams present proposals to conference participants)

## **Cohosts for Refreshment Breaks**

Delta (University of Cincinnati)  
Theta (Indiana University)  
Lambda (Northwestern University)  
Mu (University of Tennessee)  
Pi (Ball State University)  
Upsilon (University of Mississippi)  
Psi (University of Southern California)

Alpha Gamma (University of Houston)  
Alpha Zeta (Temple University)  
Alpha Lambda (Michigan State University)  
Alpha Nu (University of North Dakota)  
Alpha Xi (The City University of New York)  
Alpha Upsilon (University of Nebraska-Lincoln)  
Alpha Phi (Northern Illinois University)

Beta Beta (Southern Illinois University-Edwardsville)  
Beta Epsilon (San Jose State University)  
Beta Zeta (Indiana State University)  
Beta Eta (Bowling Green State University)  
Beta Theta (University of Wisconsin-Whitewater)  
Beta Lambda (Shippensburg University of Pennsylvania)  
Beta Mu (Central Connecticut State University)  
Beta Nu (Utah State University)  
Beta Omicron (Southern Illinois University, Carbondale)  
Beta Pi (California State University, L.A.)  
Beta Phi (Montclair State University)  
Beta Chi (Western Illinois University)  
Beta Psi (Eastern Illinois University)  
Beta Omega (Louisiana Tech University)

Gamma Alpha (Eastern Michigan University)  
Gamma Eta (Middle Tennessee State University)  
Gamma Theta (Arkansas State University)  
Gamma Xi (Bloomsburg University of Pennsylvania)  
Gamma Upsilon (Robert Morris College)  
Gamma Psi (Eastern Carolina University)

Delta Alpha (The Colorado Chapter)  
Delta Beta (Louisiana State University)  
Delta Zeta (Northeast Ohio Chapter)

## Paper Proposal Reviewers

Marcia Anderson  
Southern Illinois University-Carbondale

Vivian Arnold  
East Carolina University

Clora Mae Baker  
Southern Illinois University-Carbondale

Don Bright  
Bowling Green State University

Michael Bronner  
New York University

Betty J. Brown  
Ball State University

Sandy Figueroa  
Hostos Community College

Janice Schoen Henry  
Southern Illinois University-Carbondale

Marguerite Shane Joyce  
California State University, L.A.

Randy Joyner  
East Carolina University

Roger Luft  
Eastern Illinois University

Mindy Mass  
Santa Barbara College

Robert Matyska  
University of South Carolina

Jean A. Mausehund  
University of Wisconsin-Whitewater

Thaddeus McEwen  
North Carolina A & T

Peter Meggison  
Massasoit Community College

Karen S. Nantz  
Eastern Illinois University

Mary Ellen Nourse  
University of Idaho

Dolores Osborn  
Central Washington University

Arnola Ownby  
Southwest Missouri State University

Larry G. Pagel  
Emporia State University

Donna H. Redmann  
Louisiana State University

Betty Rogers  
University of Central Arkansas

B. June Schmidt  
Virginia Polytechnic Institute &  
State University

Allen D. Truell  
California State University, S.B.

Randall Wells  
University of Louisville

Dan Wunsch  
Northern Illinois University

Nancy Zeliff  
Northwest Missouri State University





**PART I**  
**REFEREED RESEARCH PAPERS**

# The Analysis of Current and Future Computer Technology Usage by Financial Services' Employees in The Kent State University Trumbull Campus Market Area for the Purpose of Integration of Technology into the Banking and Finance Curriculum

William C. Ward III  
Kent State University Trumbull Campus

## Abstract

Computer and communications technologies are rapidly changing the manner in which the financial services industry is conducting business. Employees are being required to use technology more and more in their work situations; in some cases their jobs are being eliminated by technology. The purpose of this research project was to survey employees of financial institutions located in Trumbull, Columbiana and Mahoning Counties (Ohio) to determine their current and projected future use of computer technology within their profession. The goals of this research were to develop a demographic profile of the respondents, assess their current hardware and software needs, their future hardware and software needs, their usage of computers while not on the job, their need for computer technology training and support. The results of this study will be used to design and enhance computer applications in the Banking and Finance Technology (BFRT) curriculum offered at Kent State University Trumbull Campus.

## Executive Summary

The purpose of this study was to assess the current and future needs for training in technology by employees of the financial services industry. Ultimately the results of this study will be used to enhance the Banking and Finance Technology Curriculum offered at Kent State University Trumbull Campus. In order to make this research applicable to the campus market area, only those employed within the Tri County area (Trumbull, Mahoning and Columbiana Counties of Ohio) were asked to participate in this project. Respondents were also queried as to their perceptions of technology and its impacts on their organization and their own personal career. The survey was part of a packet that included a cover letter from Mr. William C Ward III, Assistant Professor of Banking and Finance Technology, a brief glossary of appropriate computer terms and a computer score sheet. One hundred surveys were distributed to employees from the specified organizations. One month after the initial mailing, follow-up phone calls were made to all network contacts. Employees were selected by referrals and through personal contacts of the faculty member. The survey response rate was 50 out of 100 (50%).

The typical respondent was female, employed by a bank or savings and loan, was in management or supervision, dealt with customers, had worked in financial services at least 5 years and had at least some college education.

A vast majority of the respondents (84%) were using microcomputers that were attached to a network server. A small portion (9%) had a stand alone PC, while even fewer were using laptop or notebook computers. The majority of the respondents (70%)

were utilizing a 486 or higher microprocessor. The category with the highest frequency was the Pentium, the latest most powerful processor on the market at the time. 286 and 386 processors were still being used by a small minority (11%) of the respondents. It is safe to assume that some of the respondents who did not know what type of computers they were using were using Pentium or 486 processors.

Overall, all of the hardware components in the survey were rated as average or above in order of importance. A 486 or larger processor, 8 megabytes of RAM and a Laser Printer were identified as the most important items. Multi-Media and Ink Jet Printers were deemed to be the least important. All of the software programs in the survey, with the exception of the Internet, were rated average or above by the respondents. Significant majorities were reported for Word Processing, Spreadsheet and Data Base Programs. E-mail and the Internet were rated the lowest for job performance by the respondents.

The survey indicates that two thirds of the respondents have their own computer at home. Eleven of the 17 respondents (65%) who do not own a computer are planning to buy a computer. Two of those will buy within the next 6 months, eight will buy within the next year, one will wait more than a year. When evaluating home computer ownership by gender, proportionately more males (76%) than females (57%) owned their own computer. Computer ownership by type of institution showed that half (50%) of the commercial bankers owned their own computer while 73% of those employed by savings and loans had their own computers. The responses in the credit union and other categories were not evaluated due to the small number of responses in each category, deeming them insignificant. The

analysis of home computer ownership showed that a majority of middle management (65%), upper management (92%) and staff (63%) respondents possessed their own computer. None of the first line supervisors and only 40% of the hourly workers had their own computer. The analysis of home computer ownership by years employed in the financial services industry showed that a majority in each category owned their own computer. Those with 20 years or more experience had the highest level of computer ownership at 72% followed by 5-10 years of experience with 69% computer ownership. The analysis of home computer ownership by level of education shows that for all levels of education there were a majority of positive responses. The highest response rate was from those respondents with a bachelor's degree (81%). The analysis of those who use a microcomputer at work and of those who own their own computers shows that 71% use a computer at work and own their own computer. The results also show that 71 % of those who do not use a computer at work do not own their own computer either. Those who are buying a computer will more than likely buy the following hardware and software.

#### **Hardware:**

IBM Compatible, preferably a Pentium Processor with 16 megabytes of RAM. Accessories should include a fax-modem, CD ROM drive and a laser printer.

#### **Software:**

Windows 95, WordPerfect for Windows, Lotus Smart Suite, learning software.

A significant majority of the respondents (77%) feel that they need additional computer training in order to improve their productivity at work. The analysis by gender was almost identical as 79% of the females and 76% of the male respondents felt that they needed additional training with computers. The areas identified by female respondents as needing the most training were spreadsheets, data bases, multi-media and the Internet. They felt they needed the least amount of training in hardware, Windows 95 and presentations software. The male respondents felt that they needed the most training in spreadsheets and databases. They needed the least training in DOS, Windows 3.1, hardware and multimedia. Both genders seemed to be split on whether or not they needed training with Windows 95 and presentations software.

#### **History of The Banking and Finance Technology Program**

The Banking and Finance Technology Program is an associate degree program offered through the Kent State University Regional Campuses' System. The program was originated in the mid 1980's on a part-time basis and in 1989 the program was converted to a full-time basis and a full-time faculty member was hired to develop and maintain the program.

The program of study focuses on developing students for employment within various financial institutions, including but not limited to, commercial banks. Students take technical courses

related directly to financial services, related business courses and liberal education requirements. The program integrates both academic theory with practical application. The curriculum is reviewed by the Business Technologies Curriculum Committee. An active community advisory board assists in maintaining curriculum timeliness. Computer applications and Writing Across the Curriculum are core components of each course. The Banking and Finance Technology Curriculum currently has gone through a major revision. Beginning in the Fall 1996 Semester students will have the choice of three options to complete their degree. Those options are *Bank Operations*, *Personal Financial Management* and *Real Estate Sales*. Certificate programs corresponding to the options will also be available. Special Topics and capstone courses have also been added to strengthen and provide flexibility to the curriculum. A majority of the graduates of the program have either improved their position within the financial services industry or those who were not employed gained employment within the industry. They hold a variety of positions within the financial services field. Many of the graduates have continued their education and several have even gone on to graduate school.

#### **Purpose**

As we move toward the year 2000, the needs of employers for a highly trained workforce are dramatically increasing. The worker of the future must possess a technical skill level much higher than that of yesterday's worker. It is the conclusion of many experts such as "Workforce 2000" that a vast majority of jobs will require training well beyond that of the traditional high school education. In addition, older workers must be committed to the process of lifelong learning and must strive to upgrade their own job skills continuously to avoid becoming obsolete. Programs such as Tech Prep and employee training programs attempt to address the need for better prepared employees. The world is getting smaller, moving much faster, becoming more diverse and being more influenced by technology, particularly those of computers, communications and information.

The purpose of this study is to assess the current and future needs for training in technology by employees of the financial services industry. Ultimately the results of this study will be used to enhance the Banking and Finance Technology Curriculum offered at Kent State University Trumbull Campus. In order to make this research applicable to the campus market area, only those employed within the Tri-County area (Trumbull, Mahoning and Columbiana Counties of Ohio) will be asked to participate in this project. Respondents will also be queried as to their perceptions of technology and its impacts on their organization and their own personal career.

#### **Literature Review**

The initial review of the literature was limited to Graduate Follow-Up Studies in Accounting, Business Management, Computer and Office Technologies conducted by the faculty and administration of the Kent State University Regional Campuses.

The purpose for reviewing these studies was to evaluate their design and to also review the sections on computer usage by graduates of the various programs. In addition these studies also included a review of the respondents' employers as to their perceptions of the necessary skills and competencies needed by graduates in the various programs. Across the board both respondents and their employers identified computer literacy, training, and support as crucial to enhancing job performance. These results were the basis for designing this project in order to apply this concept to the Banking and Finance Technology program. In order to assist with the design of this study, a thesis titled "A Network Information Guide Model for the Development of a Network User Guide" by David S. Futey was consulted. This thesis was very similar to this undertaking in how to assess computer hardware, software and training needs of users. It also addressed models to employ in the instruction of adult students.

#### Limits of this Research Project

The process utilized to gain respondents was to network with contacts throughout the financial services industry who were asked to participate and to refer others. A sampling of various levels and institutions were gathered. This was by design so cross-variable analysis could be performed.

#### Delimits of this Research Project

The results were limited to the geographical area noted earlier. No conclusions were drawn for other market areas.

#### Assumptions of this Research Project

The design of the survey document assumed that the respondents have a basic understanding of technology primarily computer hardware and software. It is assumed some of the questions were not understood by all participants or that participants did guess at the answer to the question.

#### Research Objectives

There were six primary objectives addressed in the survey distributed to the respondents. They were as follows:

1. Develop an overall demographic profile of employees in the financial services industry.
2. Evaluate the current and projected future hardware utilized by the respondents.
3. Evaluate the current and projected future software utilized by the respondents.
4. Evaluate the usage of computers by respondents while not in the workplace.
5. Assess the respondents' perceptions of their need for computer and technology training.

6. Gather respondents' comments.

#### Data Collection

This study was based upon results from a research questionnaire developed for employees of various financial services' providers in the Tri-County (Trumbull Mahoning and Columbiana Counties of Ohio) area. This document was prepared by the faculty member associated with the Banking and Finance Technology Program. This document has met the approval of the Kent State University Human Subjects Review Board. The reliability of the questionnaire was established from a pilot study administered to the Banking and Finance Technology Advisory Board members.

The survey was part of a packet that included a cover letter from Mr. William C Ward III, Assistant Professor of Banking and Finance Technology, a brief glossary of appropriate computer terms and a computer score sheet. One hundred surveys were distributed to employees from the specified organizations. One month after the initial mailing, follow-up phone calls were made to all network contacts. Employees were selected by referrals and through personal contacts of the faculty member. The survey response rate was 50 out of 100 (50%).

#### Data Analysis

The data gathered from the survey was summarized and analyzed by a computerized statistical program. The Director of Computer Services of Kent State University assisted with the data analysis. Questions on the survey that were structured in an open-end format were analyzed by the faculty member on a survey-by-survey basis. Responses were written down, categorized, and evaluated based upon number of responses and percent of total responses. This information was then converted to tabular form and analyzed question by question. Overall various statistical and cross-variable analyses were performed on the data.

#### Demographic Profile of the Respondents

Gender-Twenty-eight (56%) of the respondents were female. Twenty-two (44%) were male.

**Table 1**  
*Responses by Type of Financial Institution*  
n=49

Type of Financial Institution	Number	Percent
Commercial Bank	19	38.80%
Savings and Loan	19	38.80%
Credit Union	2	4.00%
Real Estate/Insurance	0	0.00%
Other	9	18.40%
Total	49	100.00%

Note: Other included responses from: Credit Bureau (3), Mortgage Banker, Savings Bank, Title Company

Table 1 is a breakdown by the type of financial institution of the respondents. A majority (77.6%) of the responses came from commercial banks and savings and loan institutions. This was due to the fact that a majority of the network contacts were employed within these institutions. These two types of institutions also are the largest in size and in number of institutions within the population market area. There were no responses from real estate or insurance firms due to the fact that no solicitations were made in that area. The other category includes individuals in positions related to financial services not categorized above.

Table 2 outlines the types of positions held by the respondents. A majority of the respondents (41%) were in the middle management category. Overall 36 of the 49 (73%) respondents were in a supervisory or management position.

**Table 2**  
*Type of Position Held By the Respondents*  
n=49

Type of Position	Number	Percent
Hourly	5	10.20%
First Line Supervisor	4	8.20%
Middle Management	20	40.80%
Upper Management	12	24.50%
Staff (Salary not Management)	8	16.30%
Total	49	100.00%

Customer Contact Position- Thirty-seven out of forty-nine (75.5%) respondents reported that they were in a customer contact position. Twelve (23.5%) were not involved with customer contact .

**Table 3**  
*Years Employed in the Financial Services' Industry*  
n=50

Years Employed in Finance	Number	Percent
Less than 5 years	8	16.00%
5-10 years	16	32.00%
10-20 years	14	28.00%
More than 20 years	12	24.00%
Total	50	100.00%

Table 3 identifies the respondents' responses for years of service in the financial services field. The majority of the respondents (42 out of 50, 84%) had a minimum of 5 years of work experience in the financial services field. The weighted average of the respondents' time on the job was 11.8 years. Overall this was a seasoned group of respondents.

**Table 4**  
*Highest Level of Education Obtained by the Respondents*  
n=49

Level of Education	Number	Percent
High School Graduate	7	14.30%
Some College	16	32.70%
Bachelor's Degree	22	44.90%
Graduate Degree	2	4.10%
Other	2	4.10%
Total	49	100.00%

Note: Other Included Associate Degree (2)

Table 4 lists the educational level obtained by the respondents. A vast majority, 40 out of 49 respondents (82%) had completed some college or had obtained a college degree. The category of Bachelor's degree was the highest occurring frequency, accounting for almost one half of the total.

The typical respondent was female, employed by a bank or savings and loan, was in management or supervision, dealt with customers, had worked in financial services at least 5 years and had at least some college education.

**Figure 1**  
*Computer Usage by Respondents on the Job*  
n=50

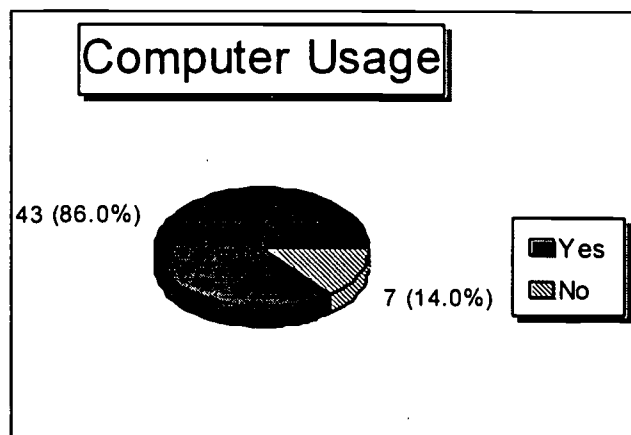


Figure 1 represents the number and percentage of the respondents who use a microcomputer on the job

**Table 5**  
**Ratings of Hardware Importance to Respondents' Job Performance**

Hardware	Very Important	Important	Average	Little Importance	Not Important	Total
486 or up	22 (52.4%)	9 (21.4%)	8 (19%)	0	3 (7.1%)	42 (100%)
500 mg hard drive	12 (31.6%)	9 (23.7%)	11 (28.9%)	1 (2.6%)	5 (13.2%)	38 (100%)
CD ROM	9 (21.4%)	7 (16.7%)	12 (28.6%)	4 (9.5%)	10 (23.8%)	42 (100%)
Fax Modem	15 (35.7%)	3 (7.1%)	7 (16.7%)	7 (16.7%)	10 (23.8%)	42 (100%)
8 MB of RAM	20 (51.3%)	8 (20.5%)	6 (15.4%)	2 (5.1%)	3 (7.7%)	39 (100%)
Laser Printer	34 (79.1%)	7 (16.6%)	2 (4.7%)	0	0	43 (100%)
Ink-Jet Printer	3 (7.3%)	2 (4.9%)	16 (39%)	11 (26.8%)	9 (22%)	41 (100%)
Multi-Media	5 (12.2%)	6 (14.6%)	10 (24.4%)	10 (24.4%)	10 (24.4%)	41 (100%)
Tape Back-up	16 (39%)	6 (14.6%)	9 (22%)	4 (9.8%)	6 (14.6%)	41 (100%)

#### Hardware Analysis

Table 5 summarizes the importance of various hardware components to the respondents' job performance. The summary of the responses to the importance of hardware components related to job performance are as follows:

- 486 processor-** 93 % of the responses rated this as average or above in importance
- 500 mg hard drive-** 84% of the responses rated this as average or above in importance
- CD ROM Drive-** 67% of the responses rated this as average or above in importance
- Fax Modem-** 60% of the responses rated this as average or above in importance
- 8 MB of RAM-** 87% of the responses rated this as average or above in importance
- Laser Printer-** 100% of the responses rated this as average or above in importance
- Ink Jet Printer-** 51% of the responses rated this as average or above in importance
- Multi-Media-** 51% of the responses rated this as average or above in importance
- Tape Back-Up-**76% of the responses rated this as average or above in importance

Overall all of the hardware components were rated as average or above in order of importance. A 486 or larger processor, 8 megabytes of RAM and a Laser Printer were identified as the most important items. Multi-Media and Ink Jet Printers were deemed to be the least important overall.

## Software Analysis

**Table 6**  
*Ratings of Software Importance to Respondents' Job Performance*

Software	Very Important	Important	Average	Little Importance	Not Important	Total
Word Processor	35 (83.3%)	4 (9.5%)	2 (4.8%)	1 (2.4%)	0	42 (100%)
Spreadsheet	24 (57.1%)	9 (21.4%)	7 (16.7%)	0	2 (4.8%)	42 (100%)
Data Base	24 (60%)	10 (25%)	3 (7.5%)	1 (2.5%)	2 (5%)	40 (100%)
Graphics	10 (24.4%)	8 (19.5%)	15 (36.6%)	4 (8%)	4 (9.8%)	41 (100%)
Presentation	12 (28.6%)	9 (21.4%)	13 (31%)	4 (9.5%)	4 (9.5%)	42 (100%)
Internet	2 (4.9%)	9 (22%)	9 (22%)	11 (26.8%)	10 (24.4%)	41 (100%)
E-mail	10 (23.8%)	10 (23.8%)	4 (9.5%)	10 (23.8%)	8 (19%)	42 (100%)

Table 6 summarizes the respondents' feeling of the importance of various software applications to their job performance. The summary of the responses to the importance of software programs related to job performance are as follows:

**Word Processing-** 98% of the responses rated this as average or above in importance

**Spreadsheet-** 95% of the responses rated this as average or above in importance

**Data Base-** 93% of the responses rated this as average or above in importance

**Graphics-** 80% of the responses rated this as average or above in importance

**Presentation-** 81% of the responses rated this as average or above in importance

**Internet-** 49% of the responses rated this as average or above in importance

**E-mail-** 57% of the responses rated this as average or above in importance

Overall all of the software programs, with the exception of the Internet, were rated average or above by the respondents. Significant majorities were reported for Word Processing, Spreadsheet and Data Base Programs. E-mail and the Internet were rated the lowest for job performance by the respondents.

The analysis of the computer operating systems utilized by the respondents indicated that a majority of the respondents (86%) were using either DOS or Windows 3.1. Windows 3.1 had the highest frequency with 25 responses (58%.) The other systems (Windows 95, OS2, Windows NT received a small minority of responses.

**Table 7**  
*Type of Word Processing Software Utilized by the Respondents at Work*  
n=39

Word Processor	Number	Percent
WordPerfect for DOS	6	15.40%
WordPerfect for Windows	20	51.30%
Lotus Ami-Pro	12	30.80%
Microsoft Word	0	
*Other	1	2.60%
Total	39	100.00%

NOTE: Professional Write

Table 7 represents the responses to the type of word processing application utilized by the respondents. Over two thirds of the respondents were utilizing WordPerfect software. WordPerfect for Windows had the highest frequency with 51% of the responses. Microsoft Word received no responses.

**Table 8**  
*Type of Spreadsheet Software Utilized by the Respondents at Work*  
n=37

Spreadsheet	Number	Percent
Quattro Pro for Windows	11	29.70%
Lotus 123 for DOS	22	59.50%
Lotus 123 for Windows	3	8.10%
Microsoft Excel	0	
*Other	1	2.70%
Total	37	100.00%

\*NOTE: Do not use a spreadsheet

Table 8 outlines the responses pertaining to the type of spreadsheet program being utilized by the respondents. Lotus 123 for DOS was the option that received the most responses. It accounted for 60% of the total. The only other significant spreadsheet mentioned was Borland's Quattro Pro (28%).

**Table 9**  
*Type of Data Base Software Utilized by the Respondents at Work*  
n=24

Data Base	Number	Percent
DBASE IV for DOS	5	20.80%
dBASE 5.0 for Windows	4	16.70%
Microsoft Access	2	8.30%
Lotus Approach	8	33.30%
*Other	5	20.80%
Total	26	100.00%

\*NOTE: 3 Party Server, Don't know, File Maker Pro, First Choice, None, Paradox(4)

Table 9 is a summary of the responses as to the type of data base applications that are being utilized by the respondents. Lotus Approach was the data base program with the highest frequency in this survey. It accounted for about one third of the responses. Versions of DBASE were the only other program to receive significant response (38%).

**Table 10**  
*Type of Software Package/Suite Utilized by the Respondents at Work*  
n=38

Software Package/Suite	Number	Percent
WordPerfect Office	1	2.60%
Microsoft Office	4	10.50%
Lotus Smart Suite	14	36.80%
Don't Know	19	50.00%
Total	38	100.00%

NOTE: Other

Table 10 is a summary of the software packages utilized by the respondents. Lotus Smart Suite received the most responses for a package (14, 37%). A majority (50%) of the respondents did not know what software package/suite they were utilizing.

**Figure 2**  
*Number of Respondents Who Own Their Own Computer*  
n=49

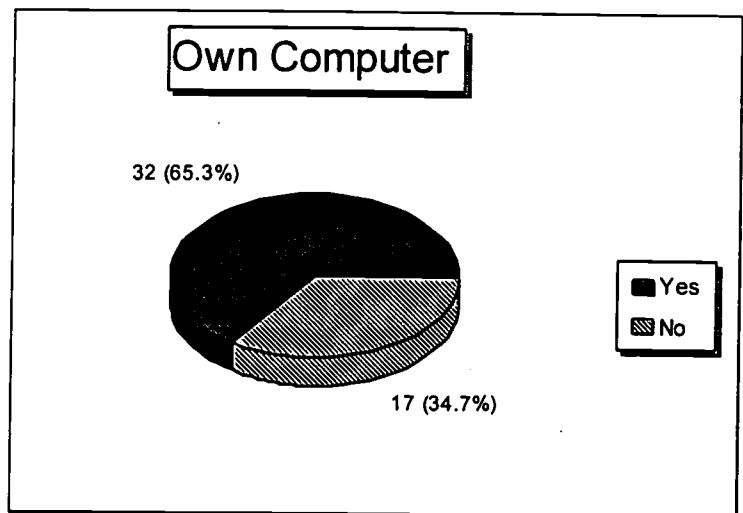


Figure 2 is a representation in number and percentage of responses to home computer ownership.

It indicates that two thirds of the respondents have their own computer at home. Eleven of the 17 respondents (65%) who do not own a computer are planning to buy a computer. Two of those will buy within the next 6 months, eight will buy within the next year, one will wait more than a year. When evaluating home computer ownership by gender, proportionately more males



(76%) than females (57%) owned their own computer. Computer ownership by type of institution showed that half (50%) of the commercial bankers owned their own computer while 73% of those employed by savings and loans had their own computers. The responses in the credit union and other categories were not evaluated due to the small number of responses in each category, deeming them insignificant. The analysis of home computer ownership showed that a majority of middle management (65%), upper management (92%) and staff (63%) respondents possessed their own computer. None of the first line supervisors and only 40% of the hourly workers had their own computer. The analysis of home computer ownership by years employed in the financial services industry showed that a majority in each category owned their own computer. Those with 20 years or more experience had the highest level of computer ownership at 72% followed by 5-10 years of experience with 69% computer ownership. The analysis of home computer ownership by level of education shows that for all levels of education there were a majority of positive responses. The highest response rate was from those respondents with a bachelor's degree (81%). The analysis of those who use a microcomputer at work and of those who own their own computers shows that 71% both use a computer at work and own their own computer. The results also show that 71 % of those who do not use a computer at work do not own their own computer either.

Those who are buying a computer will more than likely buy the following hardware and software.

**Hardware:** IBM Compatible, preferably a Pentium Processor with 16 megabytes of RAM. Accessories should include a fax-modem, CD ROM drive and a laser printer.

**Software:** Windows 95, WordPerfect for Windows, Lotus Smart Suite, learning software. One person wanted PageMaker and Printshop. Two people were unsure of what software they wanted.

**Figure 3**  
*Respondents' Perceptions of Their Need For Computer Training*  
n=49

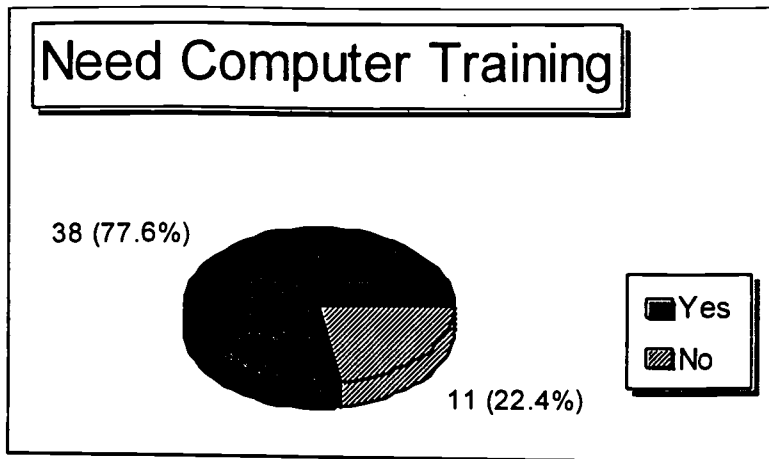


Figure 3 displays the responses related to the need for additional computer training. A significant majority of the respondents (77%) feel that they need additional computer training in order to improve their productivity at work. The analysis by gender was almost identical as 79% of the females and 76% of the male respondents felt that they needed additional training with computers. The areas identified by female respondents as needing the most training were spreadsheets, data bases, multi-media and the Internet. They felt they needed the least amount of training in hardware, Windows 95 and presentations software. The male respondents felt that they needed the most training in spreadsheets and databases. They needed the least training in DOS, Windows 3.1, hardware and multimedia. Both genders seemed to be split on whether or not they needed training with Windows 95 and presentations software.

**Table 11**  
*Ratings of Respondents' Perceptions of the Importance of Additional Computer Training to Enhance Job Performance*

Training	A lot	Some	Don't Know	A little	None	Total
DOS	5 (12.2%)	15 (36.6%)	2 (4.9%)	11 (26.8%)	8 (19.5%)	41 (100%)
Windows 3.1	5 (12.2%)	15 (36.6%)	2 (4.9%)	10 (24.4%)	9 (22%)	41 (100%)
Windows 95	13 (31%)	10 (23.8%)	6 (14.3%)	4 (9.5%)	9 (21.4%)	42 (100%)
Word Processing	4 (9.8%)	18 (43.9%)	3 (7.3%)	10 (24.4%)	6 (14.6%)	41 (100%)
Spreadsheets	6 (14%)	25 (58.1%)	0	6 (14%)	6 (14%)	43 (100%)

table continued

Table 11, continued

Training	A lot	Some	Don't Know	A little	None	Total
Data Bases	11 (26.2%)	21 (50%)	2 (4.8%)	6 (14.3%)	2 (4.8%)	42 (100%)
Graphics	10 (23.8%)	15 (35.7%)	5 (11.9%)	5 (11.9%)	7 (16.7%)	42 (100%)
Presentations	9 (21.4%)	12 (28.6%)	6 (14.3%)	10 (23.8%)	5 (11.9%)	42 (100%)
Multi-Media	9 (21.4%)	13 (31%)	7 (16.7%)	7 (16.7%)	6 (14.3%)	42 (100%)
Hardware	6 (14.3%)	15 (35.7%)	7 (16.7%)	9 (21.4%)	5 (11.9%)	42 (100%)
Internet	16 (37.2%)	13 (30.2%)	3 (7%)	5 (11.6%)	6 (14%)	43 (100%)
Networks	8 (18.6%)	21 (48.8%)	5 (11.6%)	7 (16.3%)	2 (4.7%)	43 (100%)

Table 11 is the representation of the respondents' perceptions of the need for more training by type of application.

The summary of the responses to the importance of training needs related to job performance are as follows:

**DOS-** 49% of the respondents needed some level of training in this area.

**Windows 3.1-** 49% of the respondents needed some level of training in this area.

**Windows 95-** 55% of the respondents needed some level of training in this area.

**Word Processing-** 54% of the respondents needed some level of training in this area.

**Spreadsheets-** 72% of the respondents needed some level of training in this area.

**Data Bases-** 79% of the respondents needed some level of training in this area.

**Graphics-** 60% of the respondents needed some level of training in this area.

**Presentations-** 50% of the respondents needed some level of training in this area.

**Multi-Media-** 52% of the respondents needed some level of training in this area.

**Hardware-** 50% of the respondents needed some level of training in this area.

**Internet-** 67% of the respondents needed some level of training in this area.

**Networks-** 67% of the responses needed some level of training in this area.

The areas where the respondents felt that they needed the most training were with data bases, spreadsheets, the Internet and networks. DOS and Windows 3.1 were the areas that the least amount of training was needed.

The analysis by type of financial institution showed that 79% of the commercial bankers and 72% of those employed within the savings and loan industry needed additional training. The bankers needed the most training in data bases (87%), spreadsheets (71%) and graphics (69%). The only two areas that a majority of savings and loan employees needed additional training were spreadsheets (81%) and the Internet (63%). Both groups rated DOS, Windows 3.1, Windows 95 and hardware as the areas needing the least amount or no training. In general the bank-

ing respondents needed more training in more areas than the savings and loan employees.

The evaluation of training needs by type of position showed that a majority of the respondents in all groups needed some type of computer training. The hourly employees and the first line supervisors had the highest response rate of 100%. The other groups were as follows: middle management (68%), upper management (75%), and staff (88%). Additional computer training is necessary for all levels within the financial services industry.

The training needs in each application by type of position held are as follows:

**DOS-** About half of all the respondents needed some training in DOS. The hourly employees (60%) felt that they needed more DOS training while upper management at 33% needed the least training.

**Windows 3.1-** The hourly employees (80%) need the most training in Windows 3.1 followed by first line supervisors and staff (50% each.) Middle managers (34%) needed the least training in this area.

**Windows 95-** The first line supervisors (100%) followed by the hourly workers and upper management (60% each) felt they needed the most training with Windows 95. Middle management (43%) and staff (37%) needed the least training.

**Word Processing-** Hourly employees (100%) and supervisors (75%) needed additional training in this area. The management and staff responses were mixed with about half in each area requiring training and half not.

**Spreadsheets-** Supervisors (100%), hourly employees and upper management (80% each), middle management (73%) all indicated they needed more training in this area. The only group not receiving a positive majority response was staff at 50%.

**Data Bases-** All groups here indicated that they needed more training in this area. The breakdown was as follows: hourly employees (80%), supervisors (75%), middle management (73%), upper management (88%) and staff (75%).

**Graphics-** A majority in every group except staff needed training in this area. Upper management at 77% was the highest percentage followed by supervisors at 75%.

**Presentations-** Supervisors (60%), upper management (66%) and middle management (53%) were the only groups to receive a majority of positive responses in this area. Staff positive responses were the lowest at 27%.

**Multi Media-** The two groups in this category with a significant majority of positive responses were hourly workers (60%) and supervisors (75%). Staff positive responses were only 37%.

**Hardware-** The only groups in this category that had a majority of positive responses were hourly employees and supervisors. Middle managers at 33% had the fewest training needs for hardware.

**Internet-** All groups with the exception of staff had a majority response in this area. Hourly employees and supervisors had a 100% positive response rate to this question.

**Networks-** A majority in all groups felt that training was needed in this area. Hourly employees (80%) and supervisors (75%) needed the most training.

The analysis of computer training needs by years of service indicate that a majority of all employees in each service category felt that computer training was needed. The responses from groups ranging from 0-20 years of experience had a positive response rate of 80%. Only 58% of the employees with more than 20 years experience felt that they needed more computer training.

The training needs in each application by years of service are as follows:

**DOS-** The two groups with a majority of positive responses were 0-5 years experience (71%) and 10-20 years (58%). The other two groups had a minority of positive responses to this question.

**Windows 3.1-** The two groups with a majority of positive responses were the same as DOS, 0-5 years (71%) and 10-20 years (59%). The other groups had a minority of positive responses to this question.

**Windows 95-** All the groups in this area had a majority of responses that were positive with the exception of those who had more than 20 years of service (33%).

**Word Processing-** The only group to receive a majority of positive responses was those employed for less than five years (72%). The remaining groups were split 50/50 as to the need for additional training.

**Spreadsheets-** All groups in this category had a majority of positive responses. The trend indicates that the more years of service the higher the positive response rate with the exception of those with 20 years or more of experience.

**Data Bases-** All groups had significant positive responses to this question. All groups with the exception of those with more than 20 years experience had a positive response rate in excess of 75%.

**Graphics-** The only service bracket with a significant majority of positive responses in the category were those employed from 10-20 years. The trend in this category was that as the number of years of service increased the number of persons needing training increased. The exception to this trend was for those with more than 20 years experience.

**Presentations-** The only service bracket to receive a majority of positive responses in this category was from those employed from 10-20 years (83%).

**Multi Media-** The only service bracket to receive a majority of positive responses in this category was from those employed from 10-20 years (61%).

**Hardware-** The two service brackets in this category to receive a majority of positive responses were 0-5 years (57%) and 10-20 years (58%).

**Internet-** All the service brackets in this category with the exception of the over 20 years category received a majority of positive responses. The brackets of 5-10 years (80%) and 10-20 years (75%) were deemed to be significant.

**Networks-** All the service brackets with the exception of the over 20 years service category had a majority of positive responses to this question.

The analysis of needs for computer training by level of education show that there were a majority of positive responses for high school graduates (71%), those with some college (81%) and those with bachelors degrees (81%). Due to the low response rate from employees with graduate degrees and other education they were deemed insignificant.

The training needs in each application by level of education are as follows:

**DOS-** The respondents with a bachelors degree were the only group with a majority of positive responses (53%).

**Windows 3.1-** The respondents with a bachelors degree were the only group with a majority of positive responses (59%).

**Windows 95-** The two educational levels to have a majority of positive responses were those with some college (69%) and those with a bachelors degree (56%).

**Word Processing-** The respondents with a bachelors degree were the only group with a majority of positive responses (72%).

**Spreadsheets-** The two educational levels to have a majority of positive responses were those with some college (75%) and with a bachelors degree (72%).

**Data Bases-** All levels of education had a majority of positive responses. The highest percentage of positive responses came from the respondents with a bachelor's degree (88%).

**Graphics-** The two educational levels to have majority positive responses were those with some college (63%) and with a bachelors degree (64%).

**Presentations-** The respondents with a bachelors degree were the only group with a majority of positive responses (58%).

**Multi Media-** The two educational levels to have a majority of positive responses were those with some college (63%) and with a bachelors degree (53%).

**Hardware-** The respondents with a bachelors degree were the only group with a majority of positive responses (56%).

**Internet-** The two educational levels to have a majority of positive responses were those with some college (74%) and with a bachelors degree (67%).

**Networks** - All levels of education had a majority of positive responses.

The analysis of the need for more computer training by computer usage on the job shows that 79% of those who use a computer on the job and 71% of those who do not use a computer on the job feel that they need more training.

The training needs in each application by usage of a microcomputer on the job are as follows:

**DOS-** Forty-eight percent of the work users and 50% of the non-work users needed this type of training.

**Windows 3.1-** Forty-five percent of the work- users and 67% of the non-work users needed this type of training.

**Windows 95-** Fifty-six percent of the work-users and 50% of the non-work users needed this type of training.

**Word Processing-** Fifty-two percent of the work-users and 50% of the non-work users needed this type of training.

**Spreadsheets-** Seventy-six percent of the work- users and 50% of the non-work users needed this type of training.

**Data Bases-** Sixty-five percent of the work-users and 88% of the non-work users needed this type of training.

**Graphics-** Sixty-one percent of the work-users and 50% of the non-work users needed this type of training.

**Presentations-** Fifty percent of the work-users and 50% of the non-work users needed this type of training.

**Multi Media-** Fifty-three percent of the work-users and 50% of the non-work users needed this type of training.

**Hardware-** Forty-seven percent of the work-users and 50% of the non-work users needed this type of training.

**Internet-** Sixty-seven percent of the work-users and 67% of the non-work users needed this type of training.

**Networks** Sixty-five percent of the work-users and 83% of the non-work users needed this type of training.

A majority of all respondents reported that they needed additional computer training. An equal percentage of males and females needed training. Spreadsheet applications, data bases and the Internet were the areas identified as needing the most training. DOS, Windows 3.1 and hardware needed the least training. Commercial bankers needed more training than those in the savings and loans. The hourly employees and the first line supervisors needed more training in beginning applications such as operating systems and word processing. Management employees needed more training in spreadsheets and databases.

The respondents with 10-20 years of service seemed to need the most training while those with more than twenty years of experience felt that they needed the least amount of training. The respondents with a bachelors degree needed the most additional computer training. A majority of those who owned their own computer and used a computer at work needed more training. A majority of those who did not own their own computer but used one at work needed additional training.

### Conclusions

The focus of this research project was qualitative research rather than quantitative research.

The primary goals were to discover what computer technology is currently being utilized and what were the respondents' overall feelings about technological events affecting their industry.

The majority of the responses to this survey came from employees of commercial banks and savings & loans. The sampling technique utilized by the surveyor was of networking through contacts within the industry. It gave a decent representation of the commercial banks in the area. The savings and loan responses though were from one institution. This technique omitted financial services' providers in areas other than commercial banking and savings & loans, i.e. credit unions, (two people from one local credit union participated) insurance agencies, real estate companies and finance companies. A second survey may be conducted focused on these groups.

The sampling technique utilized generated responses from individuals primarily in middle or upper management positions with at least five years of experience in the financial services arena. This population may not be representative of the financial institutions in general. These are the individuals that make the decisions about technology and its implementation into the workplace. They are not necessarily a target market group for associate degree students. A possibility of modifying this survey and focusing on the populations of newer employees and those in lower level positions will give a better overall understanding of computer usage and the impacts of technology within the targeted population for Banking and Finance Associate Degree candidates.

A vast majority (86%) of the respondents were computer users on the job. It is a feeling that the other 14% will soon be computer users. The computer users by a vast majority (84%) were utilizing networked computers with 486 or Pentium processors (70%.) The primary operating system was Windows 3.1 including DOS. These results parallel the types of hardware and operating systems utilized by the campus for instruction. The Windows 95 operating system did not seem to be a major factor for the respondents.

The ratings of hardware components as to job performance indicated that a 486 or larger processor (93%), 500 MB or larger hard drive (84%), 8 MB of RAM (87%) and laser printers (100%)

were the most important. Ink jet printers and multi-media (51% each) were lesser factors of job performance. These components make sense as all are used to facilitate successful performance of the operating system and software utilized by the respondents.

The ratings of software components as to job performance indicated that word processing (98%), spreadsheets (95%) and data bases (93%) were necessary for successful job performance. E-mail (57%) and the Internet (49%) were not as important factors.

The word processing program preferred by the respondents was WordPerfect 6.1 for Windows. Lotus Ami-Pro was the second most popular choice. No respondents were using Microsoft Word (the supposed up and coming word processor.) This study seems to indicate that the campus should continue to teach WordPerfect as part of their word processing courses.

The most popular spreadsheet utilized by the respondents was Lotus 123 for DOS followed by Borland Quattro Pro for Windows. This makes sense as Quattro Pro is sometimes packaged with WordPerfect 6.1 and Lotus 123 has been the market leader in spreadsheet software. It appears many of the users have not upgraded to the Windows version of Lotus 123. This may be due to the fact that the respondents are comfortable with their current program and it is meeting their needs. My feeling is eventually these users will convert to Lotus for Windows because of ease of use and ability to build more complex spreadsheets. Students in the BFRT program will continue to build applications with Windows based spreadsheets, primarily Lotus 123.

The most popular data base programs were versions of Borland's dBASE followed by Lotus Approach. dBASE has been the computer industry standard data base program for years. Approach is popular due to its inclusion in the Lotus Smart Suite Package.

Overall the respondents appear to be using the computer industry tried and true software applications; WordPerfect for word processing, Lotus 123 for spreadsheets and DBASE for a data base. The only problem with this is these all are from different vendors and do not come as a package deal. In addition most new hardware comes with some version of Microsoft's software, Works or Office (none of which was ranked high by the respondents.)

A majority (65%) of the respondents own their own computer. A majority of those who do not own their own computer are contemplating buying one within the next few months. Computer buyers are looking for IBM compatible computers with a Pentium processor, 16 MB of RAM, modem, CD ROM and a laser printer. No one mentioned a notebook computer. Software included Windows 95, productivity and learning software. The respondents appear to be utilizing their own computers for both personal and work activities.

The areas where the respondents needed the most training were in spreadsheets (72%), data bases (79%), the Internet (67%) and networks (67%). Spreadsheet and data base programs were identified as top priorities in job performance. A majority of the respondents need training in this area. Students entering this field would also need training in these areas, therefore spreadsheet and data base applications will continue to be integrated into all courses within the BFRT program. DOS, Windows and hardware needed the least attention. These applications will be covered in an introductory computer course required for BFRT students.

The respondents' perceptions of how technology and other events will affect their organization showed that all (100%) indicated that computers would have an impact upon their organization. Debit cards (84%), ATMs (82%) and Home Banking (86%) all should have an impact according to the respondents. All of these trends seem to be important to the financial services' industry. The BFRT curriculum should be evaluated as to the impacts these events will have upon the financial services industry.

The respondents' perceptions of how technology and other events affected their careers indicated that most of the respondents felt that technology will affect their career. A significant majority (98%) felt computers will impact their career. The rest of the areas seemed to receive mixed or ambivalent responses. It appeared that overall the respondents felt that these events would impact their organization much more than they would their own career.

Cross-variable analysis was done looking at the impacts of gender, type of organization, years of service, educational level and usage of a microcomputer at work. The analysis of these are contained within the body of the report. Overall there was no major difference by gender in need for training. The bankers indicated more of a need for training than those in the savings and loan industry. The hourly employees all needed more training followed by the staff members (88%). Educational level did not seem to make a difference in the need for training. PC users and non-users both felt that they needed more computer training.

## Recommendations

The BFRT curriculum should be reviewed on an annual basis to evaluate the impacts of technology upon the curriculum.

The curriculum will continue to utilize spreadsheet and data base applications where applicable within existing BFRT courses.

Special topics courses and workshops should be developed for all employees in financial institutions not just those seeking associate degrees.

Articulation with the New School of Technology (at Kent State University) should be developed. Upper division course work at the Trumbull Campus should lead to a 2+2 program (BFRT Associate + 2 years in technology = Bachelor's of Science) in Technology. This degree appears to be very marketable in the financial services industry affected by technological change.

Lotus Smart Suite and WordPerfect Office Suite Programs should continue to be taught.

Microsoft Office should not be ruled out as a majority of home computer users will have this software.

Internet Training for financial services' employees should be developed.

The BFRT Advisory Board should meet at least once a year to discuss computer/technology issues.

Courses should be designed focusing on technology and computers for employees to update their skills. Individuals with many years of service and college degrees are potential new target markets for courses, not necessarily degrees.

Further follow-up studies need to be done. Different sampling techniques should be employed and new populations (lower level employees and different types of financial institutions) should be surveyed.

A Delphi study exploring the impacts of technology, especially computers, is being considered.

# An Assessment of Support Staff Training in Public Two-Year Colleges

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## Abstract

The purposes of this study were to describe office support staff training programs and activities in Ohio's public two-year colleges and to determine the variables that may be pertinent to the differences and/or similarities among the colleges. Four research questions were developed that addressed training programs offered to office support staff, who determines what training programs are offered, what assessment methods match training programs with office support staff needs, and if formal staff development programs were available. Telephone interviews and surveys were designed, implemented, and analyzed for the colleges' staff developers and office support staff.

The resulting data indicated that technical skills (offered by 34% of the colleges) and communication skills (offered by 33% of the colleges) were the most frequently offered training content areas, while office skills (4%) were the least offered. The most commonly stated reason by staff developers (100%) and office support staff (86.5%) for providing training programs was "to improve performance on the present job."

## Introduction

Effective staff development programs for employees in the two-year college are critical to meet the challenges of the 1990s and beyond. Unfortunately, most two-year staff development programs have focused on administrative and faculty development. Office support staff are found in nearly every office on every campus in America. Yet their importance to an institution like a two-year college has been of remarkably little importance to researchers or college administrators (Vrooman, 1992). Since office support staff are also contributing members in the learning environment, their needs for staff development are also great, and a study of those needs is important.

Office support staff have experienced increasing demand on their skills—both technical and interpersonal. In the not-so-distant past, their jobs on campus were far less complex. But with technology's ever increasing demands and shrinking budgets, their role has emerged into a multi-faceted position requiring different types of skills and aptitudes (Vrooman, 1992).

Clearly, technology continues to change the office environment, and today's secretaries must keep pace to retain their professional edge (The Secretary, 1993). Abbott and Hagler (1990) stated: "While it appears that we have looked at the needs of the office workers in the business world, we seem to have neglected the needs of the administrative office personnel in schools, colleges, and universities" (p. 103).

In two-year colleges, office support staff often serve as the main point of contact for students, faculty, and the public. Studies show that office support staff are underprepared in communication skills and handling stress. The position of academic depart-

ment secretary can be especially stressful. Occupational stressors can often lead to low productivity and eventual resignation. Forty percent of clerical workers surveyed at an eastern university reported feeling stressful "often" or "always" (Vrooman, 1992). In addition, this group of employees often feels underappreciated and undervalued. It is important that two-year colleges develop training programs to help address these concerns.

## Problem

The lack of training for two-year college support staff in general has been well documented by numerous authors (Andreson & Durant, 1991; Davis, 1991; Freeman & Roney, 1978; Hageseth & Atkins, 1989; Heitzmann, 1979; LoPresti, 1989). As a result of changing jobs and job requirements due to advancements in technology, office support staff, especially at the post-secondary level, need many specialized skills. Therefore, when training is not provided, the necessary skill level and motivation are lacking; the effects are worker dissatisfaction and alienation, poor performance, absenteeism, and turnover. With human resources comprising 70 percent of the costs associated with production, the human capital component must be emphasized in order to maximize the profitability and stability of the organization (Don and Kleiner, 1991, p. 35). The purposes of this study are to describe office support staff training programs and activities in Ohio's public two-year colleges, to determine the variables that may be pertinent to the differences and/or similarities among the colleges, and to add to the literature on this topic.

Answers to the following questions were sought:

1. What training programs are offered to office support staff in Ohio's public two-year colleges?

2. Who determines what training programs are offered for the office support staff?
3. What assessment methods match training programs with office support staff needs?
4. Do formal staff development programs for office support staff exist in Ohio's public two-year colleges?

### Review of Literature

The majority of literature on staff development in the two-year college focuses primarily on faculty and administrators. In most cases, the term "staff development" refers to a formal plan of training activities offered to all employees in the college that meets the professional and personal needs of the staff but differs dramatically from one college to another (O'Banion, 1982). Limited research findings are available which relate specifically to the training of office support staff members.

Marciano and Kello (1990) found that out of 38 two-year public colleges surveyed, only 5 provided staff training, while 33 provided no training. Popular topics of training modules offered for non-supervisors were communication, time management, stress management, and correcting performance problems. The results of this study discovered that staff training is generally not conducted in a structured, systematic format in colleges and universities as it is in other types of organizations.

Two-year colleges throughout the United States have implemented staff development activities. These activities range from offering a series of workshops on topics such as stress management and software applications to more comprehensive programs.

McMaster's (1987) research at Sumter Area Technical College in South Carolina identified and provided staff development for all full-time employees since 1985-86. A Support Staff Committee, chaired by a member of the support staff, makes recommendations for development activities. Specifically, the clerical staff have grown personally and professionally because group members organize and deliver formal computer/word processing training to their colleagues.

Kennedy's (1989) study found that Virginia's community colleges rallied together to offer an innovative training program. The Noel/Levitz "Connections" program, a customer service training program, was designed specifically for college support personnel. Many office support staff often serve in front-line positions contributing to student retention. An important emphasis in this training program is that support staff must first learn to work with each other in order to work with students to their fullest capacity (Kennedy, 1989).

The importance of upgrading individual technical and personal skills is apparent in Labette Community College's (Parsons, KS) individual professional development plans (IPDPs). This plan is a short range or a long range comprehensive partnership be-

tween the individual staff members and the college for self-improvement. The plan's goal is to identify mutual benefits of the partnership, establish a higher level of expertise or personal growth, and encourage efficient and quality productivity (Usera, 1989).

In 1993, Hudson County Community College (HCCC) in Jersey City, New Jersey, addressed the issue of staff development by creating a separate office to establish an ongoing staff development program for all employees which included a 16-member staff development committee. During the first year, several activities were conducted which included the following: (a) staff recognition activities consisting of the first Staff Recognition Day, (b) seminars and conferences for faculty and staff, (c) site visits to peer institutions, (d) publication of the "Staff Development Newslines," and (e) tuition reimbursement (Oromaner, 1994).

Lansing Community College in Michigan implemented the Strategic Staff Development Plan, a document that describes goals, activities, and components of staff development at the college. The plan's goal is to assist employees to work collaboratively. As a result, the plan included five programs as a core curriculum for all college employees: (a) team development, (b) orientation to teams, (c) team problem solving techniques, (d) team work and self-directed work team, and (e) interpersonal communication, including listening skills and giving and receiving feedback. One facet of the plan includes the completion of a professional development plan by all employees selecting workshops and indicating other training needs (Lansing Community College, 1994).

Walke (1993) reported on the activities of the Houston Community College System (HCCS), comprised of six colleges and a system office. The Department of Staff and Instructional Services (SIS) in this system takes a leadership role in promoting and providing quality programs to all personnel categories in the campus community. SIS serves as a staff training source and a resource for providing assistance in designing or facilitating identified training needs. The majority of training within HCCS is a cooperative effort between two or more departments, using the resources and expertise from within or using outside facilitators. A traditional staff development event within the institution is the System Wide Conference. This annual conference, first established in 1981, focuses on a specific topic of interest to all employees. Conference themes have included change, technology in education, and total quality service in education.

Staff development activities became increasingly important in California with the passage of Assembly Bill (AB) 1725 in 1988. AB 1725, the community college reform bill, included funding for locally developed and implemented staff development programs. The purpose of these funds was to maximize student learning through faculty and staff development. Each participating college is required to have an advisory committee to assist in the assessment of needs and design of a Human Resources Development Plan for the college.



Walters and Howard (1990) conducted a study to evaluate the effect of AB 1725 on faculty and staff development activities during 1988/89. All of California's 107 community colleges were surveyed to identify the four most useful activities funded by AB 1725. Seventy-five respondents indicated the top three activities were retreats for staff (16%), cultural diversity training (11%), and flex calendar training (9%). A similar study was conducted by Alfano (1990) for 1989/90 evaluating the effect of AB 1725. This study found AB 1725 especially impacted classified staff by providing increased training funds. Prior to AB 1725, minimal money was available for classified staff.

Also supported by AB 1725 is Glendale Community College's (GCC) staff development plan. Scull (1989) reported that the college used AB 1725 funding to supplement ongoing efforts in response to the changing professional needs of instructional, administrative, and classified employees. Training for classified employees included public relations, cultural diversity awareness, computer literacy, updating advanced technological training, upward mobility programs, and wellness training.

Thomas (1990) described Cypress College's use of AB 1725 funds. Staff development activities from 1988 to 1990 were based on a comprehensive needs assessment survey. Areas of interest for programs and workshops included the following topics: computer technology, emergency preparedness, cultural diversity, positive service attitude development, and safety programs.

Overall, the research on staff development addressed cases from various two-year colleges. These cases illustrated that colleges are addressing the issues pertinent to staff development. These issues are addressed through human resource departments, support staff committees, or staff development offices. Their focus is on the personal and professional development of the employees by providing a variety of staff development activities. Individual professional development plans, support staff recognition, career planning, technical skills training, and customer service training are a few of the available activities. All of these activities are based on the assumption that office support staff are valuable human resources whose personal and professional development will contribute to the effectiveness and success of the two-year college.

### Methodology

The population for this study consisted of staff developers responsible for college-wide office support staff development at Ohio's 46 public two-year colleges. The names and addresses of these colleges were acquired from *Peterson's Guide to Two-Year Colleges* (1995), the *Directory of Two-Year Colleges*, and the

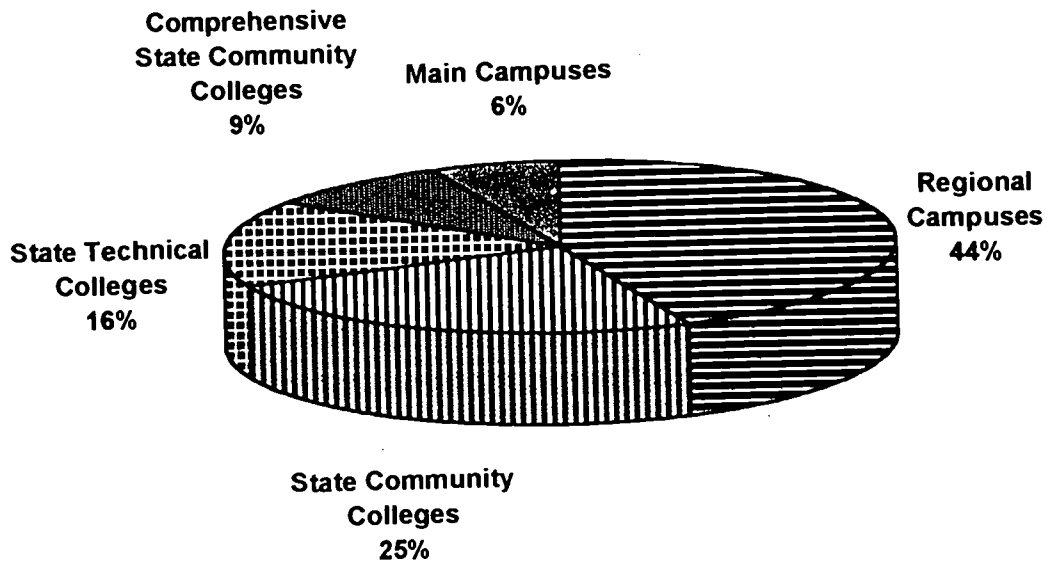
### 1994 Higher Education Directory.

Three instruments were developed. The first instrument, the staff developer telephone interview form, provided basic information about the human resource department's function at the two-year college. The second and third instruments consisted of surveys for the office support staff member and the staff developer responsible for office support staff training. The first two parts of the instruments were identical for both the office support staff and the staff developer: Part 1 addressed formal staff development at the college, and Part 2 addressed training programs. The reasons for asking both populations about their college's office support training programs were to determine if office support staff were fully aware of opportunities within the college and to compare perceptions of the staff developers and office support staff regarding office support staff training. Part 3, Survey of Training Programs, was included only in the staff developer's survey since they were the only individuals who should be completely aware of the training programs offered during the 1994 calendar year (January 1-December 31).

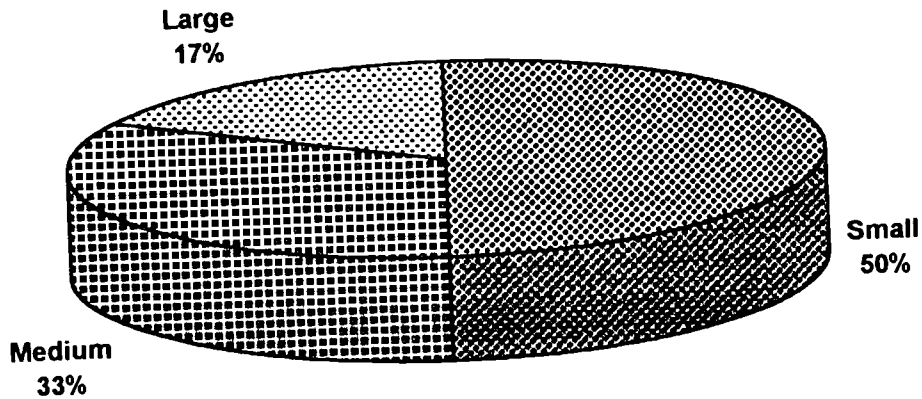
Forty-one telephone interviews were conducted with the staff developer or an individual knowledgeable about office support staff training. During the telephone interview, the respondents were asked to do the following: (a) complete a three-page mail survey, (b) select five office support staff members who have been employed in a full-time office support position for the entire 1994 calendar year (January 1-December 31) to complete the survey, and (c) distribute the cover letter and survey to the office support staff members. As a result, 36 individuals agreed to participate. From a total of 36 surveys that were mailed, 32 (88%) surveys were returned. From a total of 170 office support staff surveys that were mailed, 128 (75%) surveys were returned; however, 126 (74%) were usable surveys for the analysis. The two nonusable surveys were completed by individuals in positions other than office support.

Figure 1 shows a breakdown by category (regional campuses, main campuses with regional branches, state community colleges, comprehensive state community college, and state technical colleges) of those colleges participating. Regional campuses (44%) comprised the largest group of respondents. For the purposes of analysis, size of the college was grouped by student enrollment as follows: (a) small = up to 2,000, (b) medium = 2001-6000, and (c) large = 6001 and above. Figure 2 shows a breakdown by size of those colleges participating. Clearly, small colleges (50%) comprised the largest group of respondents. It is important to note that in most cases regional campuses were small in size comparison.

**Figure 1**  
*Percentage of Colleges Responding by Category.*



**Figure 2**  
*Percentage of Colleges Responding by Size.*



Of the colleges responding, 18 (58%) reported having a Human Resource Department with a mean of 4.0 as the approximate staff size. The approximate size of the office support staff for the two-year colleges responding reported a mean of 38.9. The colleges reported that 10 (31%) provided money for training through the human resource department, 21 (66%) provided money within the department offices, and 1 (3%) provided no money. Additional responses for money provided were special professional and staff development allocations, separate budget for staff development, and budget allocations from main campus of the regional branches.

**Findings Associated with Research Question 1: What Training Programs Are Offered To Office Support Staff in Ohio's Public Two-year Colleges?**

Table 1 shows the highest content areas where training is offered are technical skills (34%) and communication skills (33%). These findings are consistent with Marciano and Kello's 1990 study in regards to popular topics of training, which they reported were communication and stress management. In addition, these results are consistent with Training's 1994 *Industry Report*, where 80% of the provided training consisted of basic computer skills, communication skills, and technical skills. Casady and Wayne (1993) found that in major United States newspapers the job category with the highest number of ads requiring communication skills was administrative assistants/secretarial services. The results of this study indicate that Ohio's public two-year colleges are addressing the concerns that Vrooman's 1992 study identified. She reported that office support staff are underprepared in communication skills and in handling stress. At least half of the colleges in four categories offered stress management, but only 20% of the state technical colleges offered stress management. At least half of Ohio's medium colleges (50%) and large colleges (80%) offered stress management, but less than half of small colleges (40%) offered this program.

**Table 1**  
*Training Programs Content Areas for All Colleges: Percentage*

Content Areas	Percentage
Technical Skills	34%
Communication Skills	33%
Supervisory Skills	16%
Personal Development Skills	13%
Office Skills	4%

The results of this study also support Abbot and Hagler's 1990 assessment of office personnel. They concluded that the major-

ity of office training needs were technology-oriented and not in the traditional office procedures areas. Likewise, as Table 1 reports, the results of this study discovered only 4% of the respondents offered training programs in the traditional office procedures area, while technical skills (34%) was the highest content area offered. Specifically, the technical skill offered by all colleges regardless of category or size is word processing, which is not surprising with the widespread use of information technology affecting the office support staff's function in today's workplace.

The literature suggests that customer service training is a prevalent training topic for college staff. Office support staff in front line positions can deal more effectively with customers if they are skillful and confident.

Likewise, it appears that Ohio's two-year colleges are recognizing the benefits of customer service training. At least half of Ohio's small colleges (53.3%), medium colleges (60%), and large colleges (100%) offered customer service training. At least half of the colleges in four categories offered customer service training, but only 35.7% of the regional branches offered this program.

The literature suggests that wellness training programs have become increasingly important. Barker and Glass (1990) stated that wellness programs help contain health care costs, result in fewer absenteeisms, and result in fewer severe illnesses and accidents. At least half of all colleges by category offered wellness, but state technical colleges did not offer this program.

In order to further describe office support staff training programs and activities, respondents were asked to circle all the training activities offered for office support staff at their college. Office support staff awareness of programs available varied depending on the type of activity. For example, Table 2 shows the top activity reported by both staff developers (93.8%) and office support staff (97.6%) is tuition waiver. This is not surprising in the collegiate environment, as it is a common activity available for all employees. In addition, when compared by percentages the top three activities—tuition waiver, travel to professional meetings/workshops, and on-campus training—reported the highest percentages for both staff developers and office support staff. Table 2 shows the Chi-square test using an alpha level of .05 indicating statistically significant differences between staff developers and office support staff regarding their responses on three of the training activities provided by their colleges: on-campus training, off-campus training, and travel to professional meetings/workshops. In each instance, staff developers responded a higher percentage for these three activities.

**Table 2**

*Available Training Activities as Cited by Staff Developers and Office Support Staff Members: Number, Percentage, and Chi-square*

Activity	Staff Developer n=32		Office Support Staff Member n = 126		$\chi^2$	p
	n	%	n	%		
Tuition waiver	30	93.8	123	97.6	1.247	.264
Travel to professional meetings/workshops	28	87.5	84	66.7	5.367	.021*
On-campus training	26	81.3	76	60.3	4.887	.027*
Off-campus training	20	62.5	49	38.9	5.783	.016*
Tuition reimbursement at other colleges	17	53.1	50	39.7	1.889	.169
Career planning seminars	6	18.8	21	16.7	.078	.779
Support staff appreciation week	5	15.6	10	7.9	1.757	.185

*Note.* Numbers do not sum to 32 or 126 nor percent to 100 because respondents were asked to check all that apply.

\*p < .05

Apparently, office support staff do not perceive that these activities are available to them for several reasons. First, office support staff may not take the initiative for their own training needs and therefore never request any of these activities. Second, office support staff may feel that they cannot afford the time out of the office to attend these activities. Oftentimes, the workload is immense when returning to the office, especially if no one filled in for them. Finally, an office support staff member may have requested an activity once that was not approved. All of these reasons could contribute to the perception that these activities are not available.

The literature suggests that support staff recognition and appreciation is a common activity. For example, Magnesen and Parker (1988) cited a study that found one of the top three desires of employees is full appreciation of work done. They cited another study that found recognition the second highest satisfaction factor below achievement. However, the results of this study indicate that Ohio's colleges are not recognizing their office support staff in this way. For example, support staff appreciation received the lowest percentage for both staff developers (15.6%) and office support staff (7.9%). Although the logistics of a staff appreciation or recognition activity may be time consuming to develop, this activity could improve office support staff morale and productivity.

In order to determine the purpose of office support training in Ohio's two-year colleges, respondents were asked to indicate

why they believe their college might provide training programs for office support staff. The reason cited most frequently was "to improve performance on the present job," which is Nadler's (1990) definition of training. Table 3 shows that both staff developers (100%) and office support staff (86.5%) reported the highest percentage for this reason. On the other hand, both staff developers (41.9%) and office support staff (21.4%) reported the least cited reason for providing training was "to prepare for a different but identified job," matching Nadler's (1990) definition of education. A low response for this reason may result in staff developers believing that it is difficult enough to provide training to meet the current institutional needs. In addition, they may not have the money, time, or personnel to provide training to prepare their employees "for a different, but identified job." A low response for this reason by office support staff members may be the result of the college not having in place career planning and advancement opportunities. The literature suggested that secretaries have been called "the invisible workforce" because businesses saw little reason to develop employees in what they saw as a dead-end career track (Hennebach, 1989). Likewise, office support staff may perceive their current office positions as dead-end jobs. On the other hand, they may be satisfied with their current position and therefore not interested in employment "for a different, but identified job." Table 3 shows the Chi-square test using an alpha level of .05 indicating statistically significant differences between staff developers and office support staff for all the reasons.

**Table 3**

**Reasons Your College Might Provide Training Programs as Cited by Staff Developers and Office Support Staff Members: Number, Percentage, Chi-square**

Reasons	Staff Developer n=32		Office Support Staff Member n = 126		$\chi^2$	p
	n	%	n	%		
Improve performance on present job	31	100.0	109	86.5	4.690	.030*
Promote personal development	23	74.2	61	48.4	6.647	.010*
Promote professional career goals	21	67.7	45	36.0	10.253	.001*
Prepare for a different, but identified job	13	41.9	27	21.4	5.510	.019*

Note. Numbers do not sum to 32 nor percent to 100 because respondents were asked to check all that apply.

\*p < .05

Findings Associated with Research Question 2: Who Determines What Training Programs Are Offered for the Office Support Staff?

Table 4 shows that both staff developers (78.1%) and office support staff (46.8%) reported their highest percentages for “within the department for whom the training is provided.” One would assume that the department for whom the training is provided would be most knowledgeable about what training to offer their support staff.

Table 4 indicates training programs are least likely to be determined by the human resource department. The human resource department initiates minimal training programs for their colleges, according to staff developers (43.8%) and office support staff (20.6%). This low percentage may be attributed to the fact that 42% of the colleges do not even have human resource departments. Furthermore, these results may be based on whether or not the college provides a formal staff development program.

As a result, if a formal staff development program exists, the individual formal staff development program would dictate the training focus for the office support staff member. Most likely, the training would be initiated within the department. In addition, 66% of the colleges provided money for office support staff training within the department, whereas only 31% provided money through the human resource department. Only 3% of the colleges reported providing no money.

It appears that Ohio’s two-year colleges are not using staff development committees widely, since “other committee on campus” received a low percentage by both staff developers (40.6%) and office support staff (25.4%). The literature review discussed many colleges (especially those receiving AB 1725 funding) that use staff development committees to determine what training programs are offered. These staff development committees are instrumental in determining and facilitating the training activities. These committees could be especially valuable to 42% of the colleges that do not have human resource departments.

**Table 4**

**Who Determines What Training Programs Are Offered as Cited by Staff Developers and Office Support Staff Members: Number, Percentage, Chi-square**

Who Determines Training	Staff Developer n=32		Office Support Staff Member n = 126		$\chi^2$	p
	n	%	n	%		
Within the department for whom the training is provided	25	78.1	59	46.8	10.040	.002*
Human Resource Department	14	43.8	26	20.6	7.212	.007*
Cooperative effort between administration and human resource department	14	43.8	32	25.4	4.165	.041*
Other committee on campus	13	40.6	32	25.4	2.905	.088

Note. Numbers do not sum to 32 or 126 nor percent to 100 because respondents were asked to check all that apply.

\*p < .05

**Findings Associated with Research Question 3: What Assessment Methods Match Training Programs with Office Support Staff Needs?**

According to staff developers, a variety of assessment methods are used to match training programs with office support staff needs. Table 5 indicates the top three assessment methods, according to staff developers, are employee's request (96.9%), supervisor's request (93.8%), and individual as-needed basis (59.4%). Likewise, the top three assessment methods for office support staff are employee request (68.3%), individual as-needed basis (39.7%), and supervisor's request (34.9%). These three assessment methods are relatively easy to conduct on an informal basis. Since 58% of the colleges reported a human resource department with a staff size of approximately 4, it seems that formal needs assessment methods could be employed. Yet, formal needs assessment received one of the lower percentages by staff developers (21.9%) and office support staff (5.6%). Performance evaluation is used infrequently as Table 5 indicates—staff developers (37.5%) and office support staff members (5.6%). These results are consistent with Herbert and Doverspike's (1990)

literature review where they concluded that most organizations fail to use the appraisal in this way. Yet, if an accurate appraisal has been conducted, it can identify training and development needs for the employee.

Possibly some colleges surveyed may not have a performance evaluation system in place, which would account for low percentages for this method. Low percentages could be attributed to the perception that the performance evaluation is used only as a positive experience for the employee, thereby only providing positive feedback. As a result, deficiencies may be addressed at a separate time or as an ongoing basis when they occur.

A Chi-square test using a alpha level of .05 indicated statistically significant differences between staff developers and office support staff regarding this question. It may be that the office support staff responding to this survey have not been involved in any of these assessment methods. Possibly these respondents' job performance did not require training. On the other hand, they may have been involved in an informal needs assessment unknowingly.

**Table 5**  
*Assessment Methods Used as Cited by Staff Developers and Office Support Staff Members: Number, Percentage, Chi-square*

Assessment Method	Staff Developer n=32		Office Support Staff Member n = 126		$\chi^2$	p
	n	%	n	%		
Employee request	31	96.9	86	68.3	10.879	.001*
Supervisor's request	30	93.8	44	34.9	35.467	.000*
Individual as-needed basis	19	59.4	50	39.7	4.023	.045*
Informal survey	14	43.8	24	19.0	8.525	.004*
Performance evaluation results	12	37.5	7	5.6	24.615	.000*
Staff development committee	12	37.5	17	13.5	9.815	.002*
Formal needs assessment	7	21.9	7	5.6	8.416	.004*
Formal staff development committee	5	15.6	5	4.0	5.849	.016*

Note. Numbers do not sum to 32 or 126 nor percent to 100 because respondents were asked to check all that apply.  
\*p < .05

**Findings Associated with Research Question 4: Do Formal Staff Development Programs for Office Support Staff Exist in Ohio's Public Two-year Colleges?**

Table 6 shows that of the two-year colleges surveyed, 48.4% of staff developers and 38.1% of office support staff reported having formal staff development programs. Category of college does not seem to affect whether the college has a formal staff development program; however, Table 7 indicates they are most likely

found at the comprehensive community college (81.3%). This category is the only one that receives additional resources from local millage, which may result in more money and staff available to conduct a formal staff development program. A formal staff development program is least likely found at the regional branches. Since the majority of the regional branches are small when compared by size, they may not have the time, money, and personnel to implement and/or administer such a plan.

**Table 6**

*Formal Staff Development Programs as Cited by Staff Developers and Office Support Staff Members: Number, Percentage, Chi-square*

Respondent n = 157	Yes		No		Not Sure		$\chi^2$	p
	n	%	n	%	n	%		
Staff Developers	15	48.4	16	51.6	0	0	2.857	.239
Office Support Staff	48	38.1	71	56.3	7	5.6		

\*p < .05

**Table 7**

*Formal Staff Development Programs by Category of College: Number and Percentage*

Category of College (n=64)	n	%
Main Campus	2	100.0
Comprehensive State Community	13	81.3
State Technical	10	47.6
State Community	19	42.2
Regional Branch	20	27.0

Note: From Question 1 on the survey, "Does your college have a formal staff development program for office support staff?" "n" refers to the number of staff developers and office support staff responding "Yes."

Table 8 shows that a majority of formal staff development programs are found in large colleges (70.4%), less than half are found in medium colleges (46.9%), and one-fourth are found in small colleges (25.3%).

Table 9 shows that those colleges that do not provide formal staff development list the following reasons: not a current administrative priority, lack of available funds, and lack of personnel. These results are consistent with Marciano and Kello's

**Table 9**

*Reasons Why a Formal Staff Development Program Does Not Exist as Cited by Staff Developers and Office Support Staff Members: Number, Percentage, Chi-square*

Reason	Staff Developer n=16		Office Support Staff Member n = 71		$\chi^2$	p
	n	%	n	%		
Not a current administrative priority	6	18.8	33	26.2	.760	.383
Lack of available funds	6	18.8	22	17.5	.029	.865
Lack of personnel	6	18.8	14	11.1	1.347	.246
Lack of time	5	15.6	16	12.7	.190	.663
Not sure	4	12.5	17	13.5	.022	.883
Lack of administrative support	2	6.3	22	17.5	2.490	.115

Note. From Question 1 on the survey, "Does your college have a formal staff development program for office support staff?" "n" refers to the number of staff developers and office support staff responding "Yes." Note. Numbers do not sum to 16 or 71 nor percent to 100 because respondents were asked to check all that apply. \*p < .05

(1990) study in North Carolina where they reported time, money, and lack of personnel as reasons for not offering training. It is

**Table 8**

*Formal Staff Development Programs by Size of College: Number and Percentage*

Size of College (n=62)	n	%
Large	19	70.4
Medium	23	46.9
Small	20	25.3

Note: From Question 1 on the survey, "Does your college have a formal staff development program for office support staff?" "n" refers to the number of staff developers and office support staff responding "Yes."

interesting to note that "lack of administrative support" received low percentages by staff developers (6.3%) and office support staff (17.5%). Obviously, the respondents perceive that their administration supports a formal staff development program, yet it is not a priority to provide this program. Possibly, the respondents are more interested in training being available and view the formal staff development program as unimportant in meeting employees' training needs.

## Conclusions

Based on the findings of this study, the following conclusions are presented about office support staff training in Ohio's public two-year colleges:

1. It appears that Ohio's colleges focus their training towards addressing technical and communication skills of office support staff, which is a trend supported by the literature. Technical skills (34%) and communication skills (33%) are the highest training content areas, while office skills (4%) is the lowest training content area. Lutz's 1987 study, "Characteristics of the Office in the Year 2000," concluded that traditional support functions will be reduced because of changing administrative duties, while information processing and managerial assistance functions will be expanded. In addition, his conclusion that the office will continue to be a people place supports the importance of communication skills. Studies show that office support staff are underprepared in communication skills (Vrooman, 1992). These results support Williams's (1989) notion that "upskilling" is a prominent issue in the 1990s workforce. Upskilling is "the process of acquiring the skills necessary to keep pace with the changing requirements placed upon the job by conditions such as technical innovations, organizational restructuring, or heightened competition" (p. 16).
2. Even though half of all two-year colleges, regardless of category and size, offer word processing, it should continue to receive strong emphasis as a training program. In addition, training is necessary on the integration of word processing with other application programs. This need is supported by Lutz's study where he concluded that secretaries/administrative assistants will have networked workstations combining word processing, data processing, telecommunications, electronic mail, and micrographics. Likewise, a Professional Secretaries International survey in 1992 reported 95% of secretaries used word processing software (Waldrop, 1994).
3. It appears that Ohio's colleges realize the importance of training and its contribution to the college in maximizing human resources. A variety of programs are offered from technical skills to personal development as evidenced by the findings of this research. At least half of the colleges offer stress management, spreadsheet, customer service, and Email training.
4. Traditionally, personnel management has focused on improving worker efficiency. However, the most significant development in the past decades is the rapid advancements in technology that changes jobs and job requirements. As in the past, it is important to continue to provide training to improve job performance thereby enhancing skill level, motivation, and worker satisfaction. The most commonly stated reason by staff developers (100%) and office support staff (86.5%) for providing training programs for office support staff is "to improve performance on the present job." Undoubtedly, the proliferation of information technology is a major reason for providing training. Constant updates in software packages alone require training to improve performance on the present job.
5. The literature suggests that a formal staff development program fosters personal and professional development among all employees (Cristiano, 1990). Most programs include a mission statement and written guidelines that direct the training and development opportunities for each employee. The majority of Ohio's colleges do not provide formal staff development programs, as evidenced by the findings of this study. Only 48.1% of staff developers and 38.1% of office support staff report having formal staff development programs available at their colleges. However, those that do exist are most likely found at Ohio's comprehensive state community colleges (81.3%) and large colleges (70.4%) and least likely found at regional branches (27%) and small colleges (25.3%), as indicated in Table 8. It may be concluded that the large colleges and comprehensive state community colleges have a formal staff development program because they have the funds, resources, and support to provide it.
6. There is insufficient communication between staff developers and office support staff members regarding assessment methods, training activities offered, and who determines what training is offered. Proper communication is important because it enhances productivity and job satisfaction.
7. In addition to other assessment methods, a formal needs assessment should be conducted to determine human resource development interventions that are needed. Formal needs assessment is used infrequently as a tool to match training programs with office support staff needs, as evidenced by the findings of this study. Table 5 indicates only 21.9% of staff developers and 5.6% of office support staff members indicate this assessment method is used at their colleges. Apparently, Ohio's two-year colleges assume that office support staff are willing and able to assume responsibility for their training needs. The response "employee request" was the top assessment method cited by both groups. However, "employee request" is an indication of "wants" not necessarily real "needs."

## Recommendations for Two-Year Colleges

This study has shown that office support staff are a valuable human resource in the two-year college environment. Therefore, the following recommendations are offered to Ohio's public two-year colleges. These recommendations can be useful for those individuals responsible for providing the support, funds, education, and supervision of office support staff, such as staff developers, human resource managers, campus chief executive officers, supervisors, and business educators.



### *Staff Developers*

The following recommendations are offered for staff developers:

1. Offer more training in the communication and technical skills areas to meet the demands of the changing technology and the diverse populations. In addition, it is crucial that customer service training be expanded and offered at all two-year colleges because office support staff often serve as the main point of contact for students, faculty, and the public (Vrooman, 1992).
2. Evaluate the effectiveness of training to determine the impact of training activities and programs. As discussed in Kirkpatrick's (Nadler & Nadler, ed., 1990) Level 4 evaluation, this step helps ensure that the programs contributed to the college's performance goals. As a result, future programs and activities should be based on these evaluation results.
3. Conduct a formal needs assessment and include all office support staff at the college. One useful tool in conducting a needs assessment is the ASTD (American Society for Training and Development) *Trainer's Toolkit: Needs Assessment Instruments*. This toolkit consists of assessment instruments used at various organizations for numerous positions including office support staff. Those involved in the assessment should know the purpose and value of it.
4. Analyze the amount of training, sources of training, and delivery systems used. Each year *Training Magazine* conducts an extensive survey that addresses these topics as they pertain to American companies having 100 or more employees. Perhaps an ongoing analyses in academia is just as important.
5. Develop an annual master calendar with a year-long theme for all training programs and activities. As a result, office support staff can schedule their activities and schedule for replacement staff in advance. Consequently, the master calendar can improve communication between program administrators and office support staff.
6. Identify office support staff's level of participation in training programs and activities and formal staff development programs to determine the degree to which office support staff members take advantage of existing training opportunities.
7. Become involved in the National Council for Staff, Program and Organizational Development. This organization is committed to developing innovative, effective approaches to staff, program and organizational development in two-year colleges.

### *Human Resource Managers*

The following recommendations are offered for human resource managers:

1. Use the performance evaluation process as a needs assessment technique. As a result, during the performance evaluation process, specific training and development needs for the office support staff member can be identified.
2. Broaden the scope of staff development to include a formal staff development program that includes a mission statement and objectives. In addition, an incentive for participation should be provided. For example, participation in the program could be linked to career advancement. The National Council for Staff, Program and Organizational Development is an excellent resource in developing approaches to staff development programs (Magnesen & Parker, 1988).

### *Campus Chief Executive Officers*

The following recommendations are offered for campus chief executive officers:

1. Foster an environment which supports human resource development and a strategy for involving all employees in defining and achieving the college's goals.
2. Support the establishment of support groups or staff development committees, especially for those colleges that do not have a human resource department. Under proper leadership these groups could assist employees to work collaboratively to facilitate training and promote active participation in these committees. Committee involvement can empower office support staff to be contributing members in the two-year college learning environment. In addition, these committees could cross departmental/division lines to foster an atmosphere of teamwork.
3. Support the establishment of staff appreciation activities throughout the year. For example, colleges could recognize office support staff who have achieved Certified Professional Secretary status by holding a reception. In addition, office support staff may be encouraged to become involved in leadership positions in professional organizations. These organizations' activities provide a valuable source of networking. Overall, these activities are an excellent vehicle to boost morale and encourage performance improvement.

### *Supervisors*

The following recommendations are offered for supervisors:

1. Provide an environment where office support staff can participate in training without being penalized by returning to

a desk piled with yesterday's work. Temporary employees could be hired to fill in for office support staff when they attend training programs and activities.

2. Provide opportunities for office support staff to develop supervisory-management skills. One reason for doing so is to prepare office support staff for advancement. Another reason is to provide office support staff with the skills necessary to supervise student workers. These opportunities for advancement may exist because many of Ohio's two-year colleges have recently gone through transitions that will provide many growth opportunities.
3. Provide an environment that advocates the office support staff's role as contributing members to the mission of the two-year college. The literature suggests that they are contributing members (Anderson, Rogers, & Bauer, 1989; Andreson, 1989; Bartalucci, 1983; Hageseth & Atkins, 1989; Vrooman, 1992). One simple way is to actively seek suggestions and ideas by listening to your employees. Little (1982) found that office support staff perceived themselves as underutilized in many areas. Therefore, the office support staff's perception could affect their self-efficacy. An effective supervisor could prevent this perception.

#### **Business Educators**

The following recommendations are offered for business educators:

1. Maintain currency in all competency domains of office support staff.
2. Work cooperatively with trainers in business and industry to prepare office support staff to be effective members of the workforce by offering a state-of-the-art curriculum.

#### **Recommendations for Future Research**

Based on this study, the following recommendations are offered for additional research:

1. This study should be replicated to describe office support staff training at other two-year colleges located in the United States.
2. Future studies should determine the effect of participation in staff development activities on office support staff job satisfaction.
3. Further efforts to describe office support staff training in Ohio should include a study of two-year private and four-year private and public colleges.
4. There should be a study of how two-year colleges evaluate the effectiveness of their office support staff training programs. Lewis stated that "the success of an employee train-

ing program can be measured by the extent that the training is actually used on the job" (1993, p. 23). According to Kirkpatrick's model (Nadler & Nadler, 1990), this situation would entail a "Level 3" evaluation.

5. Further research should describe outstanding formal staff development programs in Ohio. These programs could be identified through a benchmark study. The case study method may be used to identify those colleges having outstanding programs according to the established criteria.
6. Conduct a study to determine how a college's governing style affects office support staff training.

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## Appendix

### Survey of Training Programs

Instructions: Please check the training programs that have been offered to the office support staff during the 1994 calendar year (January 1994 through December 1994). Programs may be offered on- or off-campus.

Training Programs	✓	Training Programs	✓
<b>Section I - Communication Skills</b>		<b>Section III - Supervisory Skills</b>	
1. Acquaint staff with college's goals/objectives		20. Coping with change	
2. Assertiveness		21. Decision-making	
3. Business writing		22. Delegating	
4. Cultural awareness issues		23. Handling complaints/grievances	
5. Customer service		24. Interviewing/selecting employees	
6. Dealing with difficult people		25. Leadership skills	
7. Interpersonal relations		26. Problem solving	
8. Listening skills		27. Teambuilding	
9. Negotiation skills		28. Working with students	
10. Projecting a professional image		<b>Section IV - Personal Development</b>	
11. Proofreading techniques		29. Balancing home and work	
12. Telephone techniques		30. Personal career management	
<b>Section II - Technical Skills</b>		31. Self-defense	
13. Basic computer literacy		32. Single parenting	
14. Software - calendaring		33. Stress management	
15. Software - database		34. Wellness	
16. Software - desktop publishing		<b>Section V - Office Skills</b>	
17. Software - Email		35. Greeting visitors	
18. Software - spreadsheet		36. Making meeting arrangements	
19. Software - word processing		37. Time management	
		<b>Section VI - Additional Topics Offered (Please specify)</b>	
		38.	

Thank you for taking time to complete this questionnaire. Place the completed survey in the addressed stamped envelope and return to Rose Kuceyeski, 1980 Colony Drive, Toledo, OH 43614, (419) 382-5260.

# Attitude and Motivation of Vocational Student Teachers Toward Teaching Commerce and Entrepreneurship

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## Abstract

Apart from having relevant competencies and basic skills to be an entrepreneur, a potential entrepreneurship teacher should have a positive motivation and attitudes towards teaching entrepreneurship. Teacher trainees should be able to differentiate between 'traditional' and 'progressive' training strategies in preparing students to be able to be self employed. The purpose of this study was to determine the level of motivation and attitude of student teachers, and their perception on the most important training techniques to teach entrepreneurship. Data was collected from 97 vocational student teachers and findings indicated that 35% of the students are ex-teachers, have moderately high level of achievement motivation and they showed an internal orientation on locus of control. They have positive attitude towards entrepreneurship and there was a significant and positive correlation between student teachers' motivation and attitude. The 'lecture' method was perceived as one of the most important training techniques while 'on the job training' as one of the least important techniques.

## Introduction

Teachers who are involved in entrepreneurship education most likely need to explore their own motivation level. This is because their attitudes towards life, their sense of optimism and other attitudes are, in large measure, contributing factors to their success. It is questionable the extent to which any short-term education or training program can affect such attitudes.

Education for self-employment and entrepreneurship could be, an important and vital element in career educational programs. Self employment provide a new perspective on the concept of increasing career option in that individuals become the originators of their own work situations.

Attitude in learning and teaching the aspects of entrepreneurship is one area of interest in education. The question of how far the courses really attracted vocational student teachers with strong interest in entrepreneurship need to be explored. How far does entrepreneurship related courses affected student attitudes and behavior especially in venture creation also need to be investigated. As trainer in entrepreneurship education courses, vocational education teachers should realize which aspect of entrepreneurship courses play the greatest role in affecting students attitudes and entrepreneurial behavior. So to understand the situation better we should explore the concept of 'attitude', 'motivation' and 'attitude toward teaching'.

According to Allport (1961) 'attitude' is a mental and neutral state of readiness, organized through experience, exerting a directive or dynamic influence upon the individuals response to all objects and situation with which it is related. The concept of 'motivation' refers to what extent has effort been put in learning

and teaching entrepreneurship that is caused by a desire to do so, and satisfaction experiences from such activities. Furthermore entrepreneurial success is related to achievement motivation (Chan, 1986). Achievement motivation in this context is the need to achieve success in teaching entrepreneurship in competition with a standard of excellence. Vocational education student teachers are expected to have a high motivation level to ensure that they must be able to get involved in entrepreneurial activities. Instead of using traditional teaching strategies in delivering entrepreneurship courses they need to utilize experiential learning strategies. So in order to get better entrepreneurship students, proper selection must be made. Their attitude towards teaching must be positive. In this particular research, the authors agreed with Noran (1991) who suggested that attitude towards teaching is 'the teacher - pupil rapport and attitude towards school work'. Related to that the importance of choosing the right way in training future entrepreneurs should be given emphasis.

## *Entrepreneurship Education in Malaysian Schools*

In 1988 a new subject called Living Skills was introduced in the New Integrated School Curriculum. It seeks to infuse scientific and technological knowledge among lower secondary school students. The main components of the subject are manipulative skills, commerce and entrepreneurship and family. There are 3 electives: Home science, agricultural science and additional manipulative skills. This is a new situation whereby all lower secondary school students are required to learn the entrepreneurship components and may continue learning the component in the commerce elective at the upper secondary level. The question arise in terms of getting qualified teachers. There was no teacher training programme in living skills prior to the in-

roduction of the subject. The teachers were given short courses or in service courses. Most of the teachers who were selected to teach the subject were vocational teachers. They were previously trained either in commerce, home economics, agricultural science or industrial arts (previously these were the four electives at the lower secondary school level). They may be able to teach their own specific area but not for the other areas. The problem of shortage of well prepared and qualified teachers still exist. Local Universities and teacher training colleges attempted to meet the new needs of teachers, and Universiti Pertanian Malaysia has produced its third batch of graduates taking minor in Living Skills. These vocational student teachers with Home Science or Agricultural Science majors were given two courses related to commerce and entrepreneurship in their minor package. Ex teachers were given an exemption from teaching practice even though the subject matter is new to them. These student teachers were asked to be in the Living Skills minor package because of the shortage of Living Skills teachers in the schools. The question of attitude and motivation of these student teachers may be affected because of the variation of the courses in the major and minor package which includes manipulative skills and family. Are these student teachers motivated to teach is a question that needs an answer.

#### ***Attitude and Motivation Toward Entrepreneurship and Importance of Training***

A study to determine the achievement motivation among students is very important because students with low level of motivation is very common even in the university. Habibah (1991) found that achievement motivation training succeeded in increasing the achievement motivation of university students. Furthermore achievement motivation training has been shown to be effective in increasing the achievement of students in certain school subjects. Beside having relevant competencies and basic skills to be an entrepreneur, potential entrepreneurship teachers should have positive attitudes and motivation towards entrepreneurship. Teachers themselves should be able to relate the content knowledge they have gained to the real world of work and at the same time be motivated to use progressive teaching methods. According to Nikandrov (1991) progressive teaching styles, that is active participation by students will result in better learning. So teacher trainees should be able to differentiate between 'traditional' and 'progressive' teaching methods in preparing students to be able to be self employed.

The purpose of this study was to determine the level of attitude and motivation of vocational student teachers towards teaching commerce and entrepreneurship and what was their perception regarding the most important training techniques to train future entrepreneurs.

Answer to these specific research questions were sought:

1. What is the level of achievement motivation of student teachers?

2. What is the status of student teachers' locus of control?
3. What is the attitude of student teachers towards entrepreneurship?
4. Is there a relationship between student teachers' motivation and attitude?
5. What are the most important training techniques used to develop future entrepreneurs as perceived by vocational education student teachers?

### **Methodology**

#### ***Subjects***

Subjects of the study comprised of 97 student teachers from vocational education program of the Faculty of Educational Studies, Universiti Pertanian Malaysia. They were exposed to business and entrepreneurship courses to enable them to teach the commerce and entrepreneurship component in the lower secondary school syllabus in the Living Skills subject.

#### ***Instrument***

The research instrument was developed by the researchers. Part I of the questionnaire comprised of demographic information of student teachers. Part II of the questionnaire consisted of a series of statements designed to assess the perception of student teachers regarding: (a) teaching and training methods (2) Locus of control (3) motivation and (4) attitude towards teaching entrepreneurship. Respondents selected the appropriate response from a scale as follows: 5 = most important, 4 = important, 3 = somewhat important, 2 = less important, 1 = not important for the training methods. The reliability coefficients for each component was determined by using cronbach alpha. The reliability coefficient for the attitude scale was .88, .51 for the motivation scale, and .80 for the training methods.

#### ***Data Analysis***

Data was processed and analysed by using the SPSS package for windows version 6.1. Descriptive statistics were used to analyse the data. Correlation analysis was utilized to determine if there is any relationship between the variables under study.

### **Findings and Discussion**

As illustrated in table 1, majority of the students (66%) were non-teachers, and only 34% were ex-teachers. The teachers' teaching experience was in the area of home economics and agricultural science. Very few have experience in teaching commerce and entrepreneurship. About 51% are certificate holders, this means that beside teachers with teaching certificates there are also Higher School Certificate holders who were selected to be in the programme. The number of student teachers who al-

ready possessed a diploma is 35%. Normally their diploma is in the area of agriculture for the agriculture science students. Most of the respondents are females (54%), age range between 21 and 40 years old, the average is 28 and about 14% are above 35 years old. Most of the respondents were enrolled in the agricultural science programme.

**Table 1**  
*Background Information of Respondents*

	f	%
Teaching experience		
With experience	33	34
Without experience	64	66
Highest education level		
Certificate	51	53
Diploma	35	36
Matriculation	11	11
Gender		
Male	45	46
Female	52	53
Age		
21 - 25 years	53	55
26 - 30 years	9	9
31 - 35 years	21	22
35 and above	14	14
Program		
Guidance and Counseling	12	12
Home Economics	39	40
Agricultural Science	46	47

**Research Question 1: Motivation**

Achievement motivation is the need to achieve success in competition with some standards of excellence. Individuals with high achievement motivation tend to get involved in entrepreneurial activities and are more successful than those with lower achievement motivation (McClelland 1984; Durand, 1983; Yap, 1980)

**Table 2**  
*Achievement Motivation of Student Teachers*

Mean - 3.24
Std.Deviation - .41

In this study, the level of achievement motivation of subjects is moderately high with a mean value of 3.24, the maximum value being 5 and the minimum value is 1. The strength of their

achievement motivation is shown in areas of responsibility, willingness to acquire new skills, competitiveness and future orientation. The majority of subjects (81%) prefer to work in a task where they are responsible for the final product than one in which many people are responsible. Responsibility is one of the qualities necessary for entrepreneurs to be successful (Burch, 1986; McClelland, 1984; Yunekura, 1984). Taking responsibility in one's task is essential in order to achieve success in one's undertaking especially in the case of the entrepreneur. It is important for subjects to acquire this habit as they are going to train future entrepreneurs and become role models for them.

Subjects also showed a high degree of willingness to learn and acquire new skills (84%). The intrinsic motivation is important in their career as trainers of entrepreneurs as they have to be ready to learn new skills and knowledge in the ever changing business world. They have to update their skills in the relevant areas such as information technology, in order to keep pace with the rapid development in business.

Another characteristic of student teachers which contribute to their high motivation is their awareness of the importance of the future as compared to the present or the past. A high percentage of subjects agreed that they are thinking more of the future than the present or the past (87%). Entrepreneurs need to plan for their short term and long term goals. They have to think ahead of time and be ready to take the necessary steps in order to achieve their targets. Goal setting is one of the numerous challenges of the entrepreneur. New goals are challenging to entrepreneurs and will keep them going. Their future orientation of the student teachers is an indication that they are in the right direction, in line with the basic requirements to achieve success.

In addition, student teachers showed preference for competitiveness versus teamwork (89%). To survive in any business the entrepreneur has to face stiff competition and be prepared for any eventualities. To be effective teachers in commerce and entrepreneurship, they have to teach their students new skills and knowledge in order to be able to compete in the business world. To have the spirit of competitiveness is favorable in the development of entrepreneurship. Atkinson (1974) contended that those with high achievement prefer tasks which are related to skills and competition unlike those with low achievement motivation who have preference for chance and cooperation.

However, one essential characteristic for entrepreneurial success which is not strong enough in the student teachers is the element of risk taking. Risk taking is another characteristic of the highly motivated entrepreneurs. Only 34% of the student teachers showed they were willing to take risk in terms of receiving income from commissions while others prefer a stable income. The possibility of getting higher returns to their investment depends on the amount of risk that they are willing to take. As trainers for future entrepreneurs, subjects have to strengthen this characteristic in themselves as well as in their students.

**Research Question 2: Locus of Control**

Locus of control is the belief that one has on his ability to control the outcomes of his behavior. An individual with an internal locus of control believes that his success or failure depends very much on his ability and effort. On the other hand an individual who has an external locus of control believes that his success or failure in any given task depends on the task difficulty and luck.

**Table 3**  
*Locus of Control of Student Teachers*

Mean	-	.20
Standard Deviation	-	.14

Generally subjects in this study showed an internal orientation in their locus of control. Internal locus of control shows that subjects believe that they are responsible for the outcomes of their behavior. This finding is consistent with the earlier findings on motivation level. Highly motivated individuals were found to have internal locus of control (Weiner, 1979). They believe that in order to be successful they have to work hard because the amount of effort put in will determine the level of success that they will achieve. They also believe that their ability and responsibility contribute to their achievement. Their perception of success as the function of effort and ability provide the drive to work hard and be responsible for their achievement. The majority of subjects (82%) do not believe that luck can contribute to success in life. Task difficulty will not be an obstacle in their effort to achieve their goals. Internal locus of control helps the entrepreneur to have the correct orientation towards achievement. The entrepreneur has to work hard in order to achieve his targets in business. He cannot depend on luck or unchallenging tasks.

Almost all subjects (99%) believe that if they plan for something, they are almost certain that the plan will be successful. This indicate that they are confident and responsible for the successful implementation of their plans. With proper planning and organization, they are more in control of what they want to achieve. The majority of subjects (61%) also believe that most unpleasant or unwanted events happened due to the lack of ability and effort. In addition, 79% of the subjects believe that whatever has happened to them in the past is the result of their own actions.

As teachers of commerce and entrepreneurship, subjects seem to have a suitable orientation in their locus of control. This will certainly help the future entrepreneurs under their supervision to have the belief that hard work is essential for success.

**Research Question 3: Attitude of Student Teachers**

In this study 12 statements were used to measure students' attitude towards entrepreneurship. The scale 1 to 5 was used to

determine the level of agreement of the respondents, where 1 indicate low agreement and 5 indicate high agreement. The mean for the overall attitude towards entrepreneurship was 4.03. Based on the scoring procedure the respondents fall into high attitude category, suggesting that they have a positive attitude towards entrepreneurship. They have the high attitude which is very important to facilitate the achievement of success in their career as vocational teachers. According to Casey and Howson (1993) student in teacher preparation programs can shift both attitudes and behavior, and they should be part of this process, not the product to be changed, and in this particular research the process of changing is positive.

**Research Question 4: Relationship between Student Teacher' Motivation and Attitude**

The correlation analysis shows that there is a positive and significant correlation between student teachers' motivation and their attitude ( $r = .33, p < .001$ ). This indicates that student teachers who are highly motivated also have positive attitude towards entrepreneurship. This finding is consistent with past studies (Gardner 1985, Habibah, Noran and Rahil 1993) which established the relationship between the two variables.

**Table 4**  
*Correlation Between Achievement Motivation and Attitude*

	Ach. Motivation
Ach. Motivation	1.000
Attitude	.3292
	N (97)
	Sig .001

The table above shows that subjects who are responsible in carrying out their tasks, willing to compete and have the willingness to learn new skills and knowledge also have positive attitude towards entrepreneurship. The consistency in the findings facilitate efforts in the training of future entrepreneurs. The high motivation and positive attitude among student teachers should be maintained and further enhanced in order for future programmes in the training of entrepreneurs to be successful.

**Research Question 5: Training Strategies**

As indicated in table 4, the most important training strategies as perceived by the vocational student teachers are: discussion (  $X = 4.40$  ), student and teachers consultation (  $X = 4.39$  ), problem solving (  $X = 4.16$  ) and lecture (  $X = 4.13$  ). The least important training strategies as perceived by these student teachers are: using video tapes (  $X = 3.16$  ), inviting guest speakers (  $X = 3.23$  ), using modules and on the job experience (  $X = 3.69$  ).

Without question, the most important aspect of teaching success is subject matter proficiency, where the teacher should have an



indepth preparation in the subject matter. But the other issue that needs to be focused is the instructional process. Specific instructional strategies should be utilized because of its effectiveness in helping students to achieve identified objectives or learning outcomes. It is clear that the infusion of entrepreneurship education in the Malaysian school system is to ensure that students are presented with entrepreneurship option in their career choices. So good teachers not only should know the subject

ules as less important in training entrepreneurs. Student teachers perceived entrepreneurship as one of the academic subjects that need teachers to be the main source of knowledge.

### Conclusions

1. Most of student teachers are fresh students, without teaching experience, having certificates as the highest educational level, female and still young.
2. Their motivation is moderately high and the strength is in the area of responsibility, willingness to acquire new skills, competitiveness and have positive future orientation.
3. The subject in this study showed an internal orientation in their locus of control. They believe that they are responsible for the outcomes of their behavior as a teacher.
4. There is a significant positive correlation between student teachers' motivation and their attitude. This indicates that student teachers who are highly motivated also have positive attitude towards teaching entrepreneurship.
5. The student teachers' overall attitude towards teaching entrepreneurship falls into high category suggesting that they have the right and positive attitude to train their future student in entrepreneurship component.
6. It is quite difficult for the students to give up their traditional teaching roles. Student teachers perceived discussion, student-teacher consultation, problem solving and lecture methods as the most important training strategies. The least important strategies are using video tapes, inviting guest speakers, using modules and on the job - experience. They perceived teachers as the most important source of knowledge.

**Table 5**  
**Training Strategies to Develop Entrepreneurs**

Rank	Strategies	X	Std.Dev
1	Discussion	4.40	.82
2	Student - Teachers consultation	4.39	.75
3	Problem solving	4.16	.72
4	Lecture	4.13	.88
5	Additional reading materials	4.08	.92
6	Trip to commerce exhibition	4.01	.91
7	Simulation	3.97	.79
8	Field trip	3.96	.97
9	Case studies	3.94	.90
10	Role play	3.86	1.09
11	Module	3.69	.87
11	On the job experience	3.69	1.09
12	Guest speaker	3.23	1.06
13	Video tapes	3.16	1.01

matter well but are also knowledgeable of the skills in the choice of strategies in teaching entrepreneurship. According to Calderhead (1995) the competent teachers possess - not only about subject matter, but about children, teaching and the classroom context - that enable teachers to make sense of classrooms and to monitor and shape their classroom routines and behavior. In this study the student teachers perceived that discussion is the best or the most important training strategy, followed by student-teacher consultation, problem solving and lecture. Instead they perceived experiential learning strategies such as on the job experience as less important. Why 'lecture' method is an important strategy become an issue that need further classification. Reasons for this may be due to the nature of schooling in Malaysian school system which gives too much emphasis on academic performance and students were not really exposed to extra curriculum activities such as "on the job experience" especially in business related area. Another reason may be due to the time constraints in dealing with 'action learning activities' and usually the teachers are not in favor because of lack of support. Finally this finding support Habibah (1995) who found that seventy percent of students in the Faculty of Educational Studies UPM, perceived teaching as a 'directed' activity in which teaching was structured and teacher centered. This category of student teachers perceived teachers as the main source of knowledge. The student teachers in the present study also perceived inviting guest speakers, using videotapes and using mod-

### Recommendations

1. Since entrepreneurship can be taught, the right strategies in training future entrepreneurs must be understood. Teaching entrepreneurship must consider the use of 'laboratory' and on the job experience to ensure that these strategies will be an advantage to the trainees.
2. Infusion of entrepreneurship skills and competencies must be accompanied with courage and motivation so that future entrepreneurship teachers will be better prepared, cognitively and affectively.
3. Teachers should be given on the job experience in their training program so that they understand and value teaching strategies that encourage active participation of the learners. They should perceive teaching as an 'open' process so that they would not encourage their students to engage in surface learning.

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# Barriers Adult Office Education Students Encounter in Pursuit of Educational Goals

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## Abstract

This study examined factors that are perceived by adult office education students as barriers to the achievement of their educational goals. A questionnaire was administered to adult office education students to collect data. Personal factors, school-related factors, academic-related factors, and other related factors were examined as potential barriers. Relationships between student age or receipt of public assistance and perceived barriers were also examined.

## Introduction

Because of rapid changes in the workplace, the amount of information to deal with, and aging of Americans, the 1990s is the "decade for adult education" (Arnold, 1990). The growth of adult education is being stimulated by a number of demographic, economic, and societal trends including: (a) increased realization that adults continue to change and grow throughout their lives and seek assistance in dealing with these changes; (b) a greater proportion of adults in the total population due to increased longevity and declining birthrates; (c) the higher demand for occupational and professional training due to the presence of the baby boom generation in the workforce; and (d) the growing need for job retraining caused by economic and technological changes that have eliminated some jobs and revised the nature of others (Imel, 1988).

Student dropout from adult vocational education is a serious problem because it entails costs not only to individual dropouts but to adult education agencies, organizations, and society. For the individual, dropping out means failure to achieve an educational goal, wasted time and energy, and perhaps feelings of anger, frustration, or personal inadequacy (Darkenwald, 1981). Because of differences in learning styles, concerns, motivations, and attitudes, adult students offer challenges that are unique and separate from the traditional post secondary student (Arnold, 1990). The problem lies in keeping students long enough to teach them skills well enough for them to gain employment, keep employment, or advance on the job (Shank & McCracken, 1993).

## Purpose of the Study

Keeping students in school is a major concern of adult vocational educators. The purpose of the study was to provide information to adult vocational educators and administrators detailing barriers faced by office education students while pursuing their educational goals. As a result of obtaining this information, additional support services, changes within the classroom, and changes in school policies might be implemented.

## Statement of the Problem

The problem of this study was: What factors do adult office education students perceive as barriers to achieving their educational goals?

## Research Questions

1. To what extent are the following factors perceived as barriers to adult office education students in meeting their educational goals?
  - a. personal factors
  - b. school-related factors
  - c. academic-related factors
  - d. other related factors
2. Is there a relationship between adult office education student age and perceived barriers in meeting their educational goals?
3. Is there a relationship between adult office education students' receiving public assistance and perceived barriers in meeting their educational goals?

## Review of Literature

"A strong back, the willingness to work, and a high school diploma were once all that was needed to make a start in America" (U.S. Dept. of Labor, 1992, p. 1). That is no longer true. Work is changing, and today's adult workforce may not be able to keep pace in the world of work with its present skills and abilities. The new world of work is problem oriented and flexible and demands a better educated, better skilled worker. With the advent of computers and high technology, workers need more than the ability to read, write, and perform basic math. Workers need a knowledge of computers and the ability to access and understand information (Feldman, 1991).

In 1989 six national educational goals were developed to improve the quality of education in the United States. The goals were based on the premise that every child can learn and that education is a lifelong process (Swanson, 1991). Goal 5: Adult Literacy and Lifelong Learning stated that by the year 2000 every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship (National, 1990). More specifically, Goal 5 stated, "All workers will have the opportunity to acquire the knowledge and skills, from basic to highly technical, needed to adapt to emerging new technologies, work methods, and markets through public and private educational, vocational, technical, workplace, or other programs" (Goal 5, 1991). The Goals 2000: Educate America Act helped dispel the image that vocational students are less competitive than college-bound students by setting high standards for both ("What Does Goals 2000 Mean?", 1994; "Goals 2000 Outlines New Paths," 1994). All indications are that technology will continue to transform the workplace, which will require workers to continue to upgrade their skills. Some experts predict that high-tech workers must be prepared to return to school to learn new skills every 5 to 10 years (Church, 1993).

When a student makes the decision to return to school, the duration of time spent in a training program must be of sufficient length to acquire a skill at the level of proficiency to secure employment or increase competency levels to meet changing job demands. Many of these nontraditional students experience difficulties while attempting to complete a vocational training program. Retaining adult students requires a change in perspective among educators and administrators who are accustomed to dealing with the traditional-age student populations. Adult students have diverse characteristics and life circumstances that affect their participation in education. They handle multiple roles and responsibilities, and the role of student is often secondary. Adult students have more past experiences, are more concerned with practical application, have greater determination, and have greater acceptance of responsibility (Kerka, 1989).

Successful programs follow many of the teaching practices that are commonly recommended for adults. They include: (a) goals and objectives of the program are clearly defined; (b) teaching materials are relevant to student needs; (c) students receive frequent feedback; (d) programs use evaluation methods to improve effectiveness. Adults need to see immediate, practical value in what they are learning. Instructors should make sure that curricula for workplace skills programs include materials and tasks that are relevant to students' potential employment (Dunn-Rankin & Beil, 1990). Relevance of school makes the connection between education and employment. This relevance of school is the most cited reason for concern about school completion rates (Grannis, 1991).

A better understanding of adult office education students will help vocational educators provide the proper environment to meet

nontraditional students' special needs and increase their chances for program completion. Adult vocational education is important to all who seek it, and completion of the program is critical to fulfilling the goal of employability. Academic success is essential to school completion (Shank & McCracken, 1993).

### Research Procedures

Office education students enrolled in the Five-County Regional Adult Education Program in Cairo, Illinois, and Metropolis, Illinois were study subjects. A questionnaire was chosen to be the most appropriate data collection instrument. Section A of the two-page questionnaire addressed demographic information about the student providing a means of identifying respondents according to characteristics such as gender, age, and education level. Section B of the questionnaire was designed to provide a means of identifying factors that office education students perceived to be barriers to meeting their educational objectives. Thirty-two items were divided into the following four categories: Personal Factors, School-Related Factors, Academic-Related Factors, and Other Related Factors. A Likert-type scale was used for the respondent to indicate whether the listed factor created a barrier and to what extent. The responses were weighted as follows: Frequently a Problem, 3; Sometimes a Problem, 2; Rarely a Problem, 1; Never a Problem, 0; and Don't Know, 0. Section C addressed students' educational and career goals.

### Research Question Results

In answering Research Question 1, Tables I, II, III, and IV are used to illustrate the findings.

#### *Personal Factors*

Table 1 reflects that the personal factor of family finances ( $\bar{M}$  = 2.000) was the item most often indicated to be a potential problem in the pursuit of educational goals. Encouragement from your mate ( $\bar{M}$  = 1.800) and availability of child care outside the home ( $\bar{M}$  = 1.706) were also frequently marked items. Personal factors with lowest means were encouragement from your children ( $\bar{M}$  = 1.250) and transportation to and from school ( $\bar{M}$  = 1.318).

#### *School-Related Factors*

Courses offered ( $\bar{M}$  = 1.722) was the school-related factor most frequently indicated to cause potential problems in pursuit of educational goals as illustrated in Table 2. Times classes are offered ( $\bar{M}$  = 1.667), difficulty of classwork ( $\bar{M}$  = 1.529), and class size ( $\bar{M}$  = 1.529) were also frequently marked items. Least frequently identified factors were getting along with other students ( $\bar{M}$  = 1.000) and getting along with teachers ( $\bar{M}$  = 1.143).

**Table 1**  
*Personal Factors Perceived as Potential Barriers in Pursuit of Respondent Educational Goals*

Factor	Mean
Family finances	2.000
Encouragement from your mate	1.800
Availability of child care outside your home	1.706
Encouragement from your parents	1.692
Your child care responsibilities	1.631
Responsibilities for family members other than children	1.609
Health of child/children living with you	1.375
Your personal health	1.375
Transportation to and from school	1.318
Encouragement from your children	1.250
Arithmetic average of the means	1.576

**Table 2**  
*School-Related Factors Perceived as Potential Barriers in Pursuit of Respondent Educational Goals*

Factor	Mean
Courses offered	1.722
Times classes are offered	1.667
Class size	1.529
Difficulty of classwork	1.529
School expenses	1.523
Classroom noise	1.500
Books/materials available	1.467
Quantity of homework	1.444
Getting along with teachers	1.143
Getting along with other students	1.000
Arithmetic average of the means	1.452

**Academic-Related Factors**

Table 3 shows that the academic-related factor most often indicated as a potential problem in meeting educational goals was experience with computers (1.708). The second and third items to cause potential problems were study habits (1.647) and math background (1.545). All academic-related factors were close in frequency.

**Table 3**  
*Academic-Related Factors Perceived as Potential Barriers in Pursuit of Respondent Educational Goals*

Factor	Mean
Experience with computers	1.708
Study habits	1.647
Math background	1.545
English background	1.450
Reading ability	1.400
Science background	1.400
Arithmetic average of the means	1.525

**Other Related Factors**

Access to a computer ( $M = 1.889$ ) was the most frequently marked item in the other related factors category, as revealed in Table 4. The next most frequently marked item was work/job schedule ( $M = 1.545$ ). The other related factor with the lowest mean was supplies needed for study ( $M = 1.375$ ).

**Table 4**  
*Other Related Factors Perceived as Potential Barriers in Pursuit of Respondent Educational Goals*

Factor	Mean
Access to computer	1.889
Place to study	1.583
Work/job schedule	1.545
Equipment needed for study	1.529
Time to study	1.526
Supplies needed for study	1.375
Arithmetic average of the means	1.575

To answer Research Question 2, respondents were divided into five age groups: (a) 19 and under, (b) 20-29, (c) 30-39, (d) 40-49, and (e) 50 and over. Table 5 reveals that in two of the four categories (personal factors [ $M = 1.917$ ] and academic-related factors [ $M = 1.803$ ]), the 40-49 age group had the highest mean. In the other related factors category, the 40-49 age group had the second highest mean ( $M = 1.695$ ). The 19 and under age group had the lowest mean in every category.

**Table 5**  
**Perceived Potential Barriers in Pursuit of Respondent Educational Goals**

Age Group	Personal Factors	School Related Factors	Academic Related Factors	Other Related Factors
19 and under	1.214	1.200	1.333	1.000
20 - 29	1.596	1.482	1.626	1.591
30-39	1.434	1.419	1.367	1.313
40-49	1.917	1.361	1.803	1.695
50 and over	1.425	1.463	1.339	1.783

Note: The mean frequency was calculated for each group of factors.

To answer Research Question 3, respondents were divided into two groups: (a) those who receive public assistance and (b) those who do not receive public assistance. Table 6 reveals that the mean of the frequency of potential problems in pursuit of educational goals for those who receive public assistance was higher in every category.

**Table 6**  
**Perceived Potential Barriers in Pursuit of Respondent Educational Goals**

Public Assistance	Personal Factors	School Related Factors	Academic Related Factors	Other Related Factors
Receives	1.676	1.527	1.551	1.771
Does Not Receive	1.450	1.433	1.515	1.454

Note: The mean frequency was calculated for each group of factors.

### Conclusions

From the findings displayed above, some conclusions can be inferred.

1. Family finances is the greatest personal potential barrier faced by adult office education students in pursuit of educational goals.
2. Courses offered is the greatest school-related potential barrier faced by adult office education students in pursuit of educational goals.
3. Experience with computers is the greatest academic-related potential barrier faced by adult office education students in pursuit of educational goals.
4. Access to a computer is the greatest other related potential barrier faced by adult office education students in pursuit of educational goals.

5. Adult office education students in the 40-49 age range perceived greater personal and academic-related potential barriers than respondents in any other age range. Adult office education students in the 19 and under age range perceived fewer potential barriers in every area.
6. Adult office education students receiving public assistance perceived greater potential barriers in every area than those not receiving public assistance.

### Recommendations

Based on the literature reviewed, the research completed in this study, and the findings reported, the following recommendations are presented:

1. School personnel should stress information about financial assistance and support services that are available to adult office education students.
2. Office education instructors must be aware of the problems adult students perceive regarding computers. Instructors should provide computer orientation and activities to help the adult learner become comfortable with computer use.
3. Research to determine how age affects the perception of potential barriers of adult office education students should be conducted.
4. Results of this research should be submitted to recruitment personnel in vocational education programs throughout the area.

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# Building a University-Government Partnership to Implement the Performance Consulting Model in Municipal Government

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## Abstract

This paper describes an innovative action research project to implement the performance consulting model for Human Resource Development (HRD) practice in a municipal government HRD department. A partnership, affectionately dubbed the "Enterprise Project," was created between the Louisiana State University School of Vocational Education and Baton Rouge City Government. During this project, a team of HRD faculty and graduate students worked with the city to develop a strategic plan to implement leading edge practices in city HRD programs. The performance consulting paradigm, partnership development, and consulting team process are described.

HRD practice is in a state of transition, moving from a learning to a performance paradigm. This requires a fundamental redefinition of HRD goals, practitioner roles and expected outcomes. Traditional training and development practice only addressed learning and expertise. The performance paradigm for HRD practice suggests that the HRD organization should be involved with designing and improving the entire system of performance variables. By focusing on the complete system, performance improvement is more likely to occur. This is accomplished through consulting partnerships with line managers.

Research on the implementation of this approach is just beginning to emerge (McClernon & Swanson, 1996). To lead change in organizations and respond to demands on HRD for performance improvement, there is evidence that HRD has to first transform itself and its practices (Miller & Denny, in press; Torracco & Swanson, in press). This paper reports on an effort to implement the performance consulting model in Baton Rouge, Louisiana municipal government through a university-government partnership.

### The Baton Rouge Partnership

Baton Rouge did not have a central training department until 1990 when the new mayor created the department and hired the first training director. They began as a traditional training organization, offering individual skill building programs. In 1994 they began implementing Total Quality Management (TQM) throughout the city (primarily a process level intervention) and renamed the department to Quality and Employee Development (QED). Because of the successes in adopting TQM, QED found itself in

the wonderful position of having more and more departments requesting their assistance to improve performance. However, it became increasingly clear though that many process improvements would not occur unless other components of the performance system received attention. In some departments the leadership was not prepared to implement TQM. In others, the departmental vision and mission needed to be created or revised. The City's civil service system made it difficult to link rewards with quality improvements. The quality approach to process improvement needed additional tools to deal with these issues (for a more complete description of this journey, see Edwards, Fairchild, Holton & Slaughter, in press).

At about this time two of the QED staff, including the director, enrolled in the HRD doctoral program at Louisiana State University and were introduced to systems approaches to performance improvement (Rummler & Brache, 1995; Swanson, 1994). These systems approaches put language to what they had been seeing: TQM was only addressing part of the problem and a broader systems approach was needed. In addition, Mertis Edwards, the QED director, and Elwood Holton, the HRD faculty member who taught the class, had developed a long-standing working relationship. They serve together on the board of the local chapter of the American Society for Training and Development and Holton had assisted the city with several projects. They realized the resources within the City-Parish would not be sufficient to meet all the demands. It became clear that all the ingredients were in place for a true win-win partnership. As a result, the class served as a catalyst for broader discussions about how the LSU HRD program might assist the city in a broader role.



The outcome of the discussions was a commitment to form a long-term partnership between Baton Rouge Quality and Employee Development and the LSU HRD program to help them position QED as the performance improvement leader in the city. The partnership was a critical step in implementing the performance consulting model because the university team had expertise and students to assist. Partnerships of this type are likely to be a crucial element to transform other municipal HRD departments and can yield important benefits for organizations (Bassi, 1996). As HRD practice becomes increasingly complex, organizations are finding that partnerships with universities provide an important source of expertise to keep their HRD practice on the leading edge. As this is written, this partnership is expanding to include additional team consulting projects, internships, graduate practicums, research projects, organization development interventions, and joint grant proposals.

### **Building the Consulting Team**

The first step was to develop a strategic plan for the department. In the Fall of 1995, a group of doctoral students and faculty members was selected to serve as a consulting team. The team consisted of two faculty members, two representatives from the Baton Rouge HRD department who were also doctoral students, and four other advanced graduate students. These students had extensive field experience in business (chemical industry) and government (federal and state) HRD. The two LSU faculty members (Elwood Holton and Donna Redmann) teach HRD courses and serve on HRD doctoral committees. All of the students received three credit hours for participating, but joined the team with the understanding that it would be operated as a task force, not as a traditional class. Team members committed to doing whatever was required to achieve the goal of producing the strategic plan within four months.

The consulting process used by the team was an important part of this project's success. The group was successful in accomplishing its goals through the integration of diverse backgrounds and expertise in HRD. The next section will describe the evolution of the group, the consulting process, key success factors, and lessons learned.

### **Action Research Methodology**

The consulting team used an action research approach to this project. Action research is a research methodology that has a long and rich history, particularly in organizational change (Cummings and Worley, 1993). As a qualitative methodology, it engages the participants and researchers in a collaborative process of discovery (Miles & Huberman, 1994). Its distinguishing characteristics are that the discovery process is focused on a particular organizational problem and the goal of the process is not only discovery and learning, but action to resolve the problem. As a consulting process, it is quite different than the expert model in which the consultants enter the organization as outside experts, diagnose the problem and independently develop action plans which the organization implements. In action re-

search, the consultants and the organizational members collaborate in a cyclical process of diagnosing the need for action, planning action steps, taking action, reflecting on the action taken, planning the next step, and so on (Weisbord, 1987). It is a commonly used methodology in human resource development (Marsick & Watkins, in press).

An alternative approach would have been to implement a structured strategic planning process led by the consultants that began with establishment of the vision and mission. The team decided to break away from this traditional approach. The organization was convinced that it needed to examine new approaches before it established its vision and mission. There was a real risk that the plan would become simply "more of the same" if the vision and mission was established in the beginning as conventional planning models might suggest. While this was quite uncomfortable for the group at times, it helped the group engage in transformational thinking as opposed to incremental planning.

The process that emerged had eight phases:

1. Orientation
2. Agenda Setting
3. Benchmarking
4. Paradigm Evaluation
5. Strategic Plan Process Design
6. Vision/Mission Setting
7. Planning/Goal Setting
8. Evaluation

It is important to remember that these eight phases emerged one at a time and were not planned ahead of time. Each phase ended with a reflection and planning process to determine the next step. While there is significant value in considering the steps used here, the real power of the planning process was that it emerged from the group based on the learning in each step. As a result, the process was tailored to the needs of this organization and had a high degree of shared ownership. Other organizations should be cautious about wholesale adoption of these specific steps as a planning model. The process we used is applicable in any organization but the outcomes and specific steps may vary.

### **The Planning Process**

#### ***The Orientation Step***

An initial meeting was held the first week of December 1995 for the team to get acquainted with the task at hand. The team accomplished the following:

1. Established a need for the QED members of the team to provide an informal orientation on the City-Parish Government to the other team members at the next meeting.
2. In order to develop a world-class model, the group decided that it needed to benchmark against both public agencies and private corporations. The two members from

the private sector were assigned the task of obtaining benchmarking information from the private sector; the state agency representative was assigned the state level benchmarking information; and the QED members were assigned the public sector.

3. The team felt a need to examine future trends in HRD and this assignment was awarded to the two university faculty members.
4. The teams established a deadline for gathering the above information and delivering it to a central location for distribution to all members before the Christmas holidays. The team assigned itself the tasks of reading and digesting the reading packet before the next meeting which was held the first week in January.
5. In its pioneering spirit, the team affectionately named the project, "Enterprise," for the Starship Enterprise, boldly going where no one had gone before.
6. Since the graduate student members were receiving college graduate credit, a deadline of May, 1996, was established for completing the strategic/business plan draft.

### *The Agenda Setting Step*

The objective for the second meeting focused on establishing an agenda for the project. The team established itself as a task force to "Develop a strategic plan for East Baton Rouge City-Parish Quality and Employee Development (QED) department." After much discussion about this goal, the projected plan, when implemented, would enable QED to:

- a. accomplish the Horizon Plan (the Mayor's strategic plan for the city) objectives;
- b. be recognized in East Baton Rouge City-Parish, Louisiana, and nationally as a model for HRD;
- c. continually maintain a state-of-the art HRD practice; and
- d. establish QED as an essential performance improvement partner to exceed City- Parish's customers' expectations.

### *The Benchmarking Step*

The benchmarking process was done early in this project. The team first wrestled with the kind of questions, data, and information that needed to be obtained. They decided that they needed to look at both the processes that the model programs used to develop their strategic plans and compare the plans that emerged. The team's assignments were to:

- a. identify potential "Best Practices" organizations,
- b. call and obtain strategic plans for HR/HRD organizations, and
- c. prepare a rough synthesis to present at the next meeting.

Because of the diversity of the team members and the need to ensure focused meetings and smooth group process, it was decided during the third meeting select a team leader from the members. Elwood Holton, a faculty member, was selected because of his extensive experience with group facilitation and understanding of HRD models.

Benchmarking reports from team members were somewhat surprising, though in hindsight they should not have been. Inquiries to other organizations revealed limited examples of strategic HRD plans, particularly of comprehensive models from the public sector. One excellent example from the public sector was the State of Illinois Governor's Human Resources Advisory Council, which made recommendations for redesigning the operating environment to support quality and to foster excellence in performance. The Council developed a Human Resource Model that was designed to support a human resource system based on skill matching and merit progression (Sept. 1993, p. 15, 59). This core of the human resource system was the matching of persons with the right combination of skills and experience to perform the functions required by the job. It also included all elements of the performance system. For city benchmarking, models were not found, but innovative initial attempts were discovered. There were a lot of cities that reported individual success stories such as an outstanding juvenile detention center/training located in Illinois.

Teams members who conducted the private sector benchmarking encountered resistance to sharing information. Companies are generally not willing to share information with anyone they consider competitors. In the private sector, training has become a competitive strength so companies are more reluctant to share their plans. It is still somewhat puzzling why they were reluctant to share with a municipal government.

### *The Paradigm Evaluation Step*

From benchmarking the literature it appeared that there are two paradigms suggested for HRD practice: the "Learning Organization" and the "Performance Improvement." Though not mutually exclusive, they were not totally in alignment either.

The team felt a need to investigate the two paradigms in more depth so the two faculty members were assigned the tasks of educating the team on the "Learning Organization" model and on the "Performance Improvement" model. These presentations were made at the fourth meeting. The presentation on the learning organization focused on defining it and discussing whether it was an appropriate paradigm for the city. The discussion revolved around several leaders in this field, beginning with the basic meaning of a learning organization according to Peter Senge (1990 & 1994) as well as Karen Watkins and Victoria Marsick's view of the learning organization (1992). A description of the process through which organizations develop and use new knowledge to improve performance was covered (Slater & Narver, 1995). The following questions were included in the presentation: What does a learning organization learn?

What does a learning organization look like? How does a learning organization evolve? (Calvert, Mobley, & Marshall, 1994). Generally, in the learning organization approach primary emphasis is placed on developing a culture and systems to enhance learning, which in turn is believed to improve performance. The performance improvement model was presented using the Rummler and Brache nine-cell model (1995). Their system (see Figure 1) views the organization as having three levels of performance:

- **organization** - the traditional functional structure of the organization (department, division, etc.)
- **process** - organizational systems, usually cross-functional, designed to produce end products that serve customers
- **individual** - individual employee performance.

**Figure 1**  
*Rummler & Brache Model*

	Goals	Design	Management
Organization			
Process			
Individual			

For each of the three levels, three performance variables are identified: **goals, design, and management**. Thus, for performance to occur, the organization, its processes, and individuals have to have clear goals, effectively designed systems, and appropriate management systems. To be successful, performance improvement leaders and interventions must focus on the entire performance system. Learning is included in their system, but only as one of nine performance variables.

The resulting nine-cell matrix of performance elements firmly anchored the team in a comprehensive performance paradigm and was used throughout the planning effort. In this framework, TQM is primarily a process improvement methodology. It clearly explained what had happened: TQM could not be effective unless it was combined with organization and individual level process improvement efforts.

***The Strategic Plan Process Design***

During the third and fourth meetings, it became apparent to the team that the type of strategic plan it wanted to create was far from normal practice. They realized they would have to start from scratch and decided to use the Rummler and Brache Model (Rummler & Brache, 1995) as the conceptual framework to drive the strategic plan.

It also became immediately apparent that the team had to reach consensus on the structure of a plan because each had different experiences and ideas about appropriate terminology and structure for a strategic plan. The team adopted the following language and structure for the plan:

- Level 1: Horizon Plan/Mayor's Plan
- Level 2: Vision and Mission of QED
- Level 3: Strategies
- Level 4: Goals
- Level 5: Action Plans

***The Vision/Mission Setting Step***

The team created a new vision and mission for QED that fully embraced all nine cells of the performance matrix at the fifth meeting. Through the brainstorming efforts of the team members, as well as a list of obstacles and enablers (both internal and external), the team began the process of developing and refining vision and mission statements. Three key questions guided the vision statement development:

1. What do you want your department to be in ten years?
2. What is your purpose?
3. What do you want to be the best at?

Key questions for the mission statements dealt with:

1. What is your product
2. If your product was for sale, who would buy it?
3. What does your department do better than anyone else?
4. How does your department rank the importance of quality, value, service?
5. How do you define each of these based on customer needs and expectations?
6. How will you do what you do to achieve your vision?

The resulting vision and mission statements, which were revised over several meetings are shown in Table 1 below:

**Table 1**

<p><b><i>Vision</i></b></p> <p>The Quality and Employee Development Department drives world class performance improvement solutions to lead City-Parish partners to superior performance on strategic goals.</p> <p><b><i>Mission Statements</i></b></p> <p>To build an infrastructure to research, create, maintain, and disseminate world class human resource development practices for public agencies.</p> <p>To develop, enhance and advance employee expertise necessary for job performance that exceeds customer requirements.</p> <p>To provide the leadership, consultation, and services to create an environment of high performance through performance analysis and continuous improvement.</p> <p>To foster a culture of individual accountability, responsibility, and learning for career success.</p>
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The team then defined a functional structure for the HRD department to accomplish the vision and mission that was built upon the performance paradigm (see Figure 2). Critical to accomplishing the mission was the building of 1.) strong performance analysis and measurement capability and 2.) having the capacity to design, develop and implement interventions to improve organizational, process and individual performance.

**The Planning/Goal Setting Step**

The agenda for the sixth meeting focused on setting goals for one, three, and five year plans. Because 1996 was an election year, the team felt that the most productive years would be 1997 and 1998. By the end of 1998, the program should be established and underway. The team agreed to write strategies for each of the mission statements for each of the one, three, and five year strategic plans. Goals, which are measurable, would be identified for each of the strategies. Action plans, also measurable but with deadlines, would be determined for each goal.

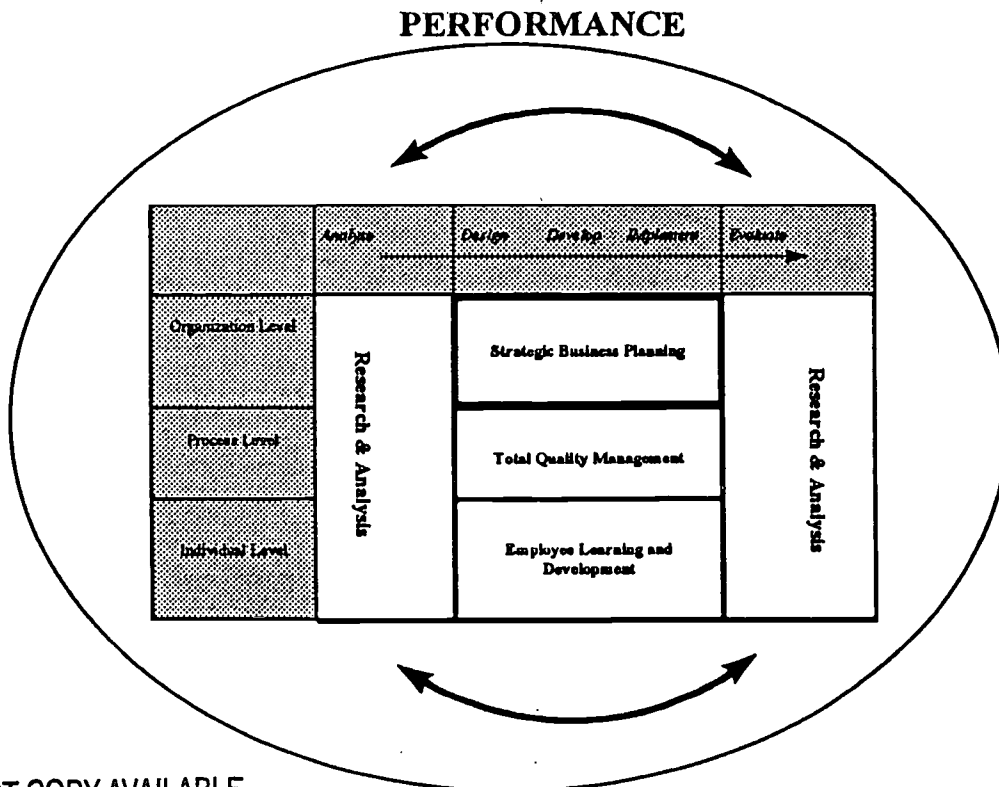
Brainstorming on the first year's strategic plan was conducted during the seventh meeting. The team first concentrated its efforts on the 1996 plan. This was also a bit unconventional, but was necessary because 1996 activities were already underway and the budget year had begun. The QED director needed a 1996 plan to redirect current resources to set the stage for subsequent programs. This turned out to be a better approach than starting with the long term goals and working backward to present goals.

Six strategies and several goals for each strategy was initially identified. Homework for the next session consisted of developing action plans for each 1996 goal. The teams decided to set a deadline for submitting their action plans to one member who would consolidate the actions plans and distribute to all members via FAX.

At the eight and ninth meetings, the team critiqued and revised its 1996 plan. Considerable discussion was held, but the team worked together very cohesively. By the ninth meeting, the team was ready to move to the 1997 and 1998 plans. Brainstorming for the 1997 and 1998 plan involved identifying important trends and issues in the city, workplace and in HRD. Trends and/or assumptions that were discussed included: just-in-time training, workplace based learning, peer-led performance improvement, multi-source training, level budget, and partnerships (responsibility, accountability, resources, and performance). Issues and directions that were identified included: evaluation--performance measurements, building facilitation team, strategic expertise mapping, rewards/recognition/promotion, leadership for performance/quality, culture change, linking business plan with budget cycle, quality vs performance OR quality and performance, and partnership spirit becomes systemic--a core competency.

Development of the 1997-98 strategies and goals continued during tenth through thirteenth meetings. Discussions were held evaluating the plan against the Rummier/Brache model to build a strong conceptual and theoretical focus.

Figure 2



Development and refinement of the 1997-98 plan continued through the fourteenth meeting. During the fourteen meeting, discussion focused heavily on resources needed. Brainstorming was used to develop a list of possible ways to acquire the needed expertise/funds to implement the plans. During the fourteenth and fifteenth, the team brainstormed on goals and strategies for the 1999-2000 year plan in the framework of the Rummler & Brache model.

### The Team's Reaction to the Group Process and Action Research.

#### *The Evaluation Step*

At the end of the last meeting (15th), a group discussion was held on the overall planning process and the team effort used to accomplish the objectives of Project Enterprise. The discussion was also used to bring closure on the learning process associated with the project. Using a round robin technique, the following are some of the evaluative comments from the team members.

#### *General Comments About the Project*

- team members took ownership
- it has been fun--would like to develop a whole doctoral program around these kinds of activities.
- with downsizing and change, you can't afford to be inefficient
- business & government make the same decisions in the same cycle but in a different time period
- business does it quicker, but government because of its size takes longer.
- learned about systems
- learned difference between a learning organization and organizational learning .
- looked at the big picture, whereas in a class we look at the pieces
- was surprised that we found little benchmarking, but we developed some new thinking
- We tested the theories that we work with and struggled with in putting into action. This project was action research. We ended up in a place beyond where we expected.
- very appreciative of the 1996 base. Surprised that we achieved the level we did and we have been using it and we will be on target for 1997. The plan is very workable.
- all the pieces will be in place.
- very practical--tapped into resources
- we made it a priority and scheduled time for doing this planning
- there is a real value in starting cold. If you had gotten immersed into the city structure, you might not have asked the questions.
- the members of the group had a high level of HRD expertise
- diversity was our strength
- outside people asked questions that made the QED team members look at things differently

- it was interesting watching the ups and downs, especially if the mayor had dropped out the race and Mertis had lost full backing or motivation. Without the mayor's support, it would have been very difficult.
- was glad LSU faculty were here
- there was a high level of commitment by the team members
- each of us made a unique contribution
- connection to the Mayor made us feel like we were not working in a void

#### *What Made the Team Effective*

The consulting group turned out to be a very cohesive and effective team. In the last session, the group engaged in reflection to establish the keys to its success. The following factors were identified:

- *Shared commitment* - team members committed to the process before joining
- *Real case, not pretend* - The graduate students thrived in the action research environment because it was "real"
- *Structure of class/project* - While the time investment was greater than a typical class, it was structured in half-day blocks and during mutually agreeable times instead of a traditional class structure
- *Innovative nature of the project* - Team members were motivated by the chance to be pioneers
- *Producing documents* - Working documents that members produced provided intermediate task deadlines to keep the group moving
- *Homework got done* - The project was heavily dependent on team members completing their outside tasks
- *Mixture of people* - The team was intentionally created to have a healthy mix of backgrounds (state government, industry, university) and styles (practical vs dreamers).
- *Task goals to complete* - The deadlines established in session 1 forced the team to stay on task.
- *Incentives* - The course grade and producing a real product that was on the cutting edge provided strong incentives
- *Motivation to learn* - Participants were selected because they had a high internal motivation to learn
- *Clear mission* - The mission of the consulting process was clear from the outset. Agreement was reached in the beginning that we would do whatever was necessary to achieve this mission.
- *Handpicked for contribution* - The process probably would not have worked as well if the team had not been specially selected
- *External sounding board* - The organization allowed the team to play somewhat of a board of directors role in challenging their assumptions and current practices.

#### *Next Steps*

One of the most positive outcomes of the project was a commitment to build a long-term partnership between the city and LSU. As this is written, everyone is awaiting the election outcomes to

see if the current mayor will be re-elected before the plan can proceed.

- The 1996 plan is on schedule and success stories are being created.
- Two LSU interns were hired for the summer to assist with the 1996 plan implementation
- Plans are being made for a retreat with city department heads immediately after reelection to kick off new plans for performance improvement
- Explorations are underway to find mechanisms and funding to formalize the partnership
- A new consulting team will be formed to plan a leadership institute for 1997 and assist with implementation planning for other 1997 goals.

### Conclusion

This project was considered a success by all involved. Our primary goal was reached: the team accomplished its huge task in a relatively short time frame and the city has an innovative strategic plan. The team learned about group process, about performance consulting, and about their own ability to implement their learning. As action research, the project resulted in some important findings about the lack of strategic HRD planning, particularly in the public sector. The planning process that emerged had innovative components that can likely be applied elsewhere. It also demonstrated the effectiveness of the university-industry partnership model. Most importantly, the win-win partnership that was believed to exist was confirmed and the foundation set for what is hoped to be a long and productive relationship.

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# Business Education Student Teachers' Perceived Multicultural Teaching Competence Related to Their Background Experiences

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## Abstract

The purpose of this study was to determine whether a relationship existed between business education student teachers' background experiences and their perceptions of their multicultural competence. The results of the study indicated that a relationship did exist between the respondents' multicultural background, racial/ethnic origin, instruction received that address multicultural issues, gender, locale of student teaching and their multicultural competence. A relationship did not exist between the student teachers' age and their perceptions of multicultural competence.

## The Problem

Several reports have indicated shifts in the demographic composition in the United States. The population of the U.S. is becoming more racially and ethnically diverse (Sleeter & Grant, 1994). Projections by Schwartz and Exter (1989) indicate that by the year 2010, 38% of Americans under the age of 18 will be from minority groups. Further, the projected public elementary school enrollment is expected to rise 8% within the next five years and enrollment for public high schools to grow by 12%.

The American workforce will be more diverse by the year 2000. Elliott and Orgera (1993, p. 4), projected that minorities will comprise 29% of all new job market entrants between 1993 and 2000. Two-thirds of those joining the work force will be immigrants who will have better educational qualifications than the U.S. workforce entrants. Women will make up 47% of the total work force, and the average age of all employees will be 40. These demographic shifts could have major implications for education, especially teacher education.

## Related Literature

In light of the demographic reports, teacher education programs have a critical role to play in preparing prospective teachers who will have competencies to work effectively with students from diverse cultural backgrounds. According to The Secretary's Commission on Achieving Necessary Skills (SCANS) report (U.S. Department of Labor, 1992), teachers should prepare students who will be able to function effectively in diverse work environments. Business educators have an important role to help prepare students to function in a diverse workplace. As Yopp (1993) asserts, "business education has a unique opportunity to introduce multicultural education from the perspective of world trade,

business economics, and comparative advantage" (pp. 1-2). Also, business educators should make concerted efforts in recruiting students from diverse cultural backgrounds. One of the recommendations in Thabede and Schmidt's (1995) study was that "business educators should make efforts in recruiting male and multicultural students" (p. 23). Andersen and Barta (1984) further note that business educators can help counter bias and discrimination in the work place and in the schools.

Literature dealing with business teacher education as it relates to multicultural education or preparation of teachers to work with students from diverse cultural backgrounds is nonexistent. Lambrecht (1990) in search of business teacher education literature, found 209 manuscripts that were categorized as relating specifically to that topic between 1973 and 1988, but not necessarily to teacher preparation. In an extensive review and synthesis of literature in business education for an eleven year period, 1980-1990, Schmidt, Kandies, and Magee (1994) found only 6 studies dealing with multiculturalism (they focused on business communication), but none of the studies addressed teacher education.

Outcomes of a number of studies focusing on multicultural education have led researchers to recommend that all teacher education programs should include multicultural education (for example: Baptiste, 1980; Banks, 1977; Hunter, 1974; Gay, 1977; Grant, 1977, 1981; and Zeichner, 1993). This recommendation is supported by the American Association of Colleges for Teacher Education (AACTE), a national professional association for colleges and universities; the National Council for Accreditation of Teacher Education (NCATE), an accreditation organization responsible for preparing teachers, principals, counselors, and librarians who work in K-12 school settings; the Federation of Teachers (FTA), a union organization for teachers; and the Na-

tional Education Association (NEA), a professional organization for educators.

Most of the studies related to multicultural teacher education tend to focus on curriculum, courses, field experiences, learning styles, but few studies have attempted to focus on multicultural competencies or skills needed by teachers to work effectively with students from diverse backgrounds. Despite recommendations from multicultural education scholars, NCATE, and multicultural researchers regarding a need to restructure teacher education programs, to date, very few empirical research studies focus on multicultural skills needed by student teachers to work with students from culturally diverse backgrounds. Laughlin (1980) acknowledged, "those planning to teach need firsthand skills and competencies in being able to work with all students assigned to their classes" (p. 2).

### Purpose and Research Questions

The purpose of this study was to examine the demographic factors of business education student teachers and determine if a relationship exists between the demographics factors and the students perceptions of their multicultural competence. The following research questions were addressed:

1. Are business education student teachers' perceptions of their multicultural competence related to their multicultural background experiences?
2. Are demographic characteristics including racial/ethnic origin, courses completed that address multicultural issues, age, gender, and locale of student teaching related to business education student teachers' perceptions of multicultural competence?

### Research Procedures

#### Sample

The population for this study was the business education student teachers at institutions in the southern region at the National Association for Business Teacher Education (NABTE). The purposive sample consisted of 152 student teachers who were student teaching during the spring semester, 1996. Table 1 contains ethnicity and gender information for the respondents.

#### Survey Instrument and Data Analysis

Wayson's (1993) Multicultural Teaching Scale was used to collect the data. The researchers added 14 demographic questions to the instrument for a total of 55 items. The pilot study was conducted to determine whether there were any ambiguous items on the instrument. The survey instrument, a letter to business educators, self-addressed stamped envelope, two copies of the Informed Consent Letters to the student teachers, and an envelope marked "Informed Consent Letters," were sent to the supervisors of student teachers who administered the survey. Data

were analyzed using descriptive statistic techniques to tabulate the frequency counts and percentages. A multiple regression was used to determine whether relationships existed among the demographic variables, the multicultural background experiences, and the respondents' perception of their multicultural competence.

### Findings

A total of 122 surveys (80%) were completed and returned. Out of the returned surveys, 113 (74%) were usable, 9 (6%) were unusable. Thirty (20%) of the surveys were not returned. Table 2 shows the business education student teachers responses related to their multicultural background.

**Table 1**  
*Ethnicity and Gender of Business Education Student Teacher Respondents*  
(n=113)

Racial/Ethnic Background	Females		Males		Males	
	N	%	N	%	N	%
Asian-American	1	.9	-	-	1	.9
Black	10	8.9	7	6.2	17	15.0
Hispanic	2	1.8	-	-	2	1.8
Native American	-	-	-	-	-	-
White	56	49.5	37	32.7	93	82.3
Total	69	61.1	44	38.9	113	100.0

**Table 2.**  
*Multicultural Background as Reported by Business Education Student Teacher Respondents*  
(n=113)

Multicultural Background <sup>a</sup>	Females		Males		Total	
	N	%	N	%	N	%
Monoculture	49	43.4	38	33.6	85	77.0
Multiculture	20	17.7	6	5.3	28	23.0
Total	69	61.1	44	38.9	113	100.0

<sup>a</sup>Each of the 13 multicultural background items was assigned a score of 1 through 5 with 1 indicating that respondents perceived themselves as "monocultural persons," and 5 indicating that the respondents perceived themselves as "multicultural persons." Composite scores were calculated for this dimension. The sum of scores for the multicultural background could range from as little as 13 to as high as 65. Respondents with scores between 13-39 were classified as "monoculture," and respondents with scores between 40-65 were classified as "multiculture."

The multiple regression analysis revealed that a statistically significant relationship existed between the respondents' multicultural background and their perception of their multicultural competence in the Knowledge Construction dimen-



sion, in the Prejudice Reduction dimension, in the Equity Pedagogy dimension, and in the Empowering School Culture dimension. A relationship did not exist between the respondents' multicultural background and their perception of competence in the Content Integration dimension. The results of the multiple regression for the multicultural background appears in Table 3.

Question 2 addressed the respondents' perception of their multicultural competence as it relates to their demographic characteristics. Multiple regression was used to analyze this question. The regression analysis revealed that a statistically significant relationship existed between the respondents' perception of their multicultural competence and their racial/ethnic origin, courses completed that addressed multicultural issues, gender, and locale of student teaching.

Ethnicity contributed significantly with a  $p > .0047$  for blacks and a  $p > .0084$  for whites in the Content Integration dimension. Ethnicity contributed significantly with a  $p > .0000$  for blacks and a  $p > .0000$  for whites and area of student teaching contributed significantly with a  $p > .0403$  for suburban area and a  $p > .0005$  for urban area in the Knowledge Construction dimension. Ethnicity contributed significantly with a  $p > .0000$  for blacks and a  $p > .0000$  for whites and gender contributed significantly with a  $p > .0142$  in the Prejudice Reduction dimension. Ethnicity contributed significantly with a  $p > .0330$  for blacks and a  $p > .0040$  for whites; gender contributed significantly with a  $p > .0039$ ; and urban area contributed significantly with a  $p > .0388$  in the Equity Pedagogy dimension. Ethnicity contributed significantly with a  $p > .0457$  for blacks; gender contributed significantly with a  $p > .0047$ ; and hours of instruction contributed significantly with a  $p > .0179$  in the Empowering School Culture dimension. A relationship did not exist between the respondents' perceived multicultural competence and their age.

### Implications

This research addressed the relationship between business education student teachers' perceived multicultural teaching competence and their background experiences. Findings from the study can assist business teacher educators in determining how to build their own student teachers multicultural competence, especially in the Content Integration area. Additional preparation is needed in the Content Integration competence as it relates to their multicultural background. Business education student teachers need to be exposed to history and ethnic studies. This exposure will help them understand their ethnicity, and, also, help them develop knowledge about various cultural background of their students.

Further, knowledge of how demographic characteristics of the student teachers surveyed related to their perceptions of multicultural competence provide business teacher educators a basis of comparison for meeting the needs of individual student

teachers. Outcomes of the study serve as a reference for making appropriate student teaching placements, ones specifically selected to broaden the prospective teachers' multicultural competence.

**Table 3**  
*Variables Significant in the Regression Equation for Multicultural Background*

Dimension	B	Beta	SE B	P>value	R <sup>2</sup>
Knowledge					
Construction	.1096	.2052	4.4819	.0161	.33
Prejudice					
Reduction	.2352	.2383	.0848	.0065	.30
Equity					
Pedagogy	.0991	.2411	.0364	.0076	.25
Empowering					
School Culture	.2027	.3449	5.0892	.0001	.29

The findings identified areas where the student teachers surveyed felt competent in handling multicultural issues in their teaching and areas where they felt additional preparation and experience were needed. This knowledge can help business teacher educators in designing instruction and in selecting content that addresses multicultural issues.

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# Can We Agree On the Topics Financial Managers Need To Know? Practitioners and Educators Respond

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## Abstract

This study examined the ranking of 27 selected finance topics needed in preparation for an entry-level position in financial management as perceived by finance practitioners and finance educators. The financial executives of the *Fortune* 500 companies and a sample of 500 finance educators of the Financial Management Association were surveyed. The research questions addressed the topics ranking by practitioners and educators based on the average importance rating each topic received. The correlation coefficient of the ranking of the 27 topics between practitioners and educators indicated their agreement on the topics for an entry-level position in financial management. However, the practitioner's ten top ranking topics differed from that of educators on three topics.

## Introduction

The management and control of firms has changed due to the increase in global competition and innovations in technology. However, American companies have been unprepared for these changes (Keating and Jablonsky, 1990, p. 21). In addition, business schools responsible for educating and preparing students to meet the challenges of the changing business world are accused of being unprepared for accommodating the changes taking place (Mobley and Kuniandy, 1992, p. 67; and Porter and McKibbin, 1988, p. 305).

Finance, like the other areas of business, has been faced with the same challenges of increased global competition and technological innovations. These changes have resulted in the integration of financial systems throughout the world, affected the financing choices of corporations, and changed the role of the financial manager within the organization (Lessard, 1991, p. 11).

Moreover, just as business schools are criticized for not preparing students for the "real" business world, finance education is criticized for not preparing students for the changes in the financial environment. As the Keating and Jablonsky study on the changing roles of financial management indicates, business schools' curricula are not meeting the "needs of financial executives facing a changing business environment and changing norms of the workplace" (1990, p. 9).

Consequently, many studies have suggested that educators should monitor the attitudes of practitioners to gain a clearer understanding of the business communities' needs and concerns and respond accordingly (Mobley and Kuniandy, 1992, p. 68; and Keating and Jablonsky, 1990, p. 9). To help in the quest for information, this study examined the perceptions of both finance practitioners and educators concerning selected finance topics needed by students in preparation for their future employment.

## Statement of the Problem

The problem of this study is to determine any relationship that exists between the perceptions of finance practitioners and college-level finance educators concerning the ranking of selected finance topics.

## Research Questions

In order to ascertain the information sought, the following research questions were posed:

1. Do differences exist between the perceptions of finance practitioners and educators as to the ranking (based on the average rating of importance) of selected finance topics needed in preparation for an entry-level position in financial management?
2. What is the suggested ranking of the importance of the finance topics as perceived by practitioners?
3. What is the suggested ranking of the importance of the finance topics as perceived by educators?

## Hypothesis to Be Tested

In order to address the problem and research questions the following hypothesis was statistically tested.

Hypothesis: No correlation exists in the ranking of topics between practitioners and educators.

## Statement of the Purpose

The purpose of the current study is to identify any relationship that exists between the perceptions of finance practitioners and educators concerning the ranking of selected finance topics. The

findings provide information to finance educators regarding what practitioners perceive are important finance topics in preparation for an entry-level position in financial management. Where differences in perceptions exist between the practitioners and educators, educators may perceive a need for (1) a change in topics they emphasize, (2) an evaluation and adjustment of present finance curricula, and/or (3) a need for communication between finance educators and practitioners.

### **Rationale and Need for the Study**

In a recent study conducted by Porter and McKibbin, the deans and faculty of business schools admitted that their own schools, as well as business schools in general, were not graduating the type of students businesses needed (1988, pp. 122-123). The findings of the Porter and McKibbin study indicated a lack of agreement among educators and practitioners as to the breadth and specialization needed in the business curriculum, a need for improved communication between business practitioners and educators, and a concern of what skills and subject matter should be included/excluded in the business curriculum.

In addition to this study in business education, studies in finance education have similar findings. The Mobley and Kuniandy (1991) study surveyed Chief Financial Officers (CFOs) as to their views of finance academicians. The findings indicated that practitioners believed finance educators were not sufficiently aware of the problems and needs of business.

Similarly, a research-based study, *Changing Roles in Financial Management*, sponsored by the Financial Executives Research Foundation examined the changes in the role of financial management within American corporations. The implications of the study were that the management and reorganization of the financial aspect of business was being reconsidered; and business school curricula were not meeting the "demand for more sophisticated financial professionals" (Keating and Jablonsky, 1990, p. 8). The authors challenged accounting and finance professors to "get closer to business" so students would be educated to meet the needs of business.

Other research in finance education has also indicated dissatisfaction and disagreement concerning finance curricula. A second study sponsored by the Financial Executive Research Foundation surveyed Financial Executive Institute (FEI) members and those working in their companies who were seeking to become financial executives to determine their views on the development of financial executives (Larsen and Ahlstrand, 1991, p. 5). The findings showed that undergraduate and graduate programs failed to teach students the practical application of material. Thus, the finding suggests that finance curricula should be reevaluated and possibly changed to better meet the needs of business.

Information that can help professors in curriculum development is especially important given the criticism that business schools are facing. As such, Benton Gup's study which began to ad-

dress the issue of appropriate subject matter. His study summarized the results of both a panel discussion that occurred at the 1993 FMA Annual Meeting and a survey of practitioners and educators conducted early in 1993. On the panel were three finance educators and two practitioners. The population surveyed were 200 Chief Executive Officers and 200 members of the FMA. The participants were asked to indicate what they believed were "the five most important finance concepts that should be taught in an introductory finance class" (Gup, 1994, p. 3).

Summarizing both the survey results and panel discussion, "no general agreement exists on the five most important concepts that should be taught" (Gup, 1994, p. 7). The results of the panel discussion indicated 11 concepts in all. Six finance concepts were considered to be important by at least three of the five panelists. The five other concepts were considered important by individual panelists, but not by a majority. The results of the survey indicated seven concepts instead of five, because practitioners and educators did not list the same concepts.

The topics listed on the questionnaire for the current study included all the concepts found important in the Gup study, except the concept of present value. However, as Gup stated, "present value is a catch-all term that includes time value of money and discounted cash flow" (1994, p. 7). Therefore, present value was determined to be a concept inclusive in many of the topics listed in the current study and did not need to be listed separately.

The current study addressed these issues in finance education. The perceptions of practitioners and educators were examined to: (1) address the issue of communication between practitioners and educators, (2) determine the differences in perceptions, and (3) address the issue of appropriate subject matter in finance curricula.

### **Methodology**

#### ***Population and Sample Frame***

A survey was conducted of the financial executives of the 1994 *Fortune* 500 companies and a sample of 500 financial educators of the Financial Management Association (FMA) who had research and/or teaching interests in corporate finance.

#### ***Questionnaire***

A questionnaire identifying 27 finance topics was developed. The selected topics were identified by examining the top-selling graduate and undergraduate financial management textbooks and the top ranked finance journals.

The respondents rated the topics as to their importance to a college graduate seeking a position in financial management. The levels of importance were: (1) not important, (2) somewhat important, (3) important, (4) very important. These levels of

importance were defined based on Bloom's Taxonomy of Educational Objectives. Thus, not important meant the topic was not needed by financial managers. Somewhat important meant a financial manager needed to have an introductory level of knowledge and comprehension of the topic. Important meant a financial manager needed not only to know and comprehend the topic, but also be able to apply the knowledge of the topic and demonstrate the analytical capabilities in solving a specific problem relating to the topic. Very important meant a financial manager not only had the level of knowledge and abilities that defined "important", but could also synthesis and evaluate complex situations.

### Response Rates

This study used a .05 level of confidence, and a 5 percent error limit for determining the sample size of 500. For a sample size of 500, a response rate of 40 percent is necessary to maintain a .05 confidence level and a 5 percent error limit (Wunsch, 1986, p. 13). The required number of responses was obtained from educators after the first mailing and from practitioners after the second mailing. The response rate of usable surveys from practitioners and educators was 49 and 69.4 percent, respectively.

### Data Analysis

#### Respondent and Nonrespondent Bias

The characteristics of the respondents and the sample populations were statistically tested for response bias. The results of the Chi-Square statistical test for each characteristic failed to reject the null hypothesis at the .05 level; the population was not significantly different from the sample.

For evidence that the responding sample was not systematically different from the nonresponding sample population, a test for nonrespondent bias was conducted. The test for nonrespondent bias indicated that for over 95 percent of the topics, the responses were not significantly different. Therefore, the responding and nonresponding samples do not appear to be systematically different for either population.

#### Research Questions and Analysis of Hypothesis

The research questions asked what is the suggested ranking of the selected finance topics by practitioners and educators, and whether differences exist between the rankings of the topics by finance practitioners and educators. The mean importance rating was used to rank the topics. The mean importance rating is the arithmetic mean rating for each topic based on the number of respondents rating that particular topic.

Table 1 presents the ranking based on the mean ratings for both practitioners and educators. The list of topics is presented in descending order of importance based on the mean rating of the topic by practitioners and indicating the corresponding ranking by educators.

**Table 1**  
*Ranking of Topics Based on Mean Ratings*

TOPIC Practitioners' Ranking	Educators' Ranking
1. Analysis of Financial Statements	4*
2. Cash Flows	1
3. Rate of Return	3
4. Cost of Capital	5*
5. Financial Planning and Control	11*
6. Working Capital Management	7*
7. Capital Budgeting	2
8. Capital Structure	12*
9. Long-term Financing and Policy	13*
10. Risk Analysis	8
11. Leverage	9
12. Valuation Models and Theory	6
13. Financial Markets and Institutions	15*
14. Depreciation	16*
15. Short-term financing and Policy	10
16. International Financial Management	17*
17. Pricing Models	14
18. Federal Income Taxes	18
19. Lease Financing	19
20. Mergers and Acquisitions	23*
21. Options, Futures and Hedging	20
22. Dividend Policy	21
23. Investment Banking	22
24. Divestitures	26*
25. Rights, Warrants, and Convertibles	25
26. Financial Distress and Reorganization	24
27. Holding Companies	27

\* Denotes topics ranked higher by practitioners than educators.  
NOTE: Topics are listed in descending order based on mean importance rating per practitioners. The Spearman Rank Correlation Coefficient ( $\rho$ ) = .9353 and p at the .05 level for  $n=27$  is +/- .3801.

The Spearman Rank Correlation Coefficient ( $\rho$ ) was computed to determine the correlation between the rankings of topics by practitioners and educators. The correlation coefficient was .935. Therefore, the null hypothesis that no correlation exists in the ranking of topics between practitioners and educators was rejected at the .05 level. The rankings between practitioners and educators are highly correlated.

The ranking of the topics differed between practitioners and educators. For 11 topics, the rank based on the mean ratings is higher for practitioners than for educators. These topics are indicated by an asterisk on Table 1. Eleven topics were also rated higher by educators than by practitioners. The remaining five topics were ranked the same among the groups. They were (1) Rate of Return, (2) Federal Income Taxes, (3) Lease Financing, (4) Rights, Warrants, and Convertibles, and (5) Holding Companies.

Comparing the top ten ranking topics of practitioners and educator, three topics differ between the two groups. Finance practitioners' top ten topics included (1) Capital Structure, (2) Financial Planning and Control, and (3) Long-term Financing and Policy. The three topics included in the educators top ten but not the practitioners were (1) Leverage, (2) Valuation Models and Theory, and (3) Short-term Financing and Policy.

### Conclusions and Recommendations

Finance practitioners and educators have similar perceptions of the importance of topics needed for an entry-level position in financial management. However, similar to the Gup study, the practitioners and educators surveyed in this study did not agree on the ranking of the topics. Four of the seven concepts in the Gup study were listed as specific topics in this study. Practitioners and educators in the current study also ranked the four topics differently. The four topics were Valuation Models and Theory, Capital Budgeting, Capital Structure, and Cost of Capital.

This study provides information based on communication with practitioners and educators that may be used to support, evaluate, improve, or develop finance curricula. The findings of the study imply that practitioners and educators ranking of topics is highly correlated. The high correlation may be because the topics listed in this study cover a broad range of concepts. However, the high correlation also indicates that the criticism that business schools are not adequately preparing students for the business world may not be justified in the area of financial management.

The differences in the rankings of the topics between practitioners and educators can provide information for finance educators. Finance departments may wish to examine their current curriculum to determine if the selected finance topics are over-emphasized or underemphasized, especially when the rankings of the topics differed between practitioners and educators. In addition, individual finance educators may use the information to determine if the amount of time spent teaching the selected finance topics is too little or too much, given the ranking of the topic. Likewise, authors of financial management textbooks may use the findings to assess or determine the topics covered and the extent of the topic coverage in their textbook.

This study's findings showed agreement among practitioners and educators on the board topics. Additional research can provide insight into whether this finding is true when practitioners in other industries are surveyed or when underlying concepts are rated.

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# Case Study of a Staff Development Workshop Examining the Application of Teacher Education and Cooperative Learning Research in Business Education

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## Abstract

The problem of the study was to determine whether an inservice education workshop, which applied proven research on teacher education and cooperative learning, provided an effective educational experience as perceived by secondary business education teachers and their students. The business teachers were made partners in the research process. The study describes this workshop, as well as the affective domain of the teachers and students. The findings indicated that both the business teachers and students perceived their educational experience to be effective. The workshop also appears to foster the idea of classroom level research by encouraging the teachers to do empirical inquiry on how to operationalize a new teaching strategy in instructional units that they would develop and teach immediately in their classes. In addition, the business teachers, on their own, transferred the cooperative learning strategies to other business courses.

## Impetus for Change

The social, environmental, informational, and technological changes affecting our culture, society, families, and ourselves cannot be slowed down according to Robert Theobald (1987), a futurist and entrepreneur. Many of these changes are unique, without historical precedence; therefore, unique understandings are needed to manage these changes positively and productively. Theobald believes in empowering people to have a vision about the future with a commitment and responsibility to be a change agent. A change agent is one who works to help others. He challenges everyone to discuss today's issues, problems, and possibilities in the mainstream so that everyone can work together to understand not only the dynamics of change, but also, in many cases, the need for change.

In his writings on educational change, Michael Fullan (1992) advocates that all the problems of change in education are the result of an implicit or explicit *theory of education* (what the change is) and a *theory of change* (the process being followed to implement it). Fullan believes that if change is to be managed effectively, educators must identify and understand the relationship of these two theories to the change. He writes that:

Clarity, concreteness, practicality, the connection between change in practice and outcomes, and the underlying logic of change, are not all apparent at the outset. And trying it raises anxiety and doubts as well as

excitement and promises. . . . When people do experience excitement, mastery, and clarity in attempting something new, we are witnessing professional development at its best. (Fullan, p. 295)

Empowering people to understand and manage change was the motivating force to explore a different approach to inservice education for teachers.<sup>1</sup>

## Statement of the Problem

The problem of the study was to determine whether an inservice education workshop, which focused on applying proven research on teacher education and cooperative learning, provided an effective educational experience as perceived by business education teachers and their students. Four research questions guided the study and are listed under findings.

## Significance and Need for Study

Previously conducted research has provided a knowledge base on educational practices, teacher development, and school improvement. Since 1970, the amount of research in these three areas has increased tremendously. A major challenge facing educators is how to integrate research on educational practices, teacher development, and school improvement for the purpose of developing a more complete picture of how schooling influences student outcomes.

<sup>1</sup>For purposes of clarification, the terms "inservice education," "staff development," and "professional development" will be used to mean any activity or process intended to improve skills, attitudes, understandings, or performance of teachers in their work.

School administrators have two primary, on-going responsibilities: to provide an appropriate curriculum and effective instruction. Through their leadership, school administrators can provide the resources and encouragement that can result in inservice education that would let teachers work together to learn about the effective research on teaching developed since the 1970s and to work together to determine what works best for them and their students.

Also, school administrators need to encourage teachers to become a part of the research process on instructional improvement by continually studying and testing the pedagogical teaching and learning theories.

Effective instruction, such as the structuring of content or giving praise, or manner of questioning, may be appropriate in one class, but too much for another class, and maybe not enough for a third class. Effective instruction will vary according to subject matter, group size, and specific instructional objectives being pursued by teachers.

The teachers' perspective on what works or does not work, what could be added, deleted, or improved would give researchers valuable insight and input on the practicality, as well as effectiveness, of a teaching strategy or model.

Because of the ever-growing knowledge base of educational research and because of the continuing need for administrators and teachers to learn and put into practice this knowledge, Hopkins (1988) advocates that schools should become dedicated to the learning of both students and teachers.

Through inservice education, school administrators can create effective learning environments for teachers to work together and continually study the current research on teaching and learning. Using collective decision-making, teachers would select and study research-based findings about teacher behaviors that maximize student achievement. Based upon their own expertise and experience, teachers would then put the research findings into practice in their classes to determine what works best for them and their students. But, as adult learners, teachers need time for collective and reflective thinking and practice.

One way that school administrators may encourage teachers to study the knowledge base of effective teaching practices is through cooperative inservice education workshops. In these workshops, teachers would be encouraged to study valid educational research findings and to apply them immediately in their classes. But this type of cooperative inservice program cannot be the traditional one-day workshops on isolated topics. The change process would involve an on-going series of workshops that would provide teachers the opportunity to facilitate their professional growth and at the same time help improve the curriculum and instructional practice. The program would help teachers understand and manage change affecting them in their work.

However, administrators need to be aware that when teachers try something new or change their current teaching practices, they may experience anxiety and doubts. But in pursuing clarity in the new teaching strategies in practice and seeing student changes in behavior and/or achievement, teachers may begin to experience excitement and mastery in their work

Therefore, a different type of inservice education is needed that would give teachers time to work together as professionals to modify and continually improve their teaching practices. Teachers need time to reflect on what they are doing, to share ideas and strategies, and to write unit plans for the purpose of improving student achievement.

The current study provides a qualitative description of the affective domain of the business teachers and students in an inservice education workshop, which focused on applying teacher education and cooperative learning research. The results will be of benefit primarily to three groups: school administrators, teachers, and students. School administrators will be able to use the results to provide effective staff development environments that will enhance the teaching profession and improve curriculum and instructional practices. Teachers will be able to facilitate their professional growth from inservice programs designed to study current research on teaching and learning strategies and to immediately apply those findings in their classes. Students will be the ultimate benefactors when the main goal of staff development is to improve students' learning and achievement.

### Methodology and Procedures

The review of related literature and research supported the need for teacher education and staff development to be linked with the research knowledge base on teaching, learning, school culture, and process of inquiry. Staff development cannot be one-day workshops on isolated topics, but should encompass extended training and follow-up for a smaller number of programs and practices of proven effectiveness. Also, through collaboration, schools will be able to change and improve their environments and instructional practices.

A Cooperative Planning Education Workshop was designed to encourage business education teachers to work collaboratively to explore one research theory from the knowledge base. Cooperative learning, one of the many recognized pedagogical teaching strategies, was selected for the study as a result of research conducted by Slavin, Johnson and Johnson, Kagan, Sharan and Sharan, Aronson, and others.

Although any of the above cooperative learning methods could have been chosen, the study focused on (1) putting into practice the cooperative learning strategies developed by Slavin and his colleagues at Johns Hopkins University, (2) applying these strategies in a different subject area, Business Education, and (3) using older students in grades 9 to 12. Thus, the findings of the study will continue to add to the body of research knowledge on cooperative learning.



### *Rationale for Using Case Study*

Most people are familiar with the term "case study," but little agreement exists on what constitutes case study research or how this type of research should be conducted.

To explain, Merriam (1988), in her book *Case Study Research in Education*, wrote that empirical inquiry of contemporary events can take the form of experimental (quantitative in nature) or nonexperimental (qualitative in nature) research. In experimental research, the researcher manipulates the variables of interest and must control the research situation to show cause-and-effect relationships. Experimental research results in quantitative data, used in making conclusions relative to the problem under study.

On the other hand, in non-experimental research, the researcher provides description and explanation, and the treatments or subjects are purposely not manipulated because the phenomena or events should be reported as they happen.

The three forms of non-experimental research are: surveys, historical research, and case studies. According to Merriam, the differences between surveys and case studies are:

Survey research typically assesses a few variables across a large number of instances, whereas a case study concentrates on many, if not all, the variables present in a single unit.

Survey research is deductive in nature--that is, variables are selected for investigation. Descriptive case studies, on the other hand, are usually inductive in nature. It is impossible to identify all the important variables ahead of time. Results are presented qualitatively, using words and pictures rather than numbers. (pp. 6-7)

To distinguish case studies from other research strategies, Yin (1989) provided this technical definition:

A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used. (p. 23)

Further, Bromley (1986) asserts that case studies

Get as close to the subject of interest as they possibly can, partly by means of direct observation in natural settings, partly by their access to subjective factors (thoughts, feelings, and desires), whereas experiments and surveys often use convenient derivative data, e.g. tests results, official records. Also, case studies tend to spread the net for evidence widely, whereas experiments and surveys usually have a narrow focus. (p. 23)

Merriam cites four characteristics that are essential properties of a qualitative case study:

1. Case studies are "particularistic," in that the case study may focus on a particular situation, event, program, or phenomenon and concentrate on the way particular groups confront specific problems, taking a holistic view of the situation.
2. Case studies are "descriptive" in that the end product is a complete description of the phenomenon under study.
3. Case studies are "heuristic" in that the study illuminates the readers understanding of the phenomenon under study.
4. Case studies are "inductive" in that the study provides for discovery of new relationships, concepts, and understanding rather than verification of predetermined hypotheses. (pp. 11-13)

In summary, the case study (Merriam, 1988; Yin, 1989), earlier called the naturalistic inquiry by Guba (1978, 1987), was selected as the research method to describe the change and its process when a three-day Cooperative Planning Education Workshop was conducted by the researcher, a business education teacher in one secondary district, for other business education teachers in another secondary district. Following the workshop, the business teachers would immediately teach their instructional units applying Slavin's cooperative learning strategies for four weeks. The case study approach was deemed appropriate to describe this complex, behavioral phenomenon taking place.

### *Sample*

Because the researcher would be the primary instrument for data collection and analysis, the decision was made to concentrate on conducting an intensive field study in one large secondary school district in the north-northwest area bordering Chicago. The participants in the workshop would be business education teachers from suburban public high schools (grades 9 through 12). Since the researcher is a business education teacher in a suburban high school and is knowledgeable of the content taught by secondary business education teachers, the role of an observer and coach would be effectively served.

Therefore, the unit of analysis was a nonprobability sampling (i.e., convenience) (Bromley, 1986) of eight business education teachers from one large secondary school district representing four large high schools. The teachers agreed to attend a three-day Cooperative Planning Education Workshop to be conducted in the school district's central office. The sample represented 35% of the business education teachers in the district. A profile of the business education teachers is given in Table I.

**Table I**  
*Profile of Business Education Teachers*

Sex . . . . .	Female - 6
	Male - 2
Age . . . . .	50 + - 2
	40-49 - 5
	30-39 - 1
Years Teaching	
Business Subjects . . . . .	26 + - 2
	20-25 - 2
	15-19 - 4

**Data Base and Analysis**

The units of information gathered in the study resulted in a data base of more than 250 single-spaced, typewritten pages. A total of 44 informal interviews were conducted and tape recorded with the business teachers, students, and administrators. Notes made while observing 27 classes and personal notes after the interviews and observations were also transcribed. Other data included the pre- and post-test scores, instructional units, workshop agenda and materials, and a daily log of events from the start of the study until the end.

By using multiple methods of data collection, the researcher was able to provide a first-hand account to describe the teachers' and students' perceptions of their educational experience. The rationale for combining dissimilar methods is that the flaws of one method are often the strengths of another. By combining methods, the researcher hoped to achieve the best of each while overcoming their unique deficiencies. This strategy also allowed the researcher to be factual (descriptive and quote) in order to represent the participants in their own terms. The study of human behavior in a situation is a process of discovery, to find out what is important to the people being observed (Bromley, 1986).

Three modes of analysis guided the field-work investigation: pattern matching, time series, and explanation or theory building. The data base was continuously analyzed to look for patterns that coincided. In each of the three phases of the investigation, how and why questions about relationships over time were asked. Then, based on the chain of evidence, an explanation was developed. The purpose of the analysis was to derive reasonable conclusions and generalizations to describe the case study and to answer the research questions.

**Field-Work Investigation**

To observe and describe this planned staff development effort to integrate research theory into practice, the field-work investigation was divided into three phases:

**Phase One: Cooperative Planning Education Workshop.** The workshop put into practice the five critical steps identified by research that are necessary for learning a new skill (Bennett, 1987; Joyce, 1983):

1. Presentation of theory
2. Modeling or demonstration
3. Practice under simulated conditions
4. Structured feedback
5. Coaching application

The three-day workshop was conducted on January 17, February 5, and February 26, 1993. The purpose of separating the meeting dates by several weeks was to give the business teachers time to reflect upon what they had learned, to review the materials provided in the workshop, and to be prepared for the next meeting day.

In the workshop, the researcher, a current business teacher in another high school district, assumed the role of being a "leader of leaders" in curriculum development work. The researcher and the eight business teachers worked together to learn Slavin's three cooperative learning strategies. The first two methods, Student-Teams-Achievement Divisions (STAD) and Teams-Games-Tournament (TGT), are general cooperative learning strategies adaptable to most subjects and grade levels. The third method, Jigsaw II (Expert Groups), can be used whenever the material to be studied is in written narrative form, such as a chapter or descriptive material. Slavin's cooperative learning methods, share with the other cooperative learning methods, the idea that students work together to learn and are responsible for their teammates' learning as well as their own. However, Slavin's methods emphasize the use of team goals and team success, which can only be achieved if all members of the team learn the objectives being taught.

In addition, the business teachers became partners in the research process and made collective decisions about which business courses to include in the study, which instructional units to revise for cooperative learning, and how to operationalize Slavin's cooperative learning strategies to help students learn the content.

The eight business teachers were assigned to work in teams, based on the predominant business course they would teach in the semester. Each team was responsible for revising a current instructional unit to organize the content and classroom for cooperative learning. The unit was to be taught over several chapters in the textbook for a period of four weeks. Each team was left to decide whether to integrate one, two, or all three of Slavin's cooperative learning strategies. By using a current instructional unit, the business teachers would be more comfortable teaching the unit's content and thus could concentrate on teaching the cooperative learning strategies and on observing how well the students worked in teams to learn the content.

On the third day of the workshop, the business teachers brought their textbooks and materials to the meeting and wrote the following instructional units:

Business Course	Instructional Unit
Business Law	Employment: Working with Others
General Business/ Consumer Education	Insurance
Career Exploration	Presenting Yourself on Paper

The district's staff support program provided substitute funds so that the business teachers were given released time from their classes to attend the workshop. A fourth day was also provided by the district so the business teachers could visit each other's high school to observe their counterparts teaching the cooperative learning units developed in the workshop.

Also, a large meeting room was provided in the district's central office for the Cooperative Planning Education Workshop. In one part of the room, the business teachers would meet at a long table for large-group presentation and discussion and then move to another part of the room to role play each of the student learning team strategies, as well as to work together on their unit plans.

After the workshop, the researcher then retyped each unit so all materials followed a standard format agreed upon in the meeting. Each unit was put in a three-ring binder and contained the following sections:

- I. Unit Objectives
- II. Unit Test (used for both pretest and post-test)
- III. Cooperative Learning Teams handout (outcomes, expected behaviors, strategies for conflicts, evaluation, learning teams tasks or jobs)
- IV. Daily Lesson Plans (for four weeks), which included
  - a. Objectives
  - b. Materials
  - c. Teacher's Lesson Plan
  - d. Evaluation

The three instructional units were then reviewed and validated by two curriculum experts. The two curriculum experts were administrators responsible for curriculum and instructional improvement; one in the school district where the workshop was conducted and the other in the school district where the researcher taught. These administrators are very familiar with the research on cooperative learning and approved the instructional units as written. They also complimented the business education teachers' work and said they have never seen the strategies implemented in such detail in daily lesson plans.

Thereafter, the instructional units were delivered to the seven business teachers to be taught in eight intact business classes for a duration of four weeks.

**Phase Two: Putting into Practice Research Theory.** The teaching of the instructional units took place from the middle of April to the end of May. When the instructional units were delivered to the business teachers, individual interviews were conducted to obtain each business teacher's perceptions of the workshop and the instructional unit developed. Each interview lasted 20-30 minutes. These interviews were transcribed and later shown to the business teachers for correction and clarification. Thereafter, the business teachers began teaching their instructional unit either the week of April 15 or 22.

For four weeks, the business teachers taught the three cooperative learning instructional units. The researcher observed each business teacher three to four times in the classroom. The researcher noted the behaviors of the teacher and students and the interactions between and among these groups during a class period of 55 minutes. After each observation, the researcher's notes were shown to the business teacher for his/her review and clarification. Again, the interviews at this time lasted about 20-30 minutes.

**Phase Three: Assessment of Research Theory in Practice.** In phase three of the study, the researcher conducted informal interviews with the business teachers and the students for the purpose of having them assess Slavin's cooperative learning strategies as implemented in the instructional units. Open-ended questions were asked during all of these interviews to allow the business teachers and students to express freely their reactions and perceptions to cooperative learning.

The students were interviewed after the post-test was given. Based on post-test scores, twenty-five students were randomly selected by the researcher and included students of high (86-100), average (70-85), and below-average (69 and lower) ability. Seven business education teachers were interviewed after teaching the unit.

### Findings of the Study

The problem of the study was to determine whether an inservice education workshop, which focused on applying teacher education and cooperative learning research, provided an effective educational experience as perceived by the teachers and their students. The methodologically related problems will be described first. Thereafter, the findings for each of the four research questions will be presented.

#### *Methodologically Related Problems*

The first methodologically related problem concerned the selection of Slavin's cooperative learning methods as the research

theory used in the study. One of the business teachers had just completed a master's degree and studied Johnson and Johnson's cooperative learning methods. The teacher firmly believed it would take several years to fully implement the philosophy of cooperative learning in the classroom. The business teacher thought the workshop was trying to accomplish in three days what normally should be learned in a semester or a year course. Because of the business teacher's strong allegiance to Johnson and Johnson's cooperative learning methods, the teacher withdrew from the workshop. The teacher attended the workshop for two full days, but withdrew before the third day when it was time to integrate Slavin's methods into a current instructional unit. However, the remaining seven business teachers wanted to continue working in their teams to develop the instructional units, as well as to participate in the second phase of the study when the cooperative learning instructional units would be taught in the classroom.

The second problem concerned the business teachers visiting each other's schools to observe their counterparts teaching the instructional units. Three of the business teachers did not want to be out of their classes for a fourth day. Therefore, the fourth day of the workshop became "optional." As it turned out, however, the four business teachers, who said they would visit each other, did not do so because of all the year-end activities taking place in their high schools.

The third problem involved the continuous teaching of the cooperative learning instructional units for four weeks. This time period was interrupted by planned professional and unplanned personal absences by the business teachers. They had to make adjustments in teaching the unit for one or two days absent from school. However, by understanding the concepts of cooperative learning as delineated by Slavin, the teachers were able to make this slight revision for the substitute teachers.

The fourth problem resulted when one of the business teachers decided to let a student teacher teach the cooperative learning instructional unit. The student teacher, who did not attend the workshop, taught the cooperative learning unit for the first two weeks with the business teacher teaching the remaining two weeks. No mention was made of this change during the workshop and was discovered at the time of the first interview with the business teacher. However, the business teacher shared what she had learned at the workshop with the student teacher and gave her complete, step-by-step instructions for carrying out the unit plan.

**Question 1:** What variables specific to teacher education research did the business education teachers perceive as being helpful during the inservice education workshop?

The following six variables of the Cooperative Planning Education Workshop were perceived by the business teachers as being helpful to learn and put into practice Slavin's cooperative learning strategies:

**1. Common Professional Interest.** The Cooperative Planning Education Workshop allowed the business education teachers from four high schools in one district to come together because of a common interest. That common interest was to learn a new teaching strategy that would be applied specifically in their own discipline area, business education. They were grateful for the time to work together to learn and share ideas on how best to apply the research theory in their business courses. The business teachers particularly liked giving input to the curriculum work being accomplished in the workshop and knew that the instructional units would not only help them in the classroom, but would help their students as well.

Also, because of this common interest, the business teachers were willing to participate and help the researcher, a fellow business education teacher from another area high school, to complete the research study.

The business education teachers were free to accept or reject the workshop and the cooperative learning research theory presented. As indicated in the methodological problems section, one business teacher did reject the teaching theory and workshop after the second day. But, the remaining seven business teachers were committed to the workshop out of this common professional interest.

**2. Hands-on Workshop.** As the business teachers worked together, they developed a professional support team. The teachers were given the responsibility to decide how best to operationalize Slavin's cooperative learning strategies and selected the content and cooperative learning teaching strategies that they believed would motivate their students to learn.

This hands-on workshop provided the business teachers the time needed to work together as a team, to reflect on what they learned, and to write an instructional unit that included four weeks of daily lesson plans and supporting materials using Slavin's cooperative learning strategies.

**3. Accountable.** While the business education teachers enjoyed working together and having a hands-on workshop on a single topic, they knew they were accountable for the decisions made. Because of their professional knowledge and experience, the business teachers became totally responsible for the outcome of their decisions and accepted the curriculum work challenge.

When the instructional units were typed in final form and delivered to the business teachers, they expressed pride in the curriculum work completed. Over and over, the teachers said they were glad they had made the commitment to the workshop and, most of all, that they had input to what was accomplished.

**4. Apprehensive.** At the same time, however, the business teachers expressed apprehension in teaching the cooperative learning instructional unit. The teachers were not sure how the parts of the unit would all fit together or what they and the students had to do. Also, the business teachers expressed concern

about keeping the students involved and working in learning teams. They wanted to be sure the students had sufficient direction so they would know what to do in their team.

**5. Different from Group Work.** The business teachers indicated that they had always used "group work" in their classes, but that cooperative learning was different. In trying something new, the teachers were skeptical at the start of the workshop and were not fully committed to Slavin's cooperative learning research theory. In the beginning, three of the business teachers had some problems in getting the high school students to work as a team. But by the end of the fourth week, the students had settled into the routine of the learning teams. All of the business teachers agreed that the use of cooperative learning teams better prepared the students for college and careers than their usual teaching methods. The business teachers also agreed that while the cooperative learning strategies were harder to implement, the strategies were definitely much better than the so-called "group work." More structure was needed in establishing cooperative learning teams because of the tasks assigned to each team member and because of the whole team being held accountable for the class activity to be accomplished.

**6. Stake in Research Process.** The business education teachers knew the purpose of the study was to apply research theory into practice through staff development. They liked being made a partner in the research process by having a stake in the decisions made in the workshop and particularly deciding how to operationalize Slavin's cooperative learning strategies in the instructional units.

Because of this emphasis on research, the seven business teachers remained committed to the workshop and to teaching the instructional units. They even had begun to think about other ways to implement the cooperative learning strategies into other business courses. Two teachers said they used the cooperative learning strategies in Business Management and Keyboarding, and another teacher used the strategies in Accounting, before teaching the instructional unit. They wanted to practice the strategies on their own and said "It worked real well in that class."

**Question 2:** What other workshop variables were perceived to be helpful during the inservice education workshop?

The following five variables were identified from the data base as contributing to the staff development effort to study the knowledge base about teaching strategies:

**1. Climate of School District.** The secondary school district contacted for the study had in place an extensive, on-going staff development program and a full-time person to overlook and coordinate the district's staff development program. The responsibilities of this director's job are to see that all kinds of growth needs are met for all staff (non-certificated as well as certified personnel), particularly as they relate to the long-range plans in the district and in the individual high schools. Also,

the director works with the Assistant Principals for Instruction in each of the district's six high schools. The Assistant Principals have the primary responsibility for staff development in the individual high school buildings. Basically, everything the director does contributes in some way to staff learning and growth.

Because of the staff development director's strong belief that educators have a responsibility to contribute to research, the district was receptive to the researcher's proposed study to conduct a three-day inservice workshop on a single topic, cooperative learning. The director believed that the proposed research study would be able to contribute to the district's overall staff development program, as well as contribute to the research knowledge base. In addition, all of the Practical Art administrators in the five high schools also supported the study, but they wanted the final decision to participate to be left up to the individual business education teachers. The administrators would not impose participation.

This spirit of professional growth was observed while conducting the workshop in the central office and when visiting and observing the business teachers in their respective high schools. The district/school climate to support and encourage professional growth had a definite positive effect on the seven business teachers who participated in the study.

**2. Voluntary Participation.** A letter of invitation from the researcher was sent to all the business teachers in the district's six high schools, a total of 23 business teachers. A cover memo from the Staff Development Director and Practical Arts Director was attached to the invitation to (1) introduce the research study, (2) indicate that the study was part of the district's 1990-91 staff development program and that expenses would be covered by the central office's budget, and (3) encourage the business teachers to volunteer for participation in the three-day Cooperative Planning Education Workshop.

Eight business teachers volunteered to participate. These eight teachers were considered a unique sample in that the average age was 40-49 and the average teaching experience was 22 years.

While a number of researchers have discussed the issue of whether voluntary or imposed staff development is more effective, no study has been found that suggested one is more effective than the other. The results of Bennett's (1987) meta-analysis of effective staff development training practices indicated that voluntary participation occurs more frequently than does mandatory participation in research studies.

In addition, the business teachers, who volunteered to participate in the study, are in the career stage that Steffy (1989) calls expert/master teachers in search of focused renewal growth. The teachers were idealistic, full of energy, and seeking new knowledge. They were pursuing professional growth and wanted to learn a new teaching strategy that would help their students to be successful.

After the workshop, but before teaching the cooperative learning instructional units, the business teachers were asked what made them decide to participate in the Cooperative Planning Education Workshop. The teachers wanted to change for a variety of reasons and freely chose to attend the three-day workshop for whatever reasons they believed was important to them. One business teacher felt she was getting into a "rut" and needed a change. She responded: "I'm glad I did it. I learned a lot. It helped. I think it's good because if it helps me, it helps the students and it gets me out of a rut." This teacher's comment sums up what the Cooperative Planning Education Workshop was all about, that is, not only to help the business teachers to learn about the research knowledge base, but more importantly, to improve students' achievement and interpersonal relationships.

**3. Involvement in Research Process.** Having the seven business teachers involved in the research process was the one workshop variable that sustained the change process. The teachers were told why Slavin's cooperative learning methods were selected by the researcher. The topic, cooperative learning, attracted the business teachers to attend the workshop. Developing the instructional units provided a base for the teachers to apply what they learned in the workshop. But, participating in the research process is what made them become committed to the workshop.

The whole idea about classroom-level research and a research approach to teaching motivated the seven business to stay involved. Having a three-day workshop, focusing on one topic for a specific discipline, business education, made this possible.

Unfortunately, the structure of the business teachers' job becomes an accepted routine and tends to discourage them from being innovative and creative. They come to work, bells go off, students come in and out, and a specific routine is established for both the teachers and students. The business teachers have only isolated moments when they have a chance to meet and work with other business teachers on a professional endeavor, such as the curriculum work that was done in the workshop. While the teachers may meet with their colleagues in committee meetings to discuss school or curriculum matters in general and participate in the school's planned institute days, those isolated days are usually insufficient. In any job, there is a definite routine and so teachers, in general, tend to become bogged down in the day-to-day school operations and the so-called professional meeting days.

**4. Content, Complexity, and Distribution of Education.** The content of the workshop focused on a single topic, cooperative learning, and its theory, demonstration, and practice of Slavin's three proven teaching strategies were given on the first day.

The complexity of implementing and organizing the classroom for cooperative learning was provided on the second and third days of the workshop. The business teachers had to give feedback on what they learned by applying either one, two, or all three of Slavin's strategies in an instructional unit they would

teach for four weeks. They were to take one of their tried and tested units of instruction and revise it for cooperative learning so that they would be comfortable teaching the content and could focus on the teaching strategy, cooperative learning teams.

While observing the teachers teaching the cooperative learning unit, a noticeable change was noted in both the students and business teachers by the fourth week when compared to the first week. During the first week, some of the students would act up in class and cause problems, but by the fourth week the students settled into the cooperative learning routine. As the students would enter the classroom, they would ask the teacher, "Are we going to be working in teams today?" The students liked working together. The students would move into their teams with less commotion and begin working. The business teachers walked around the room observing and would provide help to individual teams as needed. The classroom was alive with conversation and the students stayed on task.

During the first week, three of the business teachers had difficulty getting the students to work cooperatively in teams. For example, one teacher said "that student refuses to work with his group. . . another student wants to work by himself." Two of the business teachers appeared overwhelmed and wondered whether cooperative learning would work in the class. But, by the fourth week, when students started to work in their teams, the teachers were pleasantly surprised and felt the cooperative learning strategies were working. Another teacher said "I feel like a new teacher. Like I'm losing control of the class. I don't like this feeling and doubt I can do this for three more weeks." This teacher wanted to go back to what she normally did in the class. The teacher said she had been able "to manage this large class of 28 students by individualizing the work." But, by the fourth week of teaching the unit, all of the business teachers had settled into the routine of cooperative learning.

In contrast to the seven experienced business teachers, the new student teacher, who taught the Business Law unit for the first two weeks, said she looked forward to "teaching the unit and not having to worry about developing the lesson plans. . . I can concentrate more on the students and the content."

During the final interviews, five of the business teachers admitted that right after the workshop, they decided to try cooperative learning strategies in other business courses. They did this practice teaching before actually teaching the instructional units developed in the workshop. Not only did the business teachers learn the cooperative learning strategies, but on their own initiative, transferred their new teaching skill into such courses as Accounting, Keyboarding, and Business Management.

All of the business teachers said they were glad to have the three-day workshop on one research theory and to work together as professionals to learn and share ideas in writing the unit plan. They needed to have the pedagogical theory spelled out in an instructional unit which they developed before using it in their classes. However, once the business teachers taught the unit

and understood the cooperative learning strategies, then the unit's daily lesson plans became a burden to follow. The structure was needed because it was different from what the business teachers had in their teaching repertoire.

Cooperative learning was different from so-called group work that the business teachers had been using. Before cooperative learning could become apart of their teaching repertoire, the teachers had to be free to make mistakes and find out what works well for them and for their students. The business teachers admitted they would not teach the unit the same way next time. They found it difficult to be locked into the daily lesson plans. One business teacher said, "I don't like having prepackaged lesson plans. I like the idea of the unit plan as a whole, but it was too scripted for me." The business teacher who said she "felt like a new teacher" in the first week of teaching the unit, at the end said that next year she was going to try cooperative learning in the same class, but at the beginning of the semester.

Being experienced business teachers, they like to be spontaneous and will change teaching strategies based on the chemistry of the students that day or the time of the class when students are more restless from the events of the day. Each of the seven business teachers had their own unique teaching style, as would be expected.

**5. Coaching.** The researcher took the role of "the coach" in observing the seven business teachers as they taught the cooperative learning instructional units over four weeks. Each teacher was observed three or four times in the classroom. As coach, the researcher encouraged the teachers to continue using Slavin's cooperative learning strategies, not to be so hard on themselves when learning new teaching techniques, and to be patient with the students until they settle into a routine of working cooperatively. The teachers having problems had to be reassured by the researcher "not to worry" and "to continue teaching the unit." When learning a new teaching strategy, there is an awkward, uncomfortable period, and that is to be expected. The researcher observed that the classes went very well because the majority of the students were working in groups and staying on task. Because the researcher was a fellow business education teacher, the seven business teachers felt comfortable working with her and talked openly about their concerns and problems.

A major concern that the business teachers expressed in the workshop and in the interviews was about being evaluated. Several times, the researcher had to reassure the business teachers that they were not being evaluated and that the study was not to measure students' achievement. The research would describe the teachers' and the students' perceptions of their educational experience. Overall, the business teachers did an excellent job. Any problems the teachers incurred resulted more from the student make-up of the classes and interrupting end-of-year school activities.

**Question 3:** What were the business education teachers' perceptions about the effectiveness of the coopera-

tive education instructional units they developed during the inservice education workshop?

In the final interview after the instructional units had been taught, the seven business teachers were asked what went well in teaching the instructional units. They responded from "having a well-developed unit" to "knowing the students on a different level." The business teachers liked having the unit developed with step-by-step daily lesson plans with appropriate handouts. They saw a spirit of cooperation among the students and a willingness to make sure the work was completed so the team would look good.

All of the business teachers indicated that the students did well on the post-test, but they did not think the students mastered working together in cooperative learning teams. The teachers said that some students worked well together, certain students needed constant direction, and other students would rather work by themselves.

While the seven business education teachers worked in teams and gave input to the instructional unit to be taught, they did not approach the units in exactly the same way. Each business teacher had his/her own style of teaching. They understood and applied the idea of cooperative learning teams, yet each teacher interpreted and taught the strategies the best way for that teacher and his/her students. Like the students, the business education teachers are different and the composition of their classes are different too.

Also, the business teachers did not follow the daily lesson plans exactly as written, but they did try to keep the unit as a whole intact. The reasons given for changing the order of presentation were: year-end activities (assemblies, final exams, senior ditch-day, etc.), shortened school-day schedule due to unusually hot weather, teacher's absences from class because of committee meetings, professional, and personal/illness days.

When asked what the business teachers would do differently the next time in teaching the units, all of them said that "cooperative learning teams should be started at the beginning of the semester when developing a certain routine for the students." Students are more anxious to learn at the beginning of a semester and do not know each other's personalities or abilities. At the end of a semester, the students have already established friendships and have settled into a class routine.

Two class activities that the business teachers indicated they needed to improve doing were: (1) monitoring and processing students' behavior while completing classwork in learning teams, and (2) praising and rewarding students on their performance as a team. The monitoring/processing activity was built into the unit plan each week to have the students evaluate their team's effectiveness in working and learning together. A few of the business teachers said they included this activity, but the others admitted they did not have the students talk about their team's behavior because of time constraints. The teachers appeared uncomfortable in having high school students evaluate each

other's behavior and work. Four of the business teachers gave rewards to the students for team performance such a certificate, gum, candy, pencil, or an "excused pass" to use one time if tardy to class. However, all of the business teachers did walk around their classrooms to encourage and compliment the students on working well together. The teachers indicated that today's high school students are more interested in getting higher grades to pass the course or to get into college than getting a certificate or something to eat.

The business teachers believed that the cooperative learning strategies definitely worked better for students of average and below-average ability and students who are not motivated or not willing to take risks. These students tended to learn more in learning teams. One business teacher said, "I'm sure [boy's name] did nothing outside of class. I'm sure that what he learned was from what he got in class and from the tournament games. He passed the test with a 74 [percent]." All of the business teachers indicated that the higher-ability students learned about the same when working in cooperative learning teams, as indicated on their tests scores for the class, but improved on being more sociable and communicating with other students.

There is definitely a routine that is established in the first two weeks of a semester and to try to change the classroom organization or to do something new or different becomes a problem when the students' attention is focused on "graduating" and/or "getting out of school for summer vacation." The business teachers did acquire a new teaching skill, cooperative learning. In the final interview, they talked of using the cooperative learning strategies again, but changing some parts, starting it at the beginning of the semester, and including more units involving other business courses.

**Question 4:** What were the students' perceptions about the effectiveness of the cooperative education instructional units?

A total of 25 students were randomly interviewed after the units were taught and the post-test given. The students indicated that they worked in teams at least three to four days each week for four weeks.

When asked whether they learned more, about the same, or less when working in cooperative learning teams, 18 said more and 7 said about the same. None of the students said that they learned less.

Twenty-three of the 25 students said they liked the idea of working in cooperative learning teams and said it was "fun and different." They liked working with other students because "everyone helps each other so you are learning and making friends along with it." The reasons given by the two students who said they did not like cooperative learning were:

Because I want to make certain what we learn is right. Teachers give notes. I know it's boring, but at least you get everything down and you learn it your own way still. You can check notes with friends. Then when the teacher grades it wrong on a test, you can say you learned it wrong from him.

I'm not about to change. . . 12 years I have been taught by the lecture method and taking notes and that is the best way I learn.

While all of the students indicated there were "free lunchers" or "goof-offs," the majority said they enjoyed working together and they learned from each other. The cooperative learning teams gave the students a chance to hear other students' ideas and to get immediate help and feedback.

Two questions were asked to see if the students were accustomed to working in cooperative learning teams in their other classes. To the first question, "Do any of your other classes use cooperative learning groups?" 21 students said no. Four students said "once in a while." In answer to the second question, "Would you like to see more cooperative learning teams used in your other classes?" all but two students said yes. However, the students did indicate that group work is done sometimes in English and Science classes, but the majority of the classes are teacher-lecture based. One student said cooperative learning would be especially helpful ". . . in hard classes, like in Math. You can see that it would help because if you don't know something, somebody else might know instead of waiting for the teacher or waiting in long lines."

At the end of the interview, the students were asked if there was anything else they would like to say about cooperative learning teams which they experienced over the past four weeks. The students again repeated that they liked cooperative learning, and working in teams was a good idea and helped them to better understand the material. One student said, "Working with other people will be something going on for the rest of our lives. This is just another way to help us get used to working with people."

## Conclusions

Based on the findings of the study, the following conclusions were made:

1. A Cooperative Planning Education Workshop appears to be an effective inservice workshop for teachers of the same discipline to work collaboratively to study the research knowledge base for the purpose of improving curriculum and instructional practices. The findings for Question 1 showed that there were six workshop variables that the business education teachers perceived as being helpful: common professional interest, hands-on workshop, accountable, apprehensive, different from group work, and stake in research process. When put together as a whole, the business teachers perceived the workshop to be effective because:



- a. They were experienced, professional teachers (i.e. career/master teachers) working together with their colleagues from other high schools in their district and who were teaching the same courses.
  - b. They were given three days of released time from their classes to learn a new teaching/learning technique and to write an instructional unit to put Slavin's cooperative learning strategies into practice.
  - c. They were made partners in the research process and shared and worked together on curriculum work that not only benefitted the teachers, but their students as well.
2. Other workshop variables that would contribute to an effective staff development effort to study the knowledge base of teaching strategies include:
- a. The school climate supports the inservice workshop by providing resources and released time for the teachers from the same discipline to work together over a period of time.
  - b. The researcher (a career/master teacher from the same discipline) leads the workshop to encourage fellow teachers to try the new teaching methods, reflect on what they learned, write an instructional unit plan, and then evaluate their own work and make adjustments accordingly. Evaluation should focus on the empirical research application, but no evaluation should be made of individual teachers when learning a new teaching skill.
  - c. The workshop focuses on a single teaching theory and includes presentation of theory, demonstration, practice under simulated conditions, structure feedback by having the teachers write an instructional unit plan to apply the theory, and coaching by the workshop leader as the teachers teach the instructional unit in their classes.
3. A Cooperative Planning Education Workshop would likely foster the idea of classroom-level research by encouraging teachers to do empirical inquiry on how to operationalize a new teaching strategy in instructional units that they would develop and teach immediately in their classes. The business education teachers had a stake in the research process by having to operationalize Slavin's cooperative learning teaching strategies in an instructional unit plan they would teach in their classes over a four-week period. The findings for question 3 showed that the business teachers perceived the instructional units they developed in the workshop to be effective when learning a new teaching skill. However, once they taught the instructional unit, they planned to change the instructional unit to accommodate the teaching and learning styles of both the teachers and students. And, based on

the findings for question 4, the students also perceived the instructional change to cooperative learning to be effective. The students had fun in learning the content and, at the same time, became more sociable and improved communication skills.

The Cooperative Planning Education Workshop would facilitate the professional growth of teachers who are seeking a new area of competence or want to improve or add to their teaching methodology repertoire. At the same time, the workshop appears to foster the idea of classroom level research by encouraging teachers to do empirical inquiry on how to operationalize a new teaching strategy in instructional units that they would develop and teach immediately in their classes.

### **Recommendations**

The following recommendations are made to guide further needed research:

1. Case studies are appropriate to generate, but do not test theories. Only systematic replication of this qualitative study can determine whether a Cooperative Planning Education Workshop is an effective inservice workshop to apply proven research theory about teacher education and instructional strategies. Replication of this case study should be conducted and the results compared and analyzed.
2. In replicating this case study, the following workshop variables could be expanded upon for the purpose of exploring:
  - a. Whether new teachers would benefit more from having a workshop to learn a new teaching/learning theory and then to write a instructional unit plan applying the new technique(s) in practice, or could they simply use the unit plans developed by the experienced career/master teachers.
  - b. Whether the teachers' perception about being a participant in the research process would be different if they took a passive role, and were told what to do, rather than an active role, in which they made all the decisions in the workshop on how to operationalize a new teaching/learning strategy in practice.
  - c. Whether teachers perceive the instructional plans developed and written by them in the workshop are more effective than ones prepared by the researcher or a publishing company.
  - d. Whether the workshop's time length should be expanded to either (1) include another day to allow the teachers to refine the instructional unit and share changes made and/or (2) visit their colleagues to observe them teaching the instructional unit putting the new teaching theory into practice.

3. As a result of this case study, experimental studies should be conducted to explore the same innovation. The findings of this qualitative study described only the affective domain of the participants. Experimental research is needed to statistically measure teaching effectiveness and student achievement.
4. Because schools and classrooms are not a perfect laboratory for conducting experimental research, more descriptive or narrative case studies should be conducted to guide future experimental research studies about teacher education and curriculum and instructional improvement. Because teachers and students are in a constant state of change personally, their perceptions are important and they should become partners in the research process.

### Summary

A case study research approach was used to describe an inservice education workshop, which focused on applying research about teacher education and one effective teaching theory. In a three-day Cooperative Planning Education Workshop, business education teachers worked collaboratively to learn and put into practice Slavin's cooperative learning team strategies. The business teachers became partners in the research process by having to make all decisions in the workshop as to when and how to operationalize Slavin's cooperative learning strategies. The teachers then taught, over a four-week period, the instructional units they developed in the workshop. The findings of the study indicated that both the business education teachers and students perceived cooperative learning to be an effective way to learn. Also, the business teachers, on their own initiative, transferred the cooperative learning team strategies to their other business courses.

In conclusion, school administrators, who are responsible for the improvement of the curriculum and instruction and for staff development, may want to delegate to their career/master teachers, from the same discipline area, the responsibility to explore the knowledge base of effective teaching and learning strategies. In cooperative planning education workshops, the teachers would be encouraged to learn one valid teaching/learning research theory and then to apply that technique(s) immediately in their classes. The change process would involve an on-going series of workshops that would provide teachers the opportunity to grow professionally in their discipline field, and at the same time help improve the curriculum and instructional practices. The program would also help teachers understand and manage change affecting them in their work. By allowing teachers to grow professionally, the educational growth of their students will be enhanced.

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# College Student Absenteeism

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## Abstract

This article reviews and extends the research associated with college student absenteeism. A traditional model is used as the framework for survey research into the factors affecting absenteeism at a medium Midwestern university with approximately 11,000 students. Analysis of the results suggested that the traditional model was unsatisfactory, so a new model was developed and tested. The results indicate that the variables associated with student absenteeism are an integral part of a college student subculture that does not place much value on class attendance. The conclusion is that individual teachers are unlikely to be able to effectively change an existing pattern of attendance.

## Introduction

Attendance is not compulsory in most courses at the university level. Few colleges attempt to compel attendance through physical barriers or strict punitive policies. A typical college attendance policy states that students are expected to attend class meetings as scheduled unless prevented by an illness, official University activity, or emergency. (Undergraduate Catalog, 1994, p. 57). Though students are expected to attend, they do miss class on a regular basis and this is a matter of concern for a number of reasons.

First, if students are not in class, then it may be difficult for them to take full advantage of the prevailing educational opportunities. Important class announcements, lecture material not available in the text, presentations of unique information, and other classroom learning experiences are missed when a student does not attend class. Although a student can "get the notes," this may be a poor substitute for class attendance and participation. The disadvantages of missing class may be further magnified by not being able to ask questions and other instructor interaction. In addition, the student who misses class frequently may lose a sense of connection to the class and thus lose a primary element of the educational process. It must be noted that these reasons for class attendance are based on a view of the educational system that may not be shared by all students.

Faculty are usually concerned over low attendance rates. Though we found no research directly concerned with this aspect of college student absenteeism, scattered comments in the literature and our discussion with numerous faculty indicate that most instructors take low attendance personally with consequent lowering of morale. When attendance drops below 50 percent, the instructor is likely to perceive this in negative terms and place blame on the students and occasionally themselves. The total effect of low attendance may be to lower the quality of the educational process for all participants.

There is another reason why faculty should be concerned with student attendance rates. In the continuing administrative quest to bring quantitative measurements to bear on the question of teaching effectiveness, student attendance rates may become a candidate. It can be argued that if class attendance rates are too low, then the teacher may not be effective. In the results presented later in this article, it is clear that this argument is untrue. However, this may not stop low attendance rates from being used against a teacher who is applying for retention, tenure, or promotion. Thus, it becomes important for the teacher to have information regarding the nature of student class attendance to help protect themselves against arbitrary and unfair evaluation practices.

Universities are also concerned with attendance because of the posited relation between absenteeism and grades. The reasoning is that since poor grades can cause a failure to graduate, and absenteeism causes poor grades, then increasing attendance will keep students in college. This is important to university administration since all funding formulas are tied to some degree to number of FTE (full-time equivalent) students. It is felt that if we can increase attendance rates, then we can keep more students in college and thus increase our funding base. This solution may be seen as preferable to marketing solutions to increase the number of new students. Unfortunately, we did not find any research that supported this logic and our conclusions suggest that this approach may be impossible or extremely difficult to implement.

University administration has also expressed interest in attendance policies because of possible litigation. The concern is that a student may sue the university for receiving a grade that was not based on content. If an instructor makes the course grade dependent on attendance in the class, such as giving points for attendance, a student might fail the course for skipping even though they are knowledgeable in the class content. Given such a situation the university or its instrument, the instructor, must

be prepared to defend the reasons why attendance, by itself, is a valid reason for assigning a course grade. As our research demonstrates, this may be a difficult and perhaps impossible task. To deal with this situation, some universities have explicit policies that require an instructor to explain, in writing, when a part of the course grade is determined solely by attendance.

### Hypotheses

To investigate the area of college student absenteeism, we used previous research as a basis for our investigation. The literature in this area does present suggestions for decreasing the absenteeism rate. But our experience showed that significantly influencing the attendance rate was very difficult and the suggestions to improve attendance were impractical, unrealistic, or ineffective. So, we began by verifying the previous research while extending and clarifying the variables involved.

***H1: Average college classroom attendance is about 70 percent.***

Research over the past twenty years consistently shows that the average college attendance rate is about 70 percent and the rate is remarkably consistent across university populations. The distribution across classes at a given university is skewed. Courses that have sustained attendance rates over 95 percent are extremely rare with most classes in the range of 50 to 90 percent. Classes with less than 50 percent attendance are relatively uncommon. (Beaulieu, 1984; Baum & Youngblood, 1975; Hovell, Williams, & Semb, 1979). Most students skip a number of classes each term and some only attend when absolutely necessary, for example, on test days. Of course, it is unrealistic to expect 100 percent attendance in all classes for all students, but theoretically, it is possible for class attendance to consistently be at the 95 percent level. Faculty generally view a 66 percent level of student attendance as typical, though not acceptable (Wyatt, 1992; Boyer, 1987).

***H2: There tends to be a positive relationship between attendance and grades.***

Research has found that attendance is not negatively related to grades (Craig, 1990; Gunn, 1993; Gussett, 1976; Vidler, 1980; McCutcheon, 1986). This would suggest that attendance alone has an educational value, but this conclusion must be mitigated since it is not uncommon for instructors to reduce grades for absences, or to give points for attendance, thus guaranteeing a relationship. This correlation almost certainly does not express causation since there are clearly other variables that are causing both good/poor attendance and good/poor grades. No research has found that increasing attendance increases grades either individually or in groups.

***H3 There is a pattern of decreasing attendance over the term.***

This is a well-known phenomena to college faculty. The first weeks of the term have relatively good attendance and then it steadily decreases toward the end of the term. The pattern is broken by examination days or other special events, but the overall trend is toward decreasing attendance (Van Blerkom, 1992; McCutcheon, 1986).

***H4: Older (age, rank) students have a lower absenteeism rate.***

This is generally substantiated in the literature. It does seem evident that high absenteeism rates are associated with a high dropout rate, but this was not verified in the literature. If true, then the higher absenteeism students will slowly depart from the university thus leaving students with higher attendance rates. Another argument is that older students will have gained a better appreciation of the educational process and thus will go to class more frequently.

***H5: Female students have a higher absenteeism rate than male students.***

Wyatt (1992) argues that research suggests that the classroom is a more hostile place for females and thus they are likely to avoid classes more than males. We were unable to find other research supporting the direction of this hypothesis, but we do believe it is possible that females may place greater value on obtaining a higher degree than males with the result that they will have a lower absenteeism rate in some situations.

***H6: Students miss classes for standard categorical reasons.***

Previous research has shown that the reasons students give for absenteeism regularly fall into a few standard categories including disinterest, preferences for socialization, oversleeping, illness, conflicting demands of other courses and employment, and a dislike for the course or professor (Galichon & Friedman, 1985; McCutcheon, 1986; Wyatt, 1992). In general, the great majority of reasons are not compelling, for example, "having in an accident, breaking a leg, and being in the hospital" is compelling. "Didn't feel like going to class" is not compelling. The reasons can perhaps be depicted as expressing the priorities of the students, with class attendance being relatively low on the list.

***H7: Very early or late classes have higher absenteeism rates.***

Another belief of many teachers is that very early or late classes will have higher rates of absenteeism compared to midmorning

classes. This seems to be a reflection of the fact that the midmorning courses tend to be more numerous and more quickly filled during a term's registration period. No research was found to confirm this hypothesis, but it seemed such a common element of college folklore, that we included it.

***H8: Attendance is related to student's attitudes toward attendance policies.***

We expect that students with high rates of absenteeism will not agree with attendance policies that reward attendance and punish absenteeism in terms of the course grade. Previous research did not address this issue directly.

***H9: Absenteeism is higher in required classes.***

This hypotheses is generated by the idea that elective classes, as opposed to required classes, will be more desirable to the student (McCutcheon, 1986; Kelso, 1978). We feel that the converse of this hypothesis is also suggested by noting that students may see required courses as more important than elective courses and hence have higher attendance rates.

### Methodology

We selected a sample of three sections of an introduction to computer systems and microcomputer applications course all taught by the same instructor. Each of the classes began with 40 students and ended up with at least 35 students completing the 16-week semester term. The classes met on Tuesdays and Thursdays for 75 minutes at 9:30, 11:00 and 2:00.

Obtaining attendance data is problematic. One way is to record attendance obtrusively as in taking roll. With the instructor making a deliberate and conspicuous attempt to record attendance, it would be difficult for a student not to recognize the value of attendance. By virtually announcing that attendance is being taken, the instructor is placing a course value on attendance. Students could not fail to attach some importance to attendance even if there is no stated policy. Even more confounding would be to give course credit for attendance. In addition, such obtrusive methods set a class style that is often interpreted as "high-school" and some students have no qualms over finding ways to beat this system.

To simply measure the attendance rates in the classes, obtrusive methods were avoided. The instructor announced and included as a written element in the course syllabus that there was no penalty for "excused" absences and that no course credit accrued solely from attendance. The instructor took attendance unobtrusively by counting the number in attendance during the class period.

To measure individual student attendance rates, we asked for self-reported absences. The students were assured that their responses would not influence their grade in the course. This is an established method to collect attendance rate data while avoid-

ing the problems noted above (Wyatt, 1992). In addition, the validity of this method for measuring attendance rates has been confirmed by reported high correlations between actual versus reported absences (McCutcheon, 1986; Wyatt, 1992).

A survey form was developed containing items for student demographics and questions related to absenteeism, grades, reasons for absences, and how students thought absences should be handled. Each of the question areas was initially formatted with open areas for students to write in other information. To assess the completeness and validity of the survey form, the researchers gave a draft survey to a class similar in composition to the proposed sample and asked the students to complete it, paying particular attention to the "other" items. These students provided additional reasons for absences, which were incorporated in the final survey instrument.

The revised survey form was administered in all three classes on the day of the final examination. It is not unusual to do surveys including student evaluations on the final examination day. The student's social security number on the form was used to identify each student. The students were advised verbally and in the written introduction that completion of the survey was optional, that the information would be confidential, and that their answers would have no effect on course grades. The administration took about 10 minutes and almost all of the students participated resulting in 99 usable survey results from a total sample of 106.

These three sections could be considered a reasonable cross-section of college students in a lower division course because it is a general education class without prerequisites with a consistent enrollment of about 4 percent of the total university every term. The average age of the respondents was 19.4 (s.d.=1.8) with 60 males and 39 females which closely reflects the composition of the student body. The respondents had an average of 27.2 (s.d.=28.4) completed credit hours showing that the majority were sophomores, but students at all grade levels were represented.

### Research Results

***H1: Average college classroom attendance is about 70 percent.***

In the survey, students were asked to estimate how many classes they had missed in the course over the term of the semester (ABSENT). The average number of reported absences per student was 3.42. The class had a total of 28 meetings which results in an average of 4 absent students per course per meeting or an average daily attendance of 88 percent. The total class attendance checks taken throughout the term showed an actual average daily attendance of 69 percent. These values are significantly different ( $Z=3.367$ ,  $P<.001$ ) showing that the students significantly under reported their absences. We accept the hypothesis with the additional finding of student under reporting.

**H2: There tends to be a positive relationship between attendance and grades.**

The survey asked what grade the student expected to receive (EXPECT). The student's actual final grade (FINAL) as a percent of the total points was obtained from the course records. Students' perceptions of their grades in the course were quite accurate with a correlation of .75 between EXPECT and FINAL ( $F=121.6$ ,  $P<.0001$ ). Regression analysis between the two grade variables (with EXPECT converted to an equivalent percentage) and ABSENT (absences reported by the student on the survey form) gave the following results.

$$\text{EXPECT} = 83.3 - (.79 * \text{ABSENT}), R = -.30, F = 9.8, p = .003$$

$$\text{FINAL} = 79.1 - (.95 * \text{ABSENT}), R = -.35, F = 13.4, p = .0007$$

These regressions are not significantly different at the .05 level. They suggest that students are very much aware of the relationship between attendance and grades. We anticipated this relationship and included a question on the survey that asked students what effect their absences could have on their final grade in the class. Table 1 shows the number of students that checked each choice and the average of the number of absences reported by the students who checked that choice.

**Table 1**  
*Perception of Absenteeism Effect with Reported Absences*

n	Average Reported Absences	Perception of Absenteeism Effect
13	3.1	My absences will have no effect on my final grade.
49	4.5	Maybe some effect, but less than a letter grade.
27	6.2	My absences will have a significant effect, at least a letter grade.
1	10.0	Disastrous, at least two or more letter grades lower.

An analysis of variance for Table 1 on the average reported absences shows a significant difference ( $p > .01$ ). Individual comparison of the means shows that all categories are significantly different at the .05 level. The grading in the course followed a 100-90/89-80/79-70/69-60/59-0 scale for a grade of A/B/C/D/F respectively. Using the regression of FINAL on ABSENT, it would take on the average, about five absences to have the effect of a letter grade and about ten absences to have the effect of two letter grades. Table 1 shows that students are quite accurate in their perceptions of the effect of absences on their grades.

**H3: There is a pattern of decreasing attendance over the term.**

The overall average attendance was 69.1% with a maximum at the beginning of the term of 84% declining to a low of 52% toward the end of the term. The 9:30 class had the individual high attendance of 92.4% approximately one-third into the term and

the 2:00 class had the individual low of 40.5% on the class day before the Thanksgiving holiday. The regression of attendance over time for all classes showed a definite decrease, but it was not significant at the .05 level ( $R = -.37$ ,  $F = 1.59$ ,  $P = .234$ ).

The lack of statistical significance for all classes is due to a high level of variation within the classes even though their means and variances were not statistically different at the .05 level. When the classes were regressed separately over time, the 9:30 and 2:00 classes showed virtually no relationship while the 11:00 class showed a very significant decline in attendance over the term ( $R = -.78$ ,  $F = 15.56$ ,  $P = .003$ ).

**H4: Older (age, rank) students have a lower absenteeism rate.**

Popular faculty wisdom suggests that junior and senior students are more serious and, therefore, attend class more regularly. Van Blerkom (1992) found a relation between class rank and absenteeism. In this research, the independent variable CREDITS (credit hours completed) provided a reliable indicator of class rank. Correlational analysis in our sample showed no relationship between absences and CREDITS or AGE.

**H5: Female students have a higher absenteeism rate than male students.**

There was no relationship between gender and absences.

**H6: Students miss classes for standard categorical reasons.**

The reasons stated by students are shown in Table 2. There were no obvious relationships to these reasons and the variables in the study. The students believed that these reasons were acceptable though perhaps not in the category of "approved" absences.

**Table 2**  
*Student Reasons for Absenteeism*

n	Reason for Not Attending
49	Personal illness
24	Just did not feel like attending
20	Attendance is not required
19	Alarm did not go off
18	Too tired to get up
13	University/course obligation (athletics, field trip, etc.)
11	Personal problems
7	Serious illness/death in family
5	Other class work
5	Miscellaneous
4	Work/Job/Employment
3	Involved in court case

**H7: Very early or late classes have higher absenteeism rates.**

The three sections in this research were at 9:30 a.m., 11 a.m., and 2 p.m. There was no difference between the average attendance of 66.9% and 65.9% respectively in the 11:00 and the 2:00 sections. The 9:30 class had the highest average attendance rate with 75.1% which was significant compared to the other sections at the .05 level. An analysis of the average final grade showed no significant difference between sections.

**H8: Attendance is related to student's attitudes toward attendance policies.**

How do they believe that absences should be handled? For example, do students believe that attendance should be compulsory in the class? We asked students to answer a question at the end of the survey regarding how attendance should be considered in the course grade. Table 3 shows the responses to each of the choices including the average reported absences and the average final grades for those students responding to that choice. The total N in Table 3 exceeds 99 because the respondents were allowed to check all that apply.

**Table 3**  
**Student Attitude toward Attendance, Average Reported Absences, and Average Final Grade**

How Attendance Should Count	n	No. of Absences	Final Grade (%)
Attendance should not be required and/or used in the final grade calculation.	59	4.08	73.5
Attendance should be randomly taken and bonus points awarded for those present.	23	2.70	78.1
Attendance should count for a percent of the final grade.	22	2.00	79.2
Students who miss class should lose points, but there should be no reward for attendance.	6	1.67	76.9

Because the average reported absences and the final course grade are not comparable, an analysis of variance was performed on each variable separately that showed a significant difference at the .05 level according to both the course grade and the reported absences. Paired comparisons showed that the differences were between the first choice ("Attendance should not be required . . .") and the other categories. Students with the highest absenteeism and the lowest grades feel that absences should not be counted in the final grade calculation. The largest single category are those who feel that attendance should not be required.

**H9: Absenteeism is higher in required classes.**

There was no relationship between absenteeism and whether the class is required or an elective for the student.

**Interpretation and Stage 2**

The results have verified that attendance rates are indeed in the 70 percent area and that there is some evidence for a pattern of decrease over the term. There is also a relationship between grades and attendance levels for students, and students are quite aware of this relationship. Students give reasons for missing class that range from the prosaic to the ludicrous. Given this information, we ask if it is possible to influence attendance rates.

Suggestions from other research includes shorter courses, calling roll often, prepare more thoroughly with up-to-date mate-

rial, have frequent tests and quizzes, demonstrate the relevance of the discipline, and make students aware of the correlation between grades and attendance (McCutcheon, 1986; Wyatt 1992; Craig, 1990).

Other research has attempted to assess the effects of various inducement to attend such as giving bonus points, small prizes, frequent and/or pop quizzes, calling students, withholding points, and other types of reward/punishment schemes. Researchers point out that such inducements are occasionally effective in increasing the attendance rate, but they did not make a 70 percent attendance rate class change to a 90 percent level (McCutcheon, 1988; Beaulieu, 1984; Baum & Youngblood, 1975; Hovell et al., 1979).

Observing the reasons students gave for missing class in Table 2, we see little opportunity to affect attendance. Although we could require attendance, we have few realistic means to enforce this policy. The more we considered the results of our research, the more it appeared that attendance rates were relatively fixed and not amenable to change. We began to suspect that most students see class attendance as a minor aspect of their college experience. Students are aware of the effect of absenteeism on their grades. They are also aware that reasons such as "didn't feel like it" are not acceptable to the instructor. And they under-report their absenteeism. Taken together, it seems as if attendance is not particularly important to students.

We understand that part of the college student subculture is the idea that a college education is much more than attending class. We suggest that students see classes, other activities, free time, and grades as elements of a model that is casually evaluated on a day-to-day basis according to their perspective. The general goal, of course, is to graduate. But performing according to the popular image of the college student is very important.

This point is made clear in *The Road Ahead* by Bill Gates (1995). In a brief autobiographical section, Gates candidly states that he established his coolness at Harvard as a freshman by "a deliberate policy of skipping most classes and then studying feverishly at the end of the term." (page 39) He claimed that many students engaged in this "game" of assessing the least time necessary to obtain an acceptable grade. Of course, the really smart students could skip virtually all classes and then, in the last week, study like mad and pull an A on the final. The student model then becomes one who can graduate with a respectable grades while hardly "cracking a book" or going to class.

### Stage 2 Methodology and Results

If the student model described above is endorsed by a student, then they will have a high absenteeism rate. Accordingly, we developed a second questionnaire with a 16 Likert scale items that described the "cool" student model where attendance is seen as an obstacle to be overcome. In addition, we included demographic items on class rank, gender, and self-reported absences for the previous term.

The survey was administered to four sections of the same level course as the first survey, but during a new term with a different student sample. We received 124 usable surveys. Attitude scale analysis showed that all of the Likert items were good discriminators and the scale had a test reliability coefficient is .672 indicating that we could use the total scale score of ATTITUDE as a variable.

There was a significant difference by gender with males having a higher absenteeism rate than females ( $Z = 2.153, P = .002$ ). There was a correlation between class rank and the absenteeism rate ( $R = -.253, F = 7.144, P = .008$ ). The overall absenteeism rate reported was about 3 percent which confirms the usual severe under-reporting.

The reported absenteeism rate, ABSENT, was significantly correlated with the total scale score with  $ABSENT = 1.28 + .04 * ATTITUDE, R=.28, F=10.4, P=.002$

The scatterplot is very interesting with no points in the high ATTITUDE and the low ABSENT area. This tends to validate the scale since those with adherence to the proposed student model do indeed have the very high absenteeism rate.

A full multiple regression model was significant with:  
 $ABSENT = 3.18 + .032*ATTITUDE - .53*GENDER - .24*RANK, R=.426, F=8.88, P=.0005$

All of the independent variables were significant at the .01 level and there was no statistical multicollinearity. These results are consistent with previous research which reached similar levels of statistical significance (McCutcheon, 1986; Wyatt, 1992). However, previous research used factors such as "lack of interest," "need to prepare for another class," "uncertainty about staying in college," "like/dislike class," "frequency alcohol use," and "time studying." We suggest that these variables would be highly correlated with our ATTITUDE variable, and that ATTITUDE is an excellent candidate for the cause of these variables.

### Conclusions and Implications

Though it might seem evident that student attendance can and should be increased, there are a number of problems with any policy of rewards or punishments designed to decrease absenteeism. First, some colleges are legally concerned when grades are partially based on attendance because students (or their legal representatives) may successfully argue that mastery of the course material should be the criteria for a grade. Second, awarding points to students for simply showing up and occupying a seat may not be conducive to an effective learning environment and may actively interfere with other student learning, to say nothing of the effect upon the teacher's morale.

It is accepted that there is a positive relationship between attendance and grades. This relationship is known and understood by students. The reasons students give for absenteeism range from the obvious "personal illness" to the enigmatic "Just did not feel like attending." Obviously, the knowledge alone that attendance will help their grades does not compel students to attend class. The fact that the majority (60 percent) of students in this research did not want attendance to be required leads to the conclusion that forcing attendance may estrange the majority of students, especially in light of previous research showing that even significant rewards are unable to raise attendance to the 90 percent level. In addition, there is evidence that mandatory attendance policies can adversely affect student performance (Hyde and Flournoy, 1986).

If attendance is made a significant portion of the course grade, then the teacher should be prepared for subtle student resistance and potential legal or ethical concerns that may arise from assigning grades based on an element (attendance) that has nothing to do with the course content. It is likely that student evaluations will also suffer. If student attendance is an issue in teacher evaluation, then we strongly suggest that attendance norms should be empirically established first.

If our attitude model of student attendance is correct, then the arguments above for not attempting to increase attendance rates are increasingly valid. Direct coercive and inducement methods cannot be efficient if absenteeism rates are a by-product of the college student subculture. We suggest that under typical conditions, it would be unproductive to attempt to significantly influence attendance rates. Future research could continue to validate



the attitude model by showing that average attendance rates at specific universities are quite steady over time.

Factors that might affect attendance rates in specific classes either higher or lower than average is atypical and not amenable to change. For example, an instructor with a reputation for low grades and meanness will probably have lower attendance rates. Similarly, an instructor who is very popular due to a unique and fascinating style of presentation will have high attendance rates. In either case, the instructor would find it extremely difficult to change the behavior that is a prime factor in attendance rates.

We conclude that attendance rates are an indicator of the student subculture and that attempting to change that rate will be neither easy nor reliable. If our concern is the quality of learning activities in the university, then perhaps we should focus on alternate methods of learning instead of attempting to increase attendance in the traditional classroom. Future research could focus on students with high absenteeism rates to determine a more appropriate educational model for them.

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# Computer End-User Skills U.S. Corporations Recommend Business Students to Possess Now and Toward 2000

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## Abstract

This research was conducted to determine what computer end-user skills U.S. corporations recommend that business students possess upon graduation and toward the year 2000. Human resource executives of 83 *Fortune* 500 companies completed a questionnaire that solicited their recommendations regarding end-user skills related to computer hardware, operating systems, word processing, spreadsheets, databases, desktop publishing and presentations, programming, telecommunications and groupware, and discipline-specific information systems. The findings indicate that 11 end-user skills were "strongly recommended" and 46 end-user skills were "recommended" by the respondents. The respondents also provided additional valuable suggestions for business students.

## Review of Related Literature

The world is now in a new economy, whose core is the micro-processor combined with software and laser optics. The most important aspect of the new economy is that the computer has evolved into a device used not only for computation but also for communication. From 1990 through 1993, U.S. industries spent more on computers and communications equipment than on all other capital equipment combined--all the machinery needed for services, manufacturing, mining, agriculture, construction, and others (Huey, 1994).

As Magnet (1994) noted, many manufacturing and service companies restructured their organizations and integrated computers, networks, groupware, and e-mail into their most basic processes, thereby boosting productivity. For example, Verity and Hof (1994) revealed that from corporate giants--IBM, AT&T, Ford, Merrill Lynch, J.P. Morgan, Bank of America, Dun & Brastreet, J.C. Penney, Mitsubishi--to hundreds of startups, companies are jumping onto the Internet to do business. Commercial on-line services are also rapidly expanding their Internet connections (Sussman, 1995).

Kirkpatrick (1994) stated that groupware becomes a very important business software tool in the new era of client-server PC computing. For example, some 4,000 companies have bought Lotus Notes and installed it on roughly one million PCs. Andersen Consulting, Chase Manhattan, Compaq Computer, Delta Air Lines, Fluor, General Motors, Harley-Davidson, Hewlett-Packard, IBM, Johnson & Johnson, J.P. Morgan, McKinsey & Co., Nynex, Sybase, and 3M are just a few of the many Notes customers.

Research also indicated that people on the fast career track are those who know how to use a computer to do their jobs more efficiently, who can present ideas cogently, and who work well

in teams. By contrast, those newly unemployed and those who do not receive pay raises are often the people who do not have such skills (see, for example, Labich, 1993; Lord, 1992, 1995; Wiener, 1992).

As the U.S. industries are rapidly integrating computer information technology into their most basic processes, a need exists for determining what computer end-user skills U.S. corporations recommend that business students possess upon graduation and toward 2000.

## Problem Statement

The problem addressed in this study was to determine what computer end-user skills U.S. corporations recommend that business students possess upon graduation and toward 2000. In order to solve this problem, the following research questions were addressed:

1. What computer end-user hardware skills do business students need now and toward 2000?
2. What computer end-user software skills do business students need now and toward 2000?
3. What computer end-user programming skills do business students need now and toward 2000?
4. What end-user telecommunication and groupware skills do business students need now and toward 2000?
5. What end-user discipline-specific information systems skills do business students need now and toward 2000?
6. What recommended end-user skills are significantly different between industry groups?

## Purpose of the Study

The primary purpose of this study was to provide business school administrators and educators with the research findings that they need to make necessary adjustments and keep their curricula current and futuristic. The secondary purpose was to inform business students of the computer end-user skills that U.S. businesses expect now and toward 2000; therefore, they can choose appropriate elective courses for their academic programs.

## Procedures

To address the research problem of this study, a survey was conducted among the *Fortune* 500 largest U.S. corporations (*Fortune*, 1995) because these corporations are the leaders in using computer information technology (Teitelbaum, 1995). The population of this study was the human resource executives in charge of corporate recruitment, training and development in their corporations. To identify the names and addresses of these executives, a thorough search was conducted through *Hunt-Scanlon's Directory of Human Resource Executives* (1994).

To guarantee that the sample would be within 5% variation from the true population value, Jaeger's (1984) formula for determining sample size was used, and adjusted by Balian's (1982) guidelines for compensating for expected nonresponses. These procedures resulted in an actual sample of 380 human resources managers.

A four-page, Likert-response questionnaire was developed to solicit recommendations regarding computer end-user skills for business students now and toward 2000. The questionnaire contained five sections: (a) a profile of the responding companies, (b) basic computer skills, (c) computer programming skills, (d) telecommunication and groupware skills, and (e) discipline-specific information systems skills.

Based on the review of related literature (see, for example, Arnett & Jones, 1993; Blanton & Schambach, 1992-1993; Lynch, Stewart & Teglovic, Jr., 1995; Nickerson, 1993; Ohio State University Center on Education and Training for Employment, 1995), the basic computer skills selected for this survey were the skills of using eight hardware components (keyboard, mainframe, microcomputer, minicomputer, modem, mouse, printer, scanner), eight operating systems (DOS, IBM OS/2, Macintosh, Windows, UNIX, VAX, VM/MVS, VMS), six word processing software packages (Ami Pro, MS Word, WordPerfect 5.1, 5.2, 6.0, Write), four spreadsheet software packages (MS Excel, Lotus 1-2-3, Quattro Pro, VP-Planner Plus), six database software packages (dBase III+, IV, V, FoxPro, MS Access, Paradox), and three desktop publishing/presentation software packages (Harvard Graphics, PageMaker, MS Power Point).

The computer programming skills selected for this study were programming with BASIC, C/C++, COBOL, FORTRAN, Pascal, RPG, and programming in database, spreadsheet, and word

processing software. The telecommunication skills included using Internet, local area networks (LAN), wide area networks (WAN) for sending/receiving e-mail, downloading files, finding information, providing information, and transferring files. The groupware skills were the skills of using Lotus Notes, MS Exchange, and Novell GroupWise.

Discipline-specific information systems skills often used by specialized business professionals were identified as follows: (a) accounting: applications for accounts payable, accounts receivable, budgeting, fixed asset accounting, general ledger, payroll, and tax accounting; (b) finance: applications for cash management, credit analysis, and portfolio management; (c) marketing: applications for billing, direct mail, inventory control, order entry, sales analysis, and sales forecasting; (d) management: applications for decision support systems, expert systems, executive support systems, and human resource management systems; (e) manufacturing: applications for computer-aided design (CAD), computer-aided manufacturing (CAM), just-in-time (JIT) inventory management, and production scheduling; and (f) management information systems (MIS): software for systems analysis and design, systems implementation, and systems maintenance.

To determine clarity of the survey instrument, a pilot test was conducted with twenty randomly selected human resource executives from the *Fortune* 500. Upon the return of the questionnaires, no major changes were deemed necessary.

A systematic sampling procedure was used to identify the 380 *Fortune* 500 corporations included in the sample. The 380 questionnaires were mailed with a personalized cover letter to each member of the sample in late September 1995. A personalized following-up letter was mailed with a backup questionnaire five weeks later to thank the respondents and to remind the nonrespondents to complete and return their questionnaire.

One hundred and twenty-five responses were received, 83 of which were usable. The nonusable responses were from respondents whose company policies did not allow them to answer any nongovernmental questionnaires or from companies' mail offices indicating that the addressees had retired or left the companies. The usable responses represent 22% of the sample and 17% of the population of the *Fortune* 500 companies.

Each returned questionnaire was edited and coded, and frequency counts, percentage distributions, and weighted averages were prepared. In analyzing the data, the midpoints of each scale range (the real outer limits) were used in determining the degree of recommendation for that skill; that is, mean weighted responses of 4.5-5.0 = strongly recommend; 3.5-4.4 = recommend; 2.5-3.4 = no opinion. The one-way analysis of variance (ANOVA) and the Sheffé test were used to determine any significant differences of the recommendations between groups of different businesses.

## Findings

The findings of this study are reported in the sequence of (a) the demographic profile of the responding companies, (b) the respondents' recommendations for computer end-user skills, and (c) significant differences of the recommendations between groups of different businesses.

### *Profile of the Responding Companies*

As shown in Table 1, the 83 responding companies represented five major groups covering a wide range of businesses. The largest group of respondents (36%) was manufacturing and processing industries. The second largest (20%) represented retail and wholesale industries. The representation of the remaining three groups ranged from 13% to 16% of the total respondents.

**Table 1**  
*Demographic Profile of the Responding Companies*

Group	Types of Company Business	No. of Companies	Percent of Total
1.	Banking/Finance/Insurance	11	13%
2.	Manufacturing/Processing	30	36%
3.	Retail/Wholesale	17	20%
4.	Transportation/Utilities	13	16%
5.	Other <sup>a</sup>	12	15%
	Total	83	100%

<sup>a</sup> Includes companies in construction, engineering, hotels, mining, oil/gas, and information/communication technologies.

### *Recommended Computer End-User Skills*

The second analysis identified the recommended computer end-user skills for business students now and toward 2000. The recommended skills include hardware and software, programming, telecommunication and groupware, and discipline-specific information systems skills.

**Hardware and software skills.** Four hardware skills (keyboard, microcomputer, mouse, and printer) were rated as being "strongly recommended." Three (modem, minicomputer, and scanner) were rated as "recommended." By contrast, the skill of using mainframe computers received the least recommendation (see Table 2).

**Table 2**  
*Hardware and Software Skills Recommended for Business Students Now and Toward 2000*  
(*n* = 83)

	Weighted Average <sup>a</sup>
<b>Hardware Skills:</b>	
Keyboard	4.8
Microcomputer	4.7
Mouse	4.7
Printer	4.5
Modem	4.4
Minicomputer	4.2
Scanner	4.0
Mainframe	3.3
<b>Software Skills:</b>	
<b>Operating Systems</b>	
Windows	5.0
DOS	4.0
UNIX	3.6
IBM OS/2	3.4
Macintosh	3.3
VM/MVS	3.1
VMS	2.9
VAX	2.8
<b>Word Processing</b>	
MS Word	4.2
WP6.0	3.9
WP5.2	3.1
Ami Pro	3.1
WP5.1	3.0
Write	2.9
<b>Spreadsheet</b>	
MS Excel	4.7
Lotus1-2-3	4.2
QuattroPro	3.2
VP-Planner+	3.0
<b>Database</b>	
MS Access	4.1
Paradox	3.4
FoxPro	3.3
dBase V	3.1
dBase III+	3.0
dBase IV	3.0
<b>Desktop Publishing/Presentation</b>	
MS PowerPoint	4.3
Harvard Graphics	3.6
PageMaker	3.4

<sup>a</sup> Responses to a Likert-type scale where 5 = strongly recommended and 1 = not at all recommended.

Concerning software skills, three operating systems (Windows, DOS, and UNIX) were rated at the top on the list of eight operating environments. Windows was "strongly recommended" and DOS and UNIX were "recommended" for business students now and toward 2000. Most respondents (86%) indicated that the skill in using Windows95 is very important in their companies in the next five years.

When rating word processing software packages, the respondents recommended skills in using MS Word and WordPerfect 6.0, with MS Word taking the lead. Among the spreadsheet packages, MS Excel was rated highest as "strongly recommended" and Lotus 1-2-3 was second as "recommended." MS Access was the only database application "recommended" among all the database applications software. Regarding desktop publishing/presentation software packages, MS PowerPoint and Harvard Graphics were rated as "recommended," with MS PowerPoint in the first place for business students now and toward 2000.

**Programming skills.** On the whole, the programming language skills were rated as being less recommended for business students except for MIS majors (see Table 3). However, business students were recommended to possess programming skills in spreadsheet, database, and word processing applications.

**Table 3**  
*Programming Skills Recommended for Business Students Now and Toward 2000*  
(n = 83)

	Weighted Average
<b>Programming Languages:</b>	
C or C++	3.5
BASIC or Visual BASIC	3.3
COBOL	3.2
FORTRAN	2.8
RPG	2.7
Pascal	2.6
<b>Programming in:</b>	
spreadsheet	4.1
database	3.9
word processing	3.9

**Telecommunication and groupware skills.** All eight types of the telecommunication skills were recommended for business students now and toward 2000 (see Table 4). Among them the skills in using e-mail, Internet, LAN, downloading files, and finding information received strong recommendations, with e-mail in the first place and followed by Internet. Regarding groupware applications, respondents rated the skill of using Lotus Notes as "recommended," and most of them showed no opinion on MS Exchange and Novell GroupWise.

**Table 4**  
*Telecommunication and Groupware Skills Recommended for Business Students Now and Toward 2000*  
(n = 83)

	Weighted Average
<b>Telecommunications:</b>	
E-mail	4.8
Internet	4.6
LAN	4.6
Download files	4.5
Find information	4.5
Transfer files	4.4
Provide information	4.3
WAN	4.0
<b>Groupware:</b>	
Lotus Notes	4.0
MS Exchange	3.4
Novell GroupWise	3.2

**Information systems skills.** Respondents were asked to rate discipline-specific information systems skills for various business majors. As shown in Table 5, skills in using 27 information systems respectively in six disciplines (accounting, finance, marketing, management, manufacturing, and MIS) were rated as "recommended" for students of respective majors now and toward 2000.

#### *Significant Differences*

The one-way ANOVA was used to determine whether the recommendations from the five different groups have any significant differences. Then the Sheffé test was used as a post hoc procedure to locate the significant differences. To conserve space, Table 6 illustrates only the end-user skills areas representing significant differences between any two groups. Only four recommended skills (using a computer for budgeting, direct mail, JIT inventory management, and using a mouse) showed significant differences between some groups.

#### **Summary and Conclusions**

The Fortune 500 respondents recommended that business students possess computer end-user skills in each of the following nine types: computer hardware, operating systems, word processing, spreadsheet, database, desktop publishing, programming in word processing, spreadsheet, and database, telecommunications and groupware, and discipline-specific information systems related to student major.

**Table 5**  
**Information Systems Skills Recommended for the Related**  
**Business Students Now and Toward 2000**  
*(n = 83)*

	Weighted Average
<b>In accounting:</b>	
Budgeting	4.3
General ledger	4.2
Accounts receivable	4.1
Accounts payable	4.0
Fixed asset accounting	3.9
Payroll	3.9
Tax accounting	3.9
<b>In finance:</b>	
Cash management	4.3
Credit analysis	4.1
Portfolio management	4.1
<b>In marketing:</b>	
Sales analysis	4.3
Sales forecasting	4.3
Inventory control	4.1
Billing	3.7
Direct mail	3.7
Order entry	3.7
<b>In management:</b>	
Decision support sys	4.4
Executive support sys	4.2
Human resource mgt	4.2
Expert systems	4.0
<b>In manufacturing:</b>	
JIT inventory mgt	4.0
Computer-aided design	4.0
Production scheduling	4.0
Computer-aided manufa	3.9
<b>In mgt information systems:</b>	
Systems analysis/design	4.4
Systems implementation	4.3
Systems maintenance	4.0

The following 11 computer end-user skills were rated by the respondents as being "strongly recommended" for business students now and toward 2000:

**Hardware:** keyboard, microcomputer, mouse, printer.

**Operating system:** Windows.

**Spreadsheet:** Excel.

**Telecommunications:** using e-mail, Internet, LAN, down loading files, and finding information.

The respondents ranked the skills related to Microsoft Windows, Word, Excel, Access, and PowerPoint at the top in their respective software categories.

Only four recommended end-user skills (using a computer for budgeting, direct mail, JIT inventory management, and using a mouse) showed significant differences between some groups.

The most frequent additional suggestions given by the respondents were these: First, students should feel comfortable using a PC and need to know one application software of each type; then they can easily learn another on the job. Second, upon graduation students should have the ability and willingness to acquire new knowledge and to learn new skills on their own so that they are able to keep themselves competitive.

Based on the findings of this study, the following conclusions are drawn:

1. Upon graduation, business students should be able to use a computer to do their work no matter which industry they will go to.
2. Business students need to know one application software of each type related to their major; therefore, they will be able to learn easily other similar applications on the job.
3. The following 11 computer end-user skills appear to be critical components of a computer education program for business students now and toward 2000: using keyboard, microcomputer, mouse, printer, Windows, Excel, e-mail, Internet, and LAN, downloading files, and finding information.
4. Microsoft Office Professional (which includes Word, Excel, Access, and PowerPoint) is likely to be the most appro-

**Table 6**  
**The Sheffé Test of the Recommended Skills Significantly Different Between Industry Groups**

Computer Skills	Group	(Mean)	vs	Group	(Mean)	* Significant at .05 level
Budgeting	G1	(2.200)	vs	G4	(1.154)	*
Direct mail	G3	(1.647)	vs	G2	(2.483)	*
	G3	(1.647)	vs	G5	(2.583)	*
JIT inventory mgt	G2	(1.567)	vs	G1	(2.546)	*
	G2	(1.567)	vs	G5	(2.667)	*
Mouse	G1	(1.000)	vs	G5	(1.833)	*

priate software package for students to learn computer applications for business now and toward 2000.

5. Teaching students a process of how to acquire new knowledge and learn new skills is more important than teaching them a new software product.

### Recommendations

Based on these conclusions, the following recommendations are made for business school administrators, educators, and students: First, school administrators should ensure that business school computer labs are installed with a sufficient number of personal computers operating in the Windows environment. These PCs should be running the applications software in the MS Office Professional suite. And the PCs should be connected to the Internet system.

Second, in addition to emphasizing the importance of using hardware and software (such as using keyboard, microcomputer, mouse, printer, Windows, Excel, e-mail, Internet, and LAN, downloading files, and finding information) in computer application courses, educators should consider further developing students' ability and willingness to acquire new knowledge and to learn new skills on their own.

Third, business professors in specific disciplines should consider requiring students do their course assignments using related computer applications software that are popular in their respective professions.

Finally, business students should consider taking more computer applications courses as electives to better equip themselves for the future.

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# A Determination of the SCANS Skills, Competencies, and Personal Qualities Being Included in the Business Curriculums of Nebraska Public Secondary Schools

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## Abstract

A survey was conducted of 310 Nebraska public secondary schools to determine the extent to which students enrolled in business courses were being given the opportunity to develop the Skills, Personal Qualities, and Competencies defined by the Secretary's Commission on Achieving Necessary Skills (SCANS). The study also determined the difference in the extent those Skills, Personal Qualities, and Competencies were being included in business curriculums in secondary schools of varying sizes in Nebraska. The study found that most of the SCANS Skills, Personal Qualities, and Competencies are being included in the business curriculums of Nebraska public secondary schools. The size of school was significant in only two areas--Personal Qualities and Interpersonal Skills.

## Introduction

How American schools can prepare students to be productive workers after the year 2000 has been the subject of much debate the last few years, especially since the passage of the School-to-Work Opportunities Act in 1995. Determining the skills our young people will need to be productive workers in the 21st Century has taken precedence over most other issues in education.

Business educators have historically been especially aware of the skills their students need to perform satisfactorily at their jobs and have always tried to teach those skills in business classes.

In 1991 the Secretary's Commission on Achieving Necessary Skills (SCANS) defined for the Secretary of Labor the Skills, Personal Qualities, and Competencies needed for employment. Since then, several states have incorporated the SCANS Skills and Competencies in their schools' curriculums.

This is the first study that has determined the extent students are given the opportunity to develop the SCANS Skills, Personal Qualities, and Competencies in secondary business classes.

## Background

Two conditions arose in the last quarter of the 20th Century that changed the terms for young people's entry into the world of work: the globalization of commerce and industry and the explosive growth of technology on the job. These developments have barely been reflected in how we prepare young people for work (*Learning*, 1992).

Also, no one has taken the initiative to train or retrain workers in the skills they need for a service economy rather than an industrial economy (Fernberg, 1995).

*America 2000, an Education Strategy*, is a plan to move every community in America toward the National Education Goals agreed on by President Bush and the Governors in 1989. The goals state that by the year 2000

- (1) All children in America will start school ready to learn.
- (2) The high school graduation rate will increase to at least 90 percent.
- (3) American students will leave grades four, eight, and twelve having demonstrated competency in challenging subject matter including English, mathematics, science, history, and geography; and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy.
- (4) U.S. students will be first in the world in science and mathematics achievement.
- (5) Every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.
- (6) Every school in America will be free of drugs and violence and will offer a disciplined environment conducive to learning (1991, p. 3).



Tract III of *America 2000*, which serves Goal 5 specifically, addresses private-sector skills and standards. Business and labor, it states, will be asked to adopt a strategy to establish job-related (and industry-specific) skill standards, built around core proficiencies, and to develop "skill certificates" to accompany these standards. President Bush charged the Secretaries of Labor and Education to spearhead a public-private partnership to help develop voluntary standards for all industries. Federal funds were sought to assist with this effort, as was the work of the Labor Department's Commission on Work-Based Learning and the Secretary's Commission on Achieving Necessary Skills (p. 23- 24).

### ***Secretary's Commission on Achieving Necessary Skills (SCANS)***

SCANS was conceived by Roberts T. Jones, Assistant Secretary of the Employment and Training Administration (ETA). Jones and Elizabeth Dole, the Secretary of Labor at the time, created the Commission (Learning, 1992).

In conjunction with the America 2000 Excellence in Education Act, the U.S. Department of Labor in 1991 directed the Secretary's Commission on Achieving Necessary Skills (SCANS) to advise the Secretary of Labor on the level of skills required for entry-level workers to enter employment. Specifically, the Commission was asked to (1) define the skills needed for employment; (2) propose acceptable levels of proficiency; (3) suggest effective ways to assess proficiency; and (4) develop a dissemination strategy for the nation's schools, businesses, and homes (*What Work Requires*, 1991).

**Defining the SCANS Skills, Personal Qualities, and Competencies.** The know-how identified by SCANS is made up of a Three-Part Foundation of Skills and Personal Qualities and Five Competencies that are needed for solid job performance. These include:

#### ***The Foundation***

**Basic Skills**—reading, writing, arithmetic and mathematics, speaking, and listening;

**Thinking Skills**—thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning;

**Personal Qualities**—individual responsibility, self-esteem, sociability, self-management, and integrity.

#### ***Competencies***

**Resources**—allocating time, money, materials, space and staff;

**Interpersonal Skills**—working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds;

**Information**—acquiring and evaluating data, organizing and maintaining files, interpreting and communicating, and using computers to process information;

**Systems**—understanding social, organizational, and technological systems, monitoring and correcting performance, and designing or improving systems;

**Technology**—selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting techniques.

The Commission issued four reports during the years 1991-1993 on the skills and competencies needed to be productive workers in our society; how such know-how is actually used in 50 occupations; specific recommendations for reorganizing education and work in response to workplace changes; and suggestions for training practitioners who are implementing SCANS in classrooms and workplaces.

The fifth report, *SCANS Blueprint for Action: Building Community Coalitions*, (1992) marked the beginning of a new phase of the SCANS process, which goes beyond identifying job skills and how to incorporate the skills into America's schools and workplaces. It summarized the SCANS process, suggested how one can become involved, provided a selection of resources to help apply SCANS concepts, and presented geographically and topically diverse examples.

The Commission met with business owners; public employers; unions; and workers and supervisors in shops, plants, and stores. It found that more than half of young people left school without the knowledge or foundation required to find and hold a good job (*What Work Requires*, 1991)

.SCANS estimated that less than half of all young adults had achieved the reading and writing minimums; even fewer could handle the mathematics; and schools only indirectly addressed listening and speaking skills (*What Work Requires*, 1992).

**Teaching and Learning the SCANS Skills and Competencies.** The SCANS report stated that the most effective way of learning skills is "in context," placing learning objectives within a real environment rather than insisting that students first learn in the abstract what they will be expected to apply (*What Work Requires*, 1992, p. 16).

Students do not learn to grapple with problems and to apply skills if teachers are always directing the learning and doing the talking. Working together on problems, students are more responsible for their own learning, more actively involved. Most importantly, they are functioning as they will in the workplace (*Teaching*, 1993).

In considering the timing for introducing SCANS skills, students should not specialize too early--that is, pursue a specific occupation or field to the exclusion of others--but should begin

by developing the fundamental conceptual foundations and skills that will allow them to acquire more specialized skills later on. From the beginning, instruction in this conceptual foundation should be integrated with the core subject areas *Teaching*, 1993).

In the learning-a-living system, all students, at least through the second year of high school, learn the SCANS know-how in English, math, science, history, and geography, in other classes (e.g. art), and in extracurricular activities. It is also important they be integrated into vocational offerings (*Learning*, 1992).

The details of what to teach at the elementary, middle school, and secondary levels (as well as in postsecondary settings) will need to be worked out for each competency and will take much careful thought and experimentation by teachers and curriculum developers (*Teaching*, 1993).

"The SCANS workplace competencies will not be widely taught unless teachers have access to instructional materials that put them in context." Video and multimedia materials are essential to creating the realistic contexts in which the competencies are used. State curriculum frameworks should include SCANS know-how (*Learning*, 1992, p. 45-46.)

Instructional/teaching activities that can be used in business classes for the five SCANS competencies were outlined in the September, 1995, issue of *Instructional Strategies* (Everett, 1995).

**Assessing and Certifying SCANS Know-How.** A system for assessing and certifying the SCANS workplace know-how is essential. If employers and colleges pay attention to the SCANS foundation skills and workplace competencies, students will work to acquire them. If teachers have to certify that the know-how is acquired, they will make the effort to teach it. If parents and community groups understand the standards that graduates are expected to attain, they will demand that their children reach those levels (*Learning*, 1992).

The Commission believes that a national system, as recommended by the National Council on Education Standards and Testing, should integrate assessment of proficiency in SCANS know-how with other equally important outcomes of schooling. Such a system is needed to communicate world-class standards of curriculum content and student performance, and to certify individual performance and thereby motivate students and their teachers to meet these standards (*Learning*, 1992).

A student who accomplishes enough to meet an overall standard would be awarded a certificate of initial mastery (CIM), a universally recognized statement of experience and accomplishment (*Learning*, 1992).

The Commission suggests establishing for all students, beginning in middle school, a cumulative resume. The resume would contain information about courses taken, projects completed, and proficiency levels attained in each competency (*Learning*, 1992).

## *Recommendations*

The Commission made the following recommendations: (1) The nation's school systems should make the SCANS foundation skills and workplace competencies explicit objectives of instruction at all levels. (The Commission believes that a massive re-examination of teacher training and inservice education is required. It urges that state and local educators work with local advisory groups to review pedagogy, curriculum, and the administration of skills for opportunities to advance the SCANS know-how. This might include how the SCANS foundation skills and workplace competencies can be taught throughout K-12 education.) (2) Assessment systems should provide students with a resume documenting attainment of the SCANS know-how. (3) All employers, public and private, should incorporate the SCANS know-how into all their human resource development efforts. (4) The Federal Government should continue to bridge the gap between school and the high-performance workplace by advancing the SCANS agenda. (5) Every employer in America should create its own strategic vision around the principles of the high-performance workplace (*Learning*, 1992).

## *What Some States Have Done*

Florida was the first state to make the SCANS know-how an official part of its statewide educational reform program by incorporating the SCANS competencies into its student performance standards. Oregon's school reform effort included new standards based on the SCANS know-how (*Learning*, 1992).

Project C in Ft. Worth, Texas, combined the community, corporations, and classrooms. The Chamber of Commerce helped team students and teachers with member companies in internships, called Vital Link. The Applied Learning effort helped learning relate more directly to the needs of the workplace. Teachers have created instructional models to develop the skills identified in the C project and by SCANS (*Learning*, 1992).

The effort has been slowed by a change of presidential administrations and Labor attempts to validate the SCANS recommendations through further study. Labor officials have contracted with American College Testing (ACT) to gauge whether the SCANS-recommended skills are really the ones students need to know before entering the workplace. ACT first validated with qualitative research the identification of the cross-occupational skills . . . and the characteristics of high-performance workplaces (Labor, ACT Double-Checking, April 15, 1996).

"Educators expecting Labor to devise a SCANS-inspired guideline for assessing student performance have not gotten that hands-on tool, but some have moved forward anyway." Maryland and Florida are two states that are creating assessments so students can be evaluated on how well they can perform SCANS competencies (SCANS, April 25, 1996, pp. 1, 3).

## Purposes of the Study

The purposes of this research project were:

1. To identify the extent to which students enrolled in business courses in Nebraska public secondary schools were being given the opportunity to develop the SCANS Skills, Personal Qualities, and Competencies.
2. To determine if there was a significant difference in the extent the SCANS Skills, Personal Qualities, and Competencies were being included in business curriculums in schools of varying sizes.

## Hypotheses

Two research hypotheses are tested in this study.

1. The SCANS Skills, Personal Qualities, and Competencies are being included to some extent in the business curriculums of Nebraska public secondary schools.
2. The extent to which the SCANS Skills, Personal Qualities, and Competencies are being included in the business curriculums of Nebraska public secondary schools varies according to the size of the school.

## Methodology

The survey method was used to gather information from business education programs in all Nebraska public secondary schools.

### Population

The population for this study consisted of business teachers in the 310 Nebraska public secondary schools. A list of secondary business teachers was obtained from the Nebraska State Department of Education. One business teacher from each public secondary school was sent a survey packet. In schools having multiple business teachers, one teacher from the group was randomly selected to receive the survey packet. In the cover letter, this teacher was asked to collaborate with others teachers in the department in completing the questionnaire.

### Questionnaire Development

After a review of SCANS publications, a questionnaire was developed by the authors to collect data for the study. The questionnaire design incorporated a four-point scale that allowed respondents to use a checkmark to indicate the extent to which students enrolled in business education courses in Nebraska public secondary schools were being given the opportunity to develop the specific SCANS Skills, Personal Qualities, and

Competencies. The questionnaire was comprehensive in its inclusion of all subset levels of Skills, Personal Qualities, and Competencies. The four-point scale included the categories "Not sure," "Not at All," "Some," and "A Lot." A second questionnaire was developed to gather basic demographic information to describe the population. The questionnaires were reviewed by the co-advisor of the Alpha Upsilon Chapter of Delta Pi Epsilon and were then piloted with a small group of Nebraska business teachers. Suggested changes were incorporated in the final version of the instrument.

### Questionnaire Administration Procedures and Response Percentages

A mailing to 310 business educators in the study consisted of a cover letter, the SCANS questionnaire, the demographic questionnaire, and an addressed, stamped reply envelope. One week after the due date, nonrespondents were sent a follow-up reminder letter. The survey yielded a 60 percent return rate with responses received from 185 business teachers.

### Demographic Data

Nebraska public secondary schools are very diverse in size. Enrollments ranged from 23 in a rural high school to over 3,000 in a metropolitan school. For statistical analysis, school sizes were collapsed into four groups, as shown in Table 1. This table indicates the number of schools surveyed in each group size, the number of responses received, and the percentage of responses for each school size.

**Table 1**  
*Response Rate of Nebraska Public Secondary Schools by Size*

Group	Number of Students	Number of Schools Surveyed	Number of Responses	Percentage Responses
1	1- 100	87	79	90.8%
2	101- 400	176	80	45.5%
3	401- 900	20	13	65.0%
4	901-3,000+	17	13	76.5%

## Findings

### Data Analysis

Responses to the survey instrument were processed using the Statistical Package for the Social Sciences (SPSS). Each of the SCANS Skill, Personal Quality, and Competency items was subjected to a z-test to test Hypothesis 1. A One-Way Analysis of Variance (ANOVA) was used to test Hypothesis 2.

### Hypothesis 1

The SCANS Skills, Personal Qualities, and Competencies are being included to some extent in the business curriculums of Nebraska public secondary schools.

The overall means of seven of the eight SCANS categories Basic Skills, Thinking Skills, Personal Qualities, Resources, Interpersonal Skills, Information Utilization, and Technology indicate that those Skills, Personal Qualities and Competencies are being included to some extent in the business curriculums of Nebraska secondary schools (Table 2). The Competency area of Systems with a mean of 1.57, however, is not being included to a significant extent.

**Table 2**  
*Overall Means of Nebraska Secondary Schools SCANS Skills, Personal Qualities, and Competencies*

SCANS Skills, Personal Qualities, and Competencies	Number	Mean	Standard Deviation
Basic Skills	185	2.21*	.24
Thinking Skills	184	2.13*	.33
Personal Qualities	185	2.33*	.39
Resources	184	2.04*	.36
Interpersonal Skills	184	2.11*	.37
Information	184	2.35*	.37
Systems	169	1.57	.45
Technology	181	2.16*	.55

\* $p < .05$

(Means reflect responses of 1 = Not at all; 2 = Some; 3 = A lot)

Based on the findings, Hypothesis 1 is rejected for Systems and is supported for the other seven SCANS categories. Although the overall means indicate that seven of the Skills, Personal Qualities, and Competencies categories are being included to some extent, the Competency area of Systems with a mean of 1.57 was not statistically significant at the .05 level.

### Hypothesis 2

The extent to which the SCANS Skills, Personal Qualities, and Competencies are being included in the business curriculums of Nebraska public secondary schools varies according to the size of the school.

The findings show two significant differences in the extent to which the SCANS Skills, Personal Qualities and Competencies are being included in the business curriculums of Nebraska public secondary schools according to school size.

1. Schools with a student population of 901-3,000+ showed a lower mean in Personal Qualities, which was significant at  $p < .01$ . Personal Qualities include responsibility, self-esteem, sociability, self-management, and integrity/honesty.
2. Schools with a population of 401-900 showed a higher mean in Interpersonal Skills, which was significant at  $p < .01$ . Interpersonal Skills include working as a member of a team, teaching others new skills, serving client/customers, exercising leadership, negotiating to solve problems or reach decisions, and working with diversity.

Based on the findings, Hypothesis 2 is supported for Personal Qualities and Interpersonal Skills and rejected for the other six SCANS categories.

### Discussion

Following are definitions developed by the Secretary's Commission on Achieving Necessary Skills for each of the SCANS Skills, Personal Qualities and Competencies. A brief analysis of the data collected in this study for each of the SCANS areas is included at the end of each definition.

*The Foundation*—competence requires:

**Basic Skills**—Reads, writes, performs arithmetic and mathematical operations, listens, and speaks.

- A. *Reading*—locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.
- B. *Writing*—communicates thoughts, ideas, information, and messages in writing; and creates documents such as letters, directions, manuals, reports, graphs, and flow charts.
- C. *Arithmetic/Mathematics*—performs basic computations and approaches practical problems by choosing appropriately from a variety of mathematical techniques.
- D. *Listening*—receives, attends to, interprets, and responds to verbal messages and other cues.
- E. *Speaking*—organizes ideas and communicates orally.

The means for all of the Basic Skills items were significant at the .05 level. The highest mean was Listening at 2.31. Means for Reading, Writing, Arithmetic and Mathematics, and Speaking were closely grouped and ranged from 2.17-2.22.

**Thinking Skills**—Thinks creatively, makes decisions, solves problems, visualizes, knows how to learn, and reasons.

- A. *Creative Thinking*—generates new ideas.
- B. *Decision Making*—specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative.
- C. *Problem Solving*—recognizes problems and devises and implements plan of action.

- D. *Seeing Things in the Mind's Eye (Visualizing)*—organizes and processes symbols, pictures, graphs, objects, and other information.
- E. *Knowing How to Learn*—uses efficient learning techniques to acquire and apply new knowledge and skills.
- F. *Reasoning*—discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.

All means for Thinking Skills were significant at the .05 level. The lowest means were *Seeing Things in the Mind's Eye (Visualizing)* at 1.95 and *Reasoning* at 2.09. The means for *Creative Thinking, Decision Making, Problem Solving, and Knowing How to Learn* ranged from 2.19 to 2.16.

**Personal Qualities**—Displays responsibility, self-esteem, sociability, self-management, integrity and honesty.

- A. *Responsibility*—exerts a high level of effort and perseveres towards goal attainment.
- B. *Self-Esteem*—believes in own self-worth and maintains a positive view of self.
- C. *Sociability*—demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings.
- D. *Self-Management*—assesses self accurately, sets personal goals, monitors progress, and exhibits self-control.
- E. *Integrity/Honesty*—chooses ethical courses of action.

The means for all of the Personal Qualities items were significant at the .05 level. Means were high in this category ranging from 2.42 (*Self-Esteem*) to 2.28 (*Self-Management*).

**Competencies**—effective workers can productively use:

**Resources**—Identifies, organizes, plans, and allocates resources

- A. *Time*—Selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules.
- B. *Money*—Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives.
- C. *Material and Facilities*—Acquires, stores, allocates, and uses materials or space efficiently.
- D. *Human Resources*—Assesses skills and distributes work accordingly, evaluates performance and provides feedback.

The means for the Resource Competencies of *Time, Money, and Human Resources* were significant at the .05 level. The *Materials and Facilities* competency showed a low mean of 1.75, which was not significant at the .05 level.

**Interpersonal Skills**—Works with others

- A. *Participates as Member of a Team*—contributes to group effort.
- B. *Teaches Others New Skills*

- C. *Serves Clients/Customers*—works to satisfy customers' expectations.
- D. *Exercises Leadership*—communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies.
- E. *Negotiates*—works toward agreements involving exchange of resources, resolves divergent interest.
- F. *Works with Diversity*—works well with men and women from diverse backgrounds.

Means for the Interpersonal Skills Competencies of *Participates as Member of a Team, Teaches Others New Skills, Exercises Leadership, and Negotiates* were significant at the .05 level. *Participates as a Member of a Team* showed a high mean of 2.44. The Competencies of *Serves Clients/Customers (1.78)* and *Works with Diversity (1.85)* were not significant at the .05 level.

**Information**—Acquires and uses information.

- A. *Acquires and Evaluates Information*
- B. *Organizes and Maintains Information*
- C. *Interprets and Communicates Information*
- D. *Uses Computers to Process Information*

The means for all items in the Information category were significant at the .05 level. The highest mean in this category was *Uses Computers to Process Information* at 2.83.

**Systems**—Understands complex inter-relationships

- A. *Understands Systems*—knows how social, organizational, and technological systems work and operates effectively with them.
- B. *Monitors and Corrects Performance*—distinguishes trends, predicts impacts on system operations, diagnoses deviations in systems' performance and corrects malfunctions.
- C. *Improves or Designs Systems*—suggests modifications to existing systems and develops new or alternative systems to improve performance.

The means for all three subset areas of Systems were low and not significant at the .05 level.

**Technology**—Works with a variety of technologies.

- A. *Selects Technology*—chooses procedures, tools or equipment including computers and related technologies.
- B. *Applies Technology to Task*—understands overall intent and proper procedures for setup and operation of equipment.
- C. *Maintains and Troubleshoots Equipment*—prevents, identifies, or solves problems with equipment, including computers and other technologies.

The competencies of Selects Technology (2.28) and Applies Technology to Task (2.35) were significant at the .05 level. Maintains and Troubleshoots Equipment (1.85) was not significant at the .05 level.

### Conclusions

Several conclusions were drawn from the results of this study:

1. Based on the findings of this study, it can be concluded that the majority of the SCANS Skills, Personal Qualities, and Competencies are being included to some extent in the business curriculums of Nebraska secondary schools.
2. Business students in Nebraska public secondary schools are being given the opportunity to develop most of the SCANS Skills, Personal Qualities, and Competencies that are needed to successfully enter the world of work.
3. The following specific competencies are not being included at a significant level in the business curriculums of Nebraska public secondary schools.

Resources: Materials and Facilities  
 Interpersonal Skills: Serves Clients/Customers and Works with Diversity  
 Systems: Understands Systems, Monitors and Corrects Performance; Improves or Designs Systems  
 Technology: Maintains and Troubleshoots Equipment

4. Personal Qualities are not being included as extensively in the business curriculums of large schools (901-3,000+ students) as in the other three school size groups.
5. Interpersonal Skills are being included more extensively in the business curriculums of schools with populations of 401-900 students than they are in the other three school size groups.

### Recommendations

Based upon the results of this study, the following recommendations are made:

1. Nebraska business educators should continue to provide their students with opportunities to develop the SCANS Skills, Personal Qualities, and Competencies.
2. All Nebraska business educators should develop an awareness of what the SCANS Skills, Personal Qualities, and Competencies entail and how they relate to workplace preparation.
3. Nebraska business educators should provide more opportunities for their students to develop the following specific competencies:

Resources: Materials and Facilities  
 Interpersonal Skills: Serves Clients/Customers and Works with Diversity  
 Systems: Understands Systems, Monitors and Corrects Performance; Improves or Designs Systems  
 Technology: Maintains and Troubleshoots Equipment

4. The business curriculums of large schools (901-3,000+ students) should include more opportunities for students to develop Personal Qualities.
5. A further study should be conducted of Nebraska public schools to determine the particular classes in which the SCANS Skills, Personal Qualities, and Competencies are being taught.
6. This study should be replicated in other states to determine whether the findings are similar and can be generalized to a broader population.

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# Email: A Relevant Teaching/Learning Tool for Facilitating "Real World" Simulated Distributed Collaborative Work Activities

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## Abstract

Instructional strategies for today's students must be perceived by students as being relevant and practical as well as preparing them for the workplace. Moreover, business education is a likely discipline to provide educational activities to develop the ability to solve problems and to make decisions that students perceive as relevant and practical. Therefore, this study was designed to evaluate students' perceptions of the use of telecommunications in selected business classes toward its relevance in providing them a practical learning environment for the world of work. Specifically the research addressed: Do students perceive email as a relevant teaching/learning tool in preparing them for the workplace?

## Introduction

The mismatch that exists between education and real-life requirements has surfaced as a major concern related to economic growth and quality of life in the United States. This mismatch has emerged from a curriculum designed for a world long past—a world where workers performed menial repetitive tasks under the direction of autocratic management. In this type of workplace, the only thinkers needed were management (Drucker, 1989). Workers in this environment needed only to concern themselves with a few tasks, and those tasks often remained constant throughout a worker's career. Indeed, according to Modlin (1990), it was possible for workers to retire without seeing any changes in the workplace. Most educational practices prepared workers very well for this type of environment, where innovation was secondary to obedience.

Yet, advances in technology, shifts in the labor force, and accelerated demands for up-to-date information presented in different formats have resulted in an emerging need for workers to be able to think and solve problems, i.e. make decisions—not the typical worker described by Drucker (1989). Thus, the ability to think creatively and solve problems has emerged as a tool needed by almost every U.S. worker in all types of organizations and at every level in the hierarchy of these organizations (Carnevale, Gainer, & Meltzer, 1990; SCANS, 1991). Educated workers

who are thinkers, problem-solvers, communicators, and decision makers will be in demand, and employees who know how to apply their workforce preparedness skills and knowledge in unpredictable circumstances will fare better in obtaining and maintaining gainful employment (Hall & Hicks, 1995). Consequently, business educators as well as other workforce preparedness educators are being challenged to provide instruction that adequately prepares entry-level workers for today's work environment.

Not only are business and workforce preparedness educators being challenged by business and industry, but business and workforce preparedness educators are also being challenged by today's students. Students, today, want a relevant, practical curriculum that prepares them for entry into the workplace (Treichel, 1991). Thus, business educators need to incorporate practical examples of real-world activities in their educational programs to teach students to solve problems and make decisions. One approach that has been suggested to provide this relevant, practical, and real-world like training for developing problem solving and decision making skills is telecommunicating via electronic communication (email). Conducting class projects using email allows students to cooperate with others of similar interests around the globe to answer important questions and solve real-world problems (Beasley, 1993). According to Beasley (1995), email allows diverse groups with differing cognitive abilities, skill levels,

ideas, and beliefs to work together to reach a common goal--to complete a project that requires students to solve a typical real-world problem. Therefore, it is likely that the use of the email in classroom instruction may provide realistic, practical learning exercises for today's students.

### **The Problem**

Instructional strategies for today's students must be perceived as being relevant and practical as well as preparing them for the workplace. Moreover, business education is a likely discipline to provide educational activities to develop the ability to solve problems and to make decisions that students perceive as relevant and practical. Therefore, this study was designed to evaluate students' perceptions of the use of telecommunications in selected business classes toward its relevance in providing them a practical learning environment for the world of work. Specifically, the research addressed: Do students perceive email as a relevant teaching/learning tool in preparing them for the workplace?

### **Email and the Internet**

A number of writers have described situations where the use of email and the Internet has proved valuable when integrated into classroom instruction (e.g., Andrews, 1995; Bartel, 1995; Lopez & Nagelhout, 1995; Mabrito 1995; Peek, Roxas & Peek, 1995; Poling, 1994; Quible & Ray, 1995; and Sutton, 1995). According to Poling (1994), for instance, instructors should take advantage of email and use it for both classroom and administrative functions. Further, email may be a very effective tool in answering student questions, counseling students, assigning course projects, posting class announcements, and administering an occasional quiz. Several writers have described procedures for successfully integrating the use of email and the Internet into communication courses (e.g., Andrews, 1995; Bartel, 1995; Lopez & Nagelhout, 1995; Mabrito, 1995; Peek et al., 1995; Poling, 1994; Quible & Ray, 1995; and Sutton, 1995). Most of the authors agree that email and the Internet assisted students with writing skills as well as provides instructional opportunities to develop decision-making and thinking skills.

The On-Line Writing Laboratory (OWL) at Purdue University (Andrews, 1995) assisted business students with improving written communication skills. At Purdue, the OWL system provided students with access to multiple writing topics. OWL system designers viewed the OWL as a way to assist students who were working on writing assignments late at night or who lived a good distance from the on-campus writing laboratory. Besides assisting students with resumes and business letters, the OWL also addressed writing mechanics and organizing ideas to prepare effective communications, which is teaching thinking skills. According to students who used the OWL, both the writing skills and the ability to organize ideas improved.

Peek et al. (1995) described email as a tool to facilitate cooperative learning when discussing ethical issues. Students from two universities were teamed to discuss via email a videotaped vignette from the Arthur Andersen Business Ethics Program. By employing this approach, students developed a variety of communication and technical skills through the use of email. Prior to sending any email, students viewed the videotape and listened to peers to gain full understanding of the ethical issues and related alternatives. The use of email to complete this assignment required that all students have a basic understanding of word processing, network access, and an email system. Ultimately as described by Peek et al. (1995), the project simulated a realistic communication process where informal discussion leads to a formal written document based on communication over email. Since the Internet is world wide, email projects could very easily broaden communications' courses from a national or regional scope to an international scope. Further, students who participated in this project considered the instructional activity as relevant to the world of work.

Bartel (1995) described an instructional setting where email was used by students to examine their strengths and weaknesses in different communication channels. In the Communicating Within Organizations class at Boston University, students used various communication channels--public speaking, written feedback, and active listening in the classroom. After communicating through the different channels, students evaluated the effectiveness of the channel in regard to perceptions of the feedback through each channel. Most of the students upon entering the class believed face-to-face communication would be the most effective way to provide feedback. However, after the experience, students were much more willing to evaluate the different communication channels and to think critically in determining which method of communication would be most effective in providing feedback (Bartel, 1995). Students who completed this course realized that email could bring a realistic and practical dimension to the classroom as well as prepare them for the world of work.

The millions of computers connected via the Internet will have had and will continue to have a profound impact on written business communication courses according to Quible and Ray (1995). Further, students may use the Internet to gather information when preparing reports, to communicate with fellow students at both on- and off-campus locations, or to seek employment. While email access is only one useful aspect of the Internet; students in business communication courses have two likely uses of the Internet: (1) communicating with others using email and (2) using a variety of tools to access resources. Quible and Ray (1995) recommended the use of communication-oriented activities to provide students with an opportunity to use the Internet as a tool for locating resources to bring an element of relevancy from the work world into the classroom. As the number of Internet resources currently available to business communication instruc-



tors is constantly increasing, courses should be designed to include the use of email and the Internet as an instructional strategy to provide the relevant and practical education that today's students are requesting.

Mabrito (1995) described an approach for using email discussion groups as a process for planning and for writing business documents. In class, Mabrito (1995) used an email bulletin board as a medium for students to discuss writing assignments. Email text, discussed by students via the email bulletin board, was analyzed by students to determine how email-based communication differed from written and/or oral communication. After analyzing the text, students were able to draw conclusions regarding the strengths and weaknesses of email as a communication tool. Students were then requested to outline their observations and conclusions in a memo describing what they, the students, would consider effective email communication strategies. Mabrito (1995) noted that issues such as clear subject lines, effective replies, moving from general to specific, value of multiple messages, level of formality, text layout and design, and humor were topics typically discussed by students. Further, students were also able to develop insight into what constitutes effective email communication and the role email plays in an organization through this applied approach. Therefore, email provided opportunities for students to develop thinking skills in a manner that may be typical of the workplace.

### Instrumentation

An attitude scale which asked participants to rate themselves on a number of positive and negative attitudes toward the relevance and practicality of using the email and a real-world type problem was used to collect data for this study. The survey instrument consisted of two sections from which the measurement of variables was obtained. The independent variables chosen for the study were: (a) attitudes toward email technology and (b) demographic characteristics such as age, gender, student classification, and college major. The dependent variables, self-efficacies with email technology, were categorized according to essential function of use.

#### Attitudes Toward Email Technology Scale

Kinzie and Delcourt (1991) developed a scale to measure individual attitudes toward computer technologies (ACT) which synthesizes and augments the research that has been done in this area over the last 15 years (Kinzie, Delcourt, & Powers, 1994). Author permission was obtained to use the scale and to make appropriate revisions. The general phrase *attitude toward computer technology* was changed to *attitude toward email technology* and minor changes in wording were made to a number of items to make the questions more appropriate for this particular student group. A final statement regarding email technology as an overrated tool for productivity was added.

The original instrument contained 19 items, 11 items measuring *Usefulness* (for example, *Communicating with others over*

*a computer network has made me be more effective in my work*) and eight items measuring *Comfort/Anxiety* (*I feel comfortable about my ability to work with email technology*). The phrasing of the statements was balanced equally between positively and negatively phrased statements, as recommended by Likert (1932).

After administration to 328 university students, the developers of the instrument used a principal component analysis of the 19-item ACT instrument to identify three empirical factors which explained 52.3% of the variance among ACT items. Factor I contained eight items which loaded significantly. These items reflected *Comfort/Anxiety* in relation to computer technologies. The 11 items representing *Usefulness* loaded on Factor II and Factor III. These two factors were combined into one construct for two reasons. Factors II and III correlated moderately positively ( $r = .45$ ). Also, Factor II items are all positively phrased and Factor III items are all negatively phrased. These results provided evidence for retaining the two factor instrument (*Comfort/Anxiety and Usefulness*). Alpha reliability for the ACT instrument was high ( $r = .89$ ); as were the values obtained for reliability of the two individual conceptual factors (*Comfort/Anxiety*,  $r = .90$ ; *Usefulness*,  $r = .83$ ).

As a result of these analyses, the authors imply that construct validity is assured and the scale may be used without much reluctance. The authors state that although the instruments were designed for administration to secondary teachers and teacher education students, the instrument can easily be adapted for use with other specialized population groups, such as those from business or medicine.

#### Self-Efficacy with Email Technology Scale

As with the use of any technology, a person's perception of competence with computer technology reflects on the ability to perform the behavior to produce specific outcomes. Kinzie and Delcourt (1991) have developed a scale to measure individuals' perceived self-efficacy for computer technologies (SCT). The scale is designed to assess teacher education students' and practicing teachers' self-efficacy for word processing, electronic mail, and CD-ROM data bases. Author permission had previously been obtained, and the section of the instrument pertaining to email technology as the core items in an augmented scale was used for this study.

The email section of Kinzie and Delcourt's self-efficacy scale contained nine items that addressed basic functions of email use. Respondents were provided the stimulus phrase, *I feel confident . . .*, followed by statements such as *Logging on to email*, and *Sending the same mail message to more than one person on email*. The items that were added to the scale reflect more advanced functions such as uploading files and downloading files from the email environment.

Using only one section of a three-section scale that included word processing, electronic mail, and CD-ROM data base was deemed appropriate since self-efficacy is considered to be task

specific (Schunk, 1985). The measures of self-efficacy with regard to specific performances are more important than an attempt to measure a global construct. In fact, during the development of the SCT, Kinzie and Delcourt (1991) noted significant factor loadings generated by Varimax and oblique rotations. Also, using Kaiser's criterion, a principal Component Analysis revealed a three-factor solution accounting for 84.4% of the variance in the total set of 25 items for 313 respondents. Further, intercorrelations between Factor I (word processing) and Factor II (email) of  $r = .42$ , and Factor II (email) and Factor III (CD-ROM data base) of  $r = .41$  indicate low to moderate relationships between the factors. Since, by definition, measure of self-efficacy are task specific, keeping these three factors separate is conceptually preferable. The internal consistency reliability was .98 (alpha estimate) for the email factor of the original self-efficacy scale.

### Email Instruction

The instructor devoted approximately 35 minutes (70%) of one class period to provide email instruction through lecture supplemented by demonstration. While lecturing, the instructor used a portable teaching unit with Internet access capability to demonstrate appropriate email use. Topics addressed included logging on to the Internet, using the address book, adding and deleting addresses, composing messages, using the spell-check features, sending messages to one receiver, sending messages to multiple receivers, sending a copy of messages, forwarding messages, printing hardcopies of messages, uploading/downloading files, and using email ethically. After the classroom instruction, students were then directed to practice using email by corresponding with the instructor and with each other a minimum of two times daily for one week. After the practice session, Delta State University students began corresponding with East Carolina University pen pals.

### Methodology

Participants were undergraduate students from either East Carolina University (ECU), Greenville, North Carolina, or Delta State University (DSU), Cleveland, Mississippi. ECU participants were enrolled in an administrative procedures course, and DSU participants were enrolled in a business communications course. Since employment activities were components of both courses at both universities and both universities provided email connection capability to their students; the researchers directed ECU students to prepare a Position Vacancy Announcement (PVA) and forward, via email, the PVA to DSU participants. Upon receipt of the PVA, DSU participants were asked to prepare and forward via email to ECU participants resumes and letters of application.

Upon receipt of the resumes and application letters, ECU participants were directed to write and to forward via email application acknowledgment letters to DSU participants. Then, ECU participants evaluated the resumes and letters of application according to the criteria advertised in the PVA. After screening

and evaluating the resumes and application letters using EEO-AA guidelines, ECU participants notified DSU participants via email their status in the employment selection process. DSU participants, who were being considered for the advertised position were told by the ECU participants that they, the DSU participants, would be interviewed via email. The DSU participants, who were not being considered, were directed to write and email their perceptions of the project to their instructor. In addition, the non-finalists were also requested to email ECU participants and ask why they were eliminated.

DSU participants being interviewed received questions and responded to questions from ECU participants. Upon receipt of the DSU responses, ECU participants evaluated the responses and selected a candidate. DSU finalists who were not selected as the final candidate were notified by ECU participants. The DSU finalist selected for the advertised PVA position was emailed an offer of employment. The offer of employment requested that the selected finalist email either an acceptance or a rejection of the offer.

### Data Collection

An attitude scale which asked participants to rate themselves on a number of positive and negative attitudes toward the relevance and practicality of using email to solve a real-world type problem was used to collect data for this study. Factor analysis was performed on the attitude items to determine if factors would load similarly to the factor loadings on the instrument. Participants completed the attitude scale as a post-test following the completion of the email project at the end of the semester. A pre-test was not administered due to technology problems encountered by DSU in accessing telecommunications capability. In addition, DSU participants completed a questionnaire to obtain information about students' feelings toward the use of email to solve a real-world type problem. Appropriate approvals were obtained from human subject committees at each institution involved prior to the execution of the study.

### Analysis Of Data

In addition to descriptive statistics, the two primary statistical tools used to analyze the data were factor analysis and multiple regression. The findings from these two analyses allowed the researchers to describe the relationships existing among the variables and to use the known correlations to predict from one variable to another. Factor analysis was performed on the attitude items for two purposes: (a) to determine if the factors would load similarly to the factor loadings on the instruments (Kinzie & Delcourt, 1991) from which the scales were adapted and (b) to identify a smaller number of factors to facilitate multiple regression procedures.

To analyze the intercorrelations among the large set of measures in the attitudes, and the self-efficacy part of the survey instruments, factor analysis was performed to identify a smaller number of common factors. Identifying the pattern of relation-

ships that exist among the variables, multiple regression analyses were used to predict the effect of attitude and demographic characteristics on self-efficacy of email.

The results of a principal component analysis of the 14 attitude items are presented in Table 1. The scores for all negatively phrased questions were recoded to match the range of scores in the positively phrased questions (4 = 1, 3 = 2, 2 = 3, 1 = 4). Factor I, which reflected *Usefulness* of email technology, contained nine/eight items which loaded convincingly, .612 to .934, after the factors were rotated. The correlation for Item 12, *Communicate with more people*, was somewhat lower than for the other items, .533. Students were, apparently not, as yet, using email

for purposes other than this project.

Factor II, which reflected *Comfort/Anxiety* with email technology, contained six/five items that loaded convincingly after the factors were rotated, .706 to .831. Item 8, *The thought of using email makes me anxious*, is not included in the table because Item 8 did not correlate highly in the analysis. The word, *anxious*, had been inadvertently changed from *nervous* when the instrument was modified. Perhaps the connotation of *anxious* is stronger than the connotation of *nervous*; and, therefore, responses for this variable did not correlate with the conceptually similar variables.

**Table 1**  
**Principal Component Analysis: Varimax Rotation for Attitudes Toward Email<sup>a</sup>**

Item	Stem	Factor I	Factor II
<b>Factor I: Usefulness</b>			
1	I don't have use for email on a day-to-day basis.	.788	.157
2	Using email in my class has only meant more work.	.659 <sup>b</sup>	.280
3	I don't think email is useful in my profession.	.679 <sup>b</sup>	.297
5	With email, I can enhance my communication.	.753	.222
6	If I use email, I will be more productive.	.834	.121
7	Anything that email can be used for, I can do just as well some other way.	.651 <sup>b</sup>	.254
10	I can use email to access many types of information for my work.	.740	.441
12	I communicate more often and/or with more people since using email.	.533	.423
14	Email is an overrated tool for productivity.	.781 <sup>b</sup>	.146
<b>Factor II: Comfort/Anxiety</b>			
4	I feel at ease using email.	.341	.711
8	The thought of using email makes me anxious.	.253	.687 <sup>b</sup>
9	Email technology is confusing to me.	.187	.803 <sup>b</sup>
11	I am anxious about email because I don't know what to do if something goes wrong.	.244	.155 <sup>b</sup>
13	I feel comfortable about my ability to work with email.	.244	.832

<sup>a</sup>n = 26

<sup>b</sup>Scores for negatively phrased stems were recoded before factor analysis was performed. These two factors accounted for 57.8% of the variance for the 14 items in this scale.

Information presented in Table 2 shows the means and standard deviations of students' attitudes toward email. The mean of the response range would be 2.4 since 1 = agree and 4 = disagree. As with the factor analysis, negatively phrased items were recoded to match the range of scores in the positively phrased items (4 = 1, 3 = 2, 2 = 3, 1 = 4). Therefore, means lower than 2.5 indicate that students have a positive perception of the concept of email as it relates to the item topic.

For instance, students really believe email will enhance communication (mean = 1.48). Further, students perceive email as a highly professional tool (mean = 1.56) which has potential to enhance productivity (mean = 1.96) without creating more work for them (mean = 2.32). Students responses to the item, *Email does not make me anxious*, indicate that, in general use, email does not create a level of anxiety (mean = 2.08) worthy of concern. However, if students encounter some difficulty during the

process of using email, students' levels of anxiety tend to rise slightly (mean = 2.92). On the other hand, students participating in this pilot study perceived that practice time available for using email (mean = 3.08) or in accessing information via email (mean = 3.04) is not sufficient as currently provided by the DSU course.

**Table 2**  
*Means and Standard Deviations of Attitudes Toward Email<sup>a</sup>*

Variable	Mean <sup>b</sup>	SD
Email is useful on a daily basis	2.48	1.08
Email does not mean more work	2.32	1.10
Email is useful in my profession	1.56	.096
Feel at ease using email	1.96	1.01
Enhance my communication	1.48	0.65
More productive using email	1.96	0.88
Cannot do another way than with email	2.12	0.97
Email does not make me anxious	2.08	0.99
Email technology is not confusing	2.44	1.12
Access information with email	3.04	0.97
Not anxious if something goes wrong	2.92	1.18
Communicate more often	3.08	0.95
I feel comfortable with email	2.12	0.97
Email is not an overrated tool	2.24	1.09

<sup>a</sup>n = 26

<sup>b</sup>Respondents were asked to agree or disagree with statements about email. The following scale was used.

1 = Agree 2 = Slightly Agree 3 = Slightly Disagree 4 = Disagree

Information presented in Table 3 displays the means and standard deviations of students' perceived level of comfort with email. Students in this pilot study were very comfortable in reading (mean = 1.48) email. Interestingly, however, students were more comfortable responding (mean = 1.72) to email messages than sending (mean = 1.92) email messages. Because DSU was in Internet/email implementation stages, students in this study were given little opportunity to download or upload email. Therefore, students naturally indicated some discomfort with these concepts (mean = 3.16 for downloading and mean = 3.24 for uploading).

**Table 3**  
*Means and Standard Deviations of Self-efficacy with Email<sup>a</sup>*

Variable	Mean	SD
Reading email	1.48	0.77
Responding to email	1.72	0.93
Sending email	1.96	1.01
Forwarding email	2.08	1.03
Downloading email	3.16	0.98
Uploading email	3.24	0.92
Printing email	2.48	1.19
Deciding which to discard	2.04	1.17

<sup>a</sup>N = 26

<sup>b</sup>Respondents were asked to agree or disagree with statements about email. The following scale was used.

1 = Agree 2 = Slightly Agree 3 = Slightly Disagree 4 = Disagree

### Opened-Ended Items

Students were also asked to respond to five open-ended items regarding students' feelings toward the use of email to solve a real-world type problem. Responses to these items were grouped according to similarity and percentages of like responses were computed.

Information presented in Table 4 displays students' responses to the question, *How do you think this project may benefit you in the future, especially as related to career searches?* Eight percent of the students responding did not respond to this question, and 12% of the students responding were uncertain of any benefits which might be gained from email use. The remaining responses to this item were grouped into two categories, *General Benefits* and *Career-Search Benefits*. Some students provided multiple responses to this item; therefore, percentage total exceeds 100%.

**General Benefits.** Twenty-eight percent of the students who responded believed general benefits were gained simply from experience in using email. In addition, 12% of the students who responded indicated that this method of communication was easier and faster than 'snail mail' communication.

**Career-Search Benefits.** Sixty-eight percent of the respondents indicated they would derive career-search benefits from using email. Respondents, specifically, identified gained benefit in such areas as locating positions and understanding the career-search arena (24%), as well as assisting with the procedures for finding/applying for a job (12%).

**Table 4**  
**Students' Perceptions Regarding Future Benefits of Email Projects**

Question	Response	%
How do you think this project may benefit you in the future, especially as related to career searches?	<b>General Benefits</b>	
	Experience in using email	28
	Faster and easier communication	12
	<b>Career-search Benefits</b>	
	Expanded number of position/ career-search area	24
	Help me find/apply for a job easier	12
	Enhanced awareness of businesses of which I may not have become aware otherwise	8
	Enhanced networking capability	8
	Use of electronic job-search databases	8
	Helped me prepare quality resume/ cover letter	4
	Taught me how to go about getting a job in the future	4
	<b>Uncertain Benefits</b>	
	Not certain at this time that it will	12
	<b>Non-response</b>	
	No response	

NOTE: Some students provided multiple responses to this item; therefore, percentage total exceeds 100%.

Information presented in Table 5 displays students' responses to the question, *Is an email career search an appropriate way to find a position? Why/why not?* Again, eight percent of the students did not respond to this item. Responses were grouped into three categories: Yes (76%), No (40%) and Yes/No--It depends (4%). Some students provided multiple responses to this item; therefore, percentage total exceeds 100%.

**Yes.** Sixteen percent of the respondents indicated that email career searches expand the search area from a local arena to a national arena. Further, students indicated that while email is a good career-search tool, email should be combined with traditional methods (16%).

**No.** Twenty-eight percent of the respondents indicated that email is good for searching. However, email does not give the benefit of person-to-person contact. Some students expressed concern that email career searches are too informal (4%).

**Yes/No--It depends.** Four percent of the respondents indicated that email's effectiveness as a career-search tool would depend upon the type of position for which the students were applying.

**Table 5**  
**Students' Perceptions Regarding Appropriateness of Using Email as a Career-Search Tool**

Question	Response	%
Is an email career search an appropriate way to find a position? Why or Why not?	<b>Yes . . . Reasons</b>	
	It allows me to expand my career search across the nation, rather than just looking locally.	16
	Email is one good way to find a job, but should be used in addition to traditional career-search methods.	16
	Email promotes promptness and is often faster than the mail	12
	Email is more effective than newspaper searches.	12
	Saves travel time and expense	8
	Yes, (No reason stated).	8
	Enables me to find a job that offers the best money and benefits.	8
	<b>No . . . Reasons</b>	
	It may be good for searching, but does not give the benefit of face-to-face, person-to-person contact.	28
	It is too informal	4
	I would never apply for or accept a job without first seeing how the place looks.	4
	Not everyone is familiar with or used email	4
	<b>Yes and No . . . It Depends!</b>	
	It depends on the type of job for which you are applying	4
	<b>Nonresponse</b>	
	No response	8

Information presented in Table 6a displays students' responses to the question, *What are some differences or difficulties you encountered using email as a career-search tool?* The nonresponse rate for this item was 8 percent. Some students provided multiple responses to this item; therefore, percentage total exceeds 100%.

**Differences.** Eight percent of the respondents indicated that no specific differences were noted when using email as a career-search tool. On the other hand, several respondents listed differences such as *no face-to-face contact; easier--less pain from rejection; less effort from email; traditional interviews more professional; typographical errors cause more problems in email than traditional mail (8%), softcopy versus hardcopy resumes/cover letters (8%), etc.*

**Difficulties.** Many respondents expressed concern about the possibility of resumes getting lost in cyberspace (20%), and 8 percent of the respondents indicated no difficulties were encountered.

**Table 6a**  
*Students' Perceptions of Differences and Difficulties Encountered in Using Email as a Career Search Tool*

Question	Response	%
What are some differences or difficulties you encountered using email as a career-search tool?	<b>Differences</b>	
	Do not get to see the other person face-to-face, so they are easier--rejection does not hurt so much--a lot less effort; but traditional interviews seem much more professional.	16
	Email is much faster than traditional mail.	12
	No difference that really stands out	8
	Softcopy versus traditional hardcopy resumes and cover letters.	
	Typos in email delivery cause more problems than traditional mail delivery.	8
	Email networking is faster, but more impersonal	4
	<b>Difficulties</b>	
	Your resume, etc., might get lost in cyberspace because of a typo in the address; and it takes a while before you realize this has happened	20
	Sometimes it is hard to find email addresses and other information.	12
	It took me too long to learn how to use email.	12
	No difficulties encountered	8
	Did not have enough time to check my email as often as might be necessary in actual career search.	4
	Sometimes the other person did not respond to my email	4
<b>Nonresponse</b>		
No response	8	

Information presented in Table 6b displays students' responses to the question, *What differences would you expect between email and traditional face-to-face interviews?* Thirty-two percent of the students did not respond to this item. Responses were grouped into four categories: email advantages, email disadvantages, traditional advantages, and traditional disadvantages. Some students provided multiple responses to this item; therefore, percentage total exceeds 100%.

**Email Advantages.** Twelve percent of the respondents indicated that email interviews were less stressful. Email interviews were less stressful because participants did not need to worry about dress or appearance (4%).

**Email Disadvantages.** The lack of nonverbal cues was a concern of 16% of the students. Further, students indicated that email interviews provided employers with less information (4%).

**Traditional Advantages.** Sixteen percent of the respondents indicated that traditional interviews provide benefit of nonverbal cues. In addition, traditional interviews provide a level of comfort when dealing with a known quantity (8%).

**Traditional Disadvantages.** Sixteen percent of the respondents expressed concern about traditional interviewing. Respondents indicated that the traditional method of interviewing is slower and requires more research (4%).

**Table 6b**  
*Students' Perceptions of Differences Between Email and Traditional Face-to-Face Interviews*

Question	Response	%
What differences would you expect between email and traditional face-to-face interviews?	<b>Email Advantages</b>	
	Less stressful	12
	Less effort	4
	Do not need to worry about dress/appearance	4
	<b>Email Disadvantages</b>	
	No nonverbal cues	16
	Less professional	8
	Employer provides less information	4
	<b>Traditional-Mail Advantages</b>	
	Benefit of nonverbal cues	16
	Comfort level from dealing with known quantity	8
	More professional	4
	<b>Traditional-Mail Disadvantages</b>	
	Slower process	16
Requires more research	4	
<b>Nonresponse</b>		
No response	8	

Information presented in Table 7 displays students' responses to the question, *What are the negative/positive aspects of using email?* The nonresponse rate for this item was 24%. Some students provided multiple responses to this item; therefore, percentage total exceeds 100%.

**Negative Aspects.** Sixty-four percent of the students responding identified negative aspects of using email. Concerns included such difficulties as *getting to the computer lab*, *accessing email*, (24%); *need to be computer literate*, (8%); *need for keyboarding skill*, (4%); *lack of message security*, (4%), *not everyone has email* (4%); etc.

**Positive Aspects.** Students identified such positive aspects as *faster than 'snail mail,'* (44%); *access to massive amounts of information*, (12%); *inexpensive communication medium*, (12%); *easy to use*, (8%); *helps upgrade keyboarding and communication skills*, (4%); etc.

**Table 7**  
*Students' Perceptions of Negative and Positive Aspects of Using Email*

Question	Response	%
What are the negative/positive aspects of using email?	<b>Negative Aspects</b>	
	Was a hassle getting to computer lab	24
	No bad things	8
	Must be computer literate	8
	Must have keyboarding skills	4
	Can be confusing to learn at first	4
	Lack of message security	4
	Too impersonal	4
	Sometimes difficult to upload/download	4
	People do not always check email	4
	Not everyone has email	4
	<b>Positive Aspects</b>	
	Faster than snail mail	44
	Access to massive amounts of information	12
	Cheap way to communicate	12
	Ability to communicate with people in different environment	12
	Easy to use	8
	Helps avoid telephone tag	4
	Fun to use	4
	Helps upgrade keyboarding and communication skills	4
<b>Nonresponse</b>		
No response	8	

NOTE: Some students provided multiple responses to this item; therefore, percentage total exceeds 100%.

Information in Table 8 displays students' responses to the question, *Should this project be continued? Why or why not?* Eight percent of the students did not respond to this item. The responses were grouped into two basic categories: *should be continued* and *should not be continued*. Some students provided multiple responses to this item; therefore, percentage total exceeded 100%.

**Should be continued.** Eight percent of the respondents indicated that the project should be continued. Reasons given included the fact that email and the related project between ECU and DSU were generally a *good experience* (32%) which provided both ECU and DSU students with a *necessary business skill* (16%) and allowed the students to gain additional technological and business skills (12%). Some other reasons to continue the project included the ability to *gain information for other classes* (4%) as well as *gain electronic career-search knowledge/skills* (4%). Four percent of the respondents indicated that the project should be continued only if students were provided extra-credit points for their efforts.

**Should not be continued.** Sixteen percent of the respondents said the project should be discontinued. Reasons provided for discontinuing the project were *too much work/hassle* and *not everyone will need email in the workplace*.

**Table 8**  
*Students' Perceptions as to Email Project Value*

Question	Response	%
Should this project be continued? Why or why not?	<b>Should be continued</b>	
	Yes!	80
	<b>Should be continued because . . .</b>	
	Good experience	32
	Necessary business skill	16
	Gain additional technological, business skill	12
	Gain electronic career-search knowledge/skills	8
	Gain information for classes, as well as communication	4
	Expand communication/networking skills	4
	Continue on if offer extra-credit points	4
	<b>Should not be continued</b>	
	No!	16
	<b>Should not be continued because . . .</b>	
	Not everyone will need email in the workplace	8
	Too much work/hassle	8
	<b>Nonresponse</b>	
No response	8	

## Discussion

A majority of today's students have been exposed to computer technology throughout their lives. Thus, traditional instructional strategies and methodologies which do not involve computers and related technology are not appropriate. Today's students have been labeled the *Multimedia Generation*. Therefore, today's Multimedia Generation expects the educational process to include all types of technology to prepare these students for their future. Yet, educators have a major problem--educators have not been able to keep pace with the rapidly advancing technology. New technology, when purchased upon entry to the marketplace, is expensive; and educational budgets are not appropriating funds to obtain new technology as it is introduced. However, with access to the Internet, the need to purchase new and emerging technology is no longer a necessity--it is a reality! Internet access allows educators to take advantage of new and emerging technology. Consequently, workforce preparedness educators can now provide relevant and practice instruction for the workplace by using the Internet and its related components.

The ECU-DSU connection used email (technology) and a career search activity to link the real world and the education environment. Participants in the activity were required to use knowledge gained from previous coursework, as well as current coursework, to handle a typical human resource situation--applying for a job. When examining the data collected, conflicting information may, at first glance, be apparent. However, upon closer examination, students' perceptions regarding the use of email to solve a typical business problem becomes clearer. Students indicated that the use of email added a positive dimension to the learning process--students liked using email as part of the educational process. For example, participants reported the use of email would be of benefit when locating potential employment positions as well as understanding the career/job search process. Further, participants reported the ECU-DSU connection would be of great benefit in the future when applying for job. These participants indicated that they would have a greater understanding of how the job application process worked.

As mentioned earlier, the positive aspects may have been somewhat overshadowed by the negative factors. The negative aspects may have been influenced by the small number of participants ( $n = 26$ ) as well as problems encountered by the students which were beyond the control of the instructor. The ECU-DSU project was a pilot project; thus, additional study is warranted to ascertain if the use of email as an instructional strategy enhances the learning process. However, the problems reported by the participants were not with the ECU-DSU project. The reported problems were associated with accessibility to the Internet and related equipment--getting to the computer lab, need for keyboarding skills, and the need to be computer literate. Thus, none of the problems reported were associated with the activity itself--the problems were related to the technology. Problems associated with the technology may be from the participants who did not have access to a computer other than on

campus or who did not have a computer background. Additional information is needed to ascertain if the reported participant problems were indeed a result of lack of computer experience. Moreover, many students indicated that the ECU-DSU connection was a good experience as well as providing the students with additional technological and business skills. Thus, the ECU-DSU connection was a pertinent teaching learning strategy.

## Conclusion

Participants from both ECU and DSU liked the use of the email. Further, participants indicated that this type of activity was relevant and practical as the ECU-DSU connection prepared the participants for their future. Therefore, the use of the email does appear to be a viable alternative to provide relevant and practical learning situations for today's multimedia generation!

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# Entrepreneurship Development in Kenyan Technical Education

## Exploring the 'State of the Art'

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### Abstract

Interest in entrepreneurship education has grown dramatically over the last decade. Entrepreneurship education is seen to address the issues of unemployment that has become nagging to many countries of the world. The research reported here sought to describe how entrepreneurship education is perceived within the Kenyan context. In addition to revealing the meaning accorded entrepreneurship education, the findings of this research also showed the common constraints of its implementation into the Kenyan education system.

### Introduction

As I have just said, the population is growing and growing. In my classroom situation I normally use a very simple equation, that employment is tending towards unemployment. Because if you look at it, the population of the unemployed is increasing every year. So, for the example, there is an increase of form leavers every year and the increase the of jobs out there is not the same. So in fact employment is going down, if you look at it mathematically and the unemployment is what? . . . Is going up. So there is all the need to make them aware, that they could start their own businesses, create employment and then bridge the gap between employment and unemployment. (Lecturer)

As employment opportunities in the wage sector continue to dwindle, educational systems are being challenged to produce graduates who are more oriented towards the 'make-a-job' as opposed to 'take-a-job' mentality (Kourilksy, 1994). Most governments are trying to meet this challenge by integrating entrepreneurship education into their formal education systems. In fact, restructuring of the educational systems, especially in the developing world, is being used as one of the strategies for averting the negative effects of the structural adjustment measures, for accelerating economic development and for reducing unemployment and income disparities amidst ever growing populations.

Kenya adopted this strategy in 1990 when entrepreneurship education became a required area of study in all formal vocational and technical institutions. In Kenya, the integration of entrepreneurship education in the formal vocational and technical institutions shifts their focus from job skill training for wage employment to job skill training for self-employment. This in-

tegration of entrepreneurship education needs to be viewed in the context of widespread restructuring and downsizing of the public sector and the reduced opportunities for career advancement in the corporate ladder.

The achievement of this stipulated objective through entrepreneurship education is dependent on a whole spectrum of factors. These include the meaning adopted, the perceptions of those involved, the nature of the curriculum and its relevance to the current social and economic situation of the country. The overall objective of this research was to describe the 'state of the art' of entrepreneurship education in Kenya by acquiring an in-depth understanding of entrepreneurship education and its meaning to the persons involved.

### Research Questions

The questions which formed the basis of this research were:

1. What is the meaning accorded entrepreneurship education within the Kenyan scene?
2. What are the objectives of entrepreneurship education as conceived by educators, students and officials in the relevant ministry?
3. What perceptions do educators, students and officials have with respect to the entrepreneurship education curriculum?
4. What teaching strategies do educators use for entrepreneurship education and how do students view their effectiveness?
5. What is the impact of selected factors on the integration of entrepreneurship education into the curriculum?

6. To what extent has entrepreneurship education been integrated in the vocational and technical education curriculum?

## Methodology

### Research Sites

The focus of this study was to describe the state of entrepreneurship education with respect to vocational and technical education. Formal vocational and technical education in Kenya is provided in 325 youth polytechnics, 19 technical training institutes, 17 institutes of technology and 3 national polytechnics and one technical teacher training (Nelson & Mburugu, 1991). The research sample comprised of one institution in each category, except for the youth polytechnics. This diversity provided a vertical flare of issues relating to entrepreneurship education within formal vocational and technical education.

### Participants

Within each institution a purposive sample of lecturers and students was used. Though the participants were largely self-selected, effort was made to ensure diversity in the sample. For students, the criteria included the year of their programme and field of study. For lecturers, the criteria were years of experience, field of specialization, level of education, nature of training for the purposes of teaching entrepreneurship education and roles held within the entrepreneurship education departments.

The research also used officials in the Entrepreneurship Education Unit within the Ministry of Research, Technical Training and Technology (MRTTT). For officials, the criteria used was to be in a decision making position.

### Data Collection

Data for this research was collected for over a six month period. Interviewing was the primary data-collection method. The researcher carried out a series of class observations in to supplement data collected through interviews. Documents such as the syllabus and training guides were collected.

### Interviews

The researcher conducted about thirty interviews using an interview guides that focused on various aspects of entrepreneurship education. These guides assisted in making the interviews systematic and comprehensive by delimiting the issues while also affording room for spontaneity.

Consent to tape record was sought from each participant prior to the interview session. Each interview averaged one hour in length. All interviews were in English, the medium of instruction in Kenya from primary school. Each interview was transcribed verbatim.

### Observation

Additional data were collected through a series of class observations in selected institutions. These observations revealed the strategies used for teaching entrepreneurship education as well as a spectrum of nonverbal communication.

### Written Documents

Written documents used for this study included the entrepreneurship education project documents, course modules, training guides, syllabuses and business plans generated by the students.

### Data Analysis

The collected data, which included interview transcripts, field notes from class observations and notes generated from documents, was analysed following recommended qualitative procedures. This process of analysis involved data reduction, data display, conclusion drawing and verification.

The act of narrowing the study as well as setting its limits had fulfilled a large proportion of the initial task of data reduction. The main exercise of data analysis then began with data display in which the researcher became engaged in the task categorizing the data. This was followed by the task of conclusion-drawing and verification. The data were then analysed for identification of patterns and themes.

### Findings

#### Meaning of Entrepreneurship Education (EE)

An insight into the meaning of Entrepreneurship Education (EE) within the Kenyan context can be gained from the following examples of responses from the participants.

“Aaah, in itself we having problems in breaking through. Because, especially in our college here it has been a problem because people have always asked what it is. . . . but mainly I think it is the mode of changing people’s culture that is positive to business.” (Lecturer)

Giving the meaning of EE, a student said:

“I would say entrepreneurship education is mainly about learning how to identify and run small businesses, to be able to organize the resources that you have or that are around you and to be able to run a business.” (Student)

In describing EE another lecturer says:

“How would I describe entrepreneurship education? Mmmm . . . I would look at it as a form of education that

impart the youth with that knowledge on how to manage a business, and how to manage a business and make a profit out of it. . . . in Kenya you know that there very many people in business but some they succeed through trial and error. But this education is to give them that right knowledge". (Lecturer).

These quotes illustrate the diversity of perspectives in describing EE. The meaning of EE for the respondents is embodied in what they expect to be the role of EE. For example, "changing people's culture". This ascribed meaning of EE has a heavy overtone of starting a business. EE is seen as a preparation for business creation or a gate-way to self-employment. This is not surprising since the notion of business initiation dominates the articulated objectives in the EE curriculum for all levels. Again, youth unemployment in a period of public sector downsizing serves to legitimize the introduction of EE into the education system.

### *Aims/Objectives*

The official stance of EE as revealed through document analysis revolves around equipping the youth with "knowledge, skills and attitudes that will enable them to start, operate and manage a personal or group business enterprise" (KIE, 1990). In other words the strategy is to "train people for entrepreneurship and self-employment" resulting into expanded employment opportunities and economic growth" (Nelson & Mburugu, 1991). Delineating this reality one lecturer observed:

I think what the government is trying to do is to solve the problem of unemployment through entrepreneurship . . .

Commenting on what he sees as the objective of EE one student said:

I would say it is to make somebody self-reliant coz nowadays you find that jobs are scarce and may be you cannot be able to get somebody [employ you]. But . . . [if] you just start a small workshop, just a small business with entrepreneurship skills you will be able to overcome and then actually be able to feed yourself and be able to help . . . other people". (Student)

### *The Curriculum*

Preparation of the EE curriculum is the responsibility of the Kenya Institute of Education in cooperation with the Ministry of Research, Technical Training and Technology. There is a general feeling among the respondents that the curriculum is inadequate. The training manuals which act as the resource books for the lecturers were often a source of contention. One respondent commented:

. . . I am simply depending on what has been prepared but I think there should be some improvements. . . .

Because if you look at the manuals themselves, . . . what you call case studies are not. Some are not right for me to know what is happening. For I think they were prepared in a hurry, the case studies. So there should be some improvement in the case studies to be able to reflect what is happening currently. (Lecturer).

Another respondent said:

. . . [A]ny curriculum is supposed to be revised every so often . . . Look at the training manual, . . . They were developed in 91 and I don't think they have been revised. The same with case studies, the same situation and the situations change particularly in Kenya, they have changed drastically since 91 but they are the same . . . . (Lecturer).

### *Pedagogical Strategies*

An action-oriented trainee-centred approach is recommended in teaching the EE. According to Mburugu (1994) this approach facilitates the trainees to acquire entrepreneurial knowledge, skills and attitudes through information gathering, exploration, independent learning, initiation of networks and emotional involvement. In addition to normal classroom activities the trainees need to be accorded learning opportunities through role models, field visits and business attachment. The data revealed while some educators did focus on the action-oriented methods, others hardly did. Highlighting the teaching methods used by the lecturers, one student said:

. . . [T]he main method we have been using for learning is group, group discussion. Maybe because we are trying to integrate experiences. See we get people from different fields. . . . they also use lecture method especially in areas where they really have to guide us, they give in lecture form. We have also been using panel teaching. A group can present and the other listen and watch. . . . And we have also been going out to do research in the library and the offices, government offices to get some of the information. (Student)

Another respondent observed:

. . . I lecture, I just lecture. . . . we have model teaching aids around here. On your way here you find many Coca Cola kiosk vendors, at the railway side we also have very many kiosks. So we have model teaching aids outside. So I normally relate them to what they see on their way to college. . . . So they are lucky there, because we are close to the practising entrepreneurs. So my mine strategy is actually to refer to them, sometimes I send them to them. (lecturer).

With further probing the respondent added:

Although I may say the number is very large, it is very difficult to closely monitor or look at individual students". . . . We are talking about five classes and each is about 20 students. So they come to over 100. . . . So the management becomes a the problem. And because I am alone, to be able to put them in a group[s and] closely monitor [them] has not been possible in my side.

### *Factors Impacting on EE*

EE is a new educational innovation and implementors have to contend with its acceptance by such stakeholders as students, institutional administrators and fellow faculty members. While the students attitude, according to the respondents is generally positive, others see it as a theoretical distracter of their technical oriented subjects. Expounding on this one lecturer explained the attitude of his students toward EE as:

. . . they find it as an easier way of relaxing. You know the other subjects are a bit cumbersome and entrepreneurship . . . it does not have calculations. You are really talking about, mainly about experiences.

With respects to fellow faculty members and the administration the lecturer continues to say:

The lecturers, the administration itself. They don't emphasize on it. So we are faced with the problem of trying to push it . . . It is like rigid. . . . So we really have to hammer it. So the conversion had not been very very good. (Lecturer)

Scarcity of resource material was another factor identified. Students complained about the lack of reference materials especially in the libraries. Lecturers, on the other hand, revealed their heavy reliance on the training guides which was the main, if not the only resource available. One lecturer explained the situation as follows:

The biggest problem, of course, is the materials, reading materials, textbooks. That's a big problem. Then the access to research work done in the area is also limited. Like now, I have been teaching research methods and I couldn't get my students to get some of the research that have been done, and there is a lot that have been done. Then you have K-Rep who are supposed to be having a library that have everything, but K-Rep charges twenty shillings for whatever and in one visit it is not enough for students . . . so there is a cost factor. . . . (Lecturer)

Expounding on this situation one student said:

As I said earlier, the resource materials. You find out that when you go to the library you hardly get the rel-

evant references for reading. . . . So that is the first obstacle that we are facing. . . . Then we find the photocopying slightly expensive because you have to have to photocopy using your own money. (Student)

Like any other new innovation there is lack of qualified and competent EE lecturers. Expounding on this situation one lecturer said:

I think the major constraint I see, and I don't know whether it has come in some of the other institutions, is teachers. The teachers are simply not enough. (Lecturer)

Expounding on the quality of those teaching EE, this respondent observed:

. . . ideally entrepreneurship is not just like another teaching subject. You are dealing with people and you are telling them what they should do with their lives. . . . If he is an electrical fellow, you need to know all the electrical stuff so that you are able to guide him. . . . In a place like this where we have 11 departments, we need people [not only] with entrepreneurship but also with the 11 backgrounds.

However, most of the lecturers who have undergone through entrepreneurship education training seem to be attracted elsewhere to satisfy the demand in non-educational organisations that offer better compensation. One lecturer observing this phenomenon said: "but you see the minute they come from there, they become consultants".

Concern was expressed about the futility of emphasising EE for the development of entrepreneurial competencies when their implementation depended on the availability of financing. As one lecturer puts it:

We are changing the student to rely, not to rely on white colour jobs anymore. But the biggest problem is that financial support is not forthcoming". And when they leave, of course the competition is still very stiff outside there. . . . but if they were to be give a support in terms of establishing the business, they would go for it.

And as Casson (1982) notes, "A person who has entrepreneurial ability but no access to capital is said to be unqualified".

### **Conclusion**

The findings from this research indicate that the meaning accorded EE by the participants is strongly embodied in the notion of self-employment. According to the participants the main goal of EE is to prepare students for self-employment. In other words, the main objective of EE is to divert the occupational choices of trainees away from wage employment. The achievement of this goal entails changing the students attitudes as well as equipping then with entrepreneurial skills that are a prerequisite to

successful self-employment. The participants then seem to echo Nelson & Gichira's (1986) contention that "[m]any graduates from training and employment programs could possibly become self-employed if they had the knowledge and understanding of what it takes to own and operate a business".

Kenya's economy under the current situation is heavily dependent on the small scale enterprise sector. One way of ensuring its prosperity is to provide a pool of potential entrepreneurs who have requisite skills and knowledge for business success. EE has the potential of developing people ingrained with an entrepreneurial culture.

However, as a new innovation within Kenya's education system, EE is in the stage of legitimization. Consequently, it confronts common constraints of implementation which include, lack of status, shortage of skilled and competent teaching force and teaching resources. A number of teacher programmes have been started to alleviate the problem of teaching staff. But as observed by the participants most of those trained tend to find better compensating jobs outside the education system.

One of the concerns expressed by the respondents is the limited resources needed to implement what is learnt in EE. In other words, while EE may succeed in engendering self-employment among the target groups, there is need to give them a future through financing their business ideas.

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# Factors that Influence Participation in Student Organizations: A Comparison of a Two-Year and a Four-Year College

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## Abstract

This research examined the reasons that influenced two-year and four-year college students to join or not join a student organization related to their major. A variety of demographic characteristics were also examined to consider what role they had in the choices. Students at two colleges in Georgia completed a questionnaire. More similarities than differences were found between the schools. The majority of students at both schools cited the factor of "job responsibilities" as the reason that they did not join an organization. The reason cited by the most students for joining an organization was "wanted the membership to list on resume." To combat the negative factors, school advisors should stress the positive influences of belonging to an organization. Organizations should also try to be more flexible in meeting the time constraints of the students. A number of recommendations were included to help organizations begin this process.

## Introduction

Much research has been conducted on the benefits that post-secondary students gain from actively participating in student organizations that are related to their majors (Astin, 1977; Pace, 1984; and Abrahamowicz, 1988). For example, studies have found that these organizations help students hone their leadership skills and other personal growth skills (Guido-DiBrito & Batchelor, 1988; Rainey, 1995; Schuh & Laverty, 1983; Wise, 1975). In addition, authors of recent business communication textbooks such as Ober (1992, 568); Himstreet, Baty, and Lehman (1993, 538); and Locker (1992, 631) still consider "honors and activities" an important part of a student's resume. Also, these organizations introduce students to experts in their fields and give them networking opportunities they might not otherwise have. However, student organizations can consume considerable time and effort on the part of the students and the faculty advisor.

## Purpose

The purpose of this research study was to examine the factors that influenced the choice students made to either join or not join a student organization. In addition, other demographic characteristics such as gender, age, and grade point average were examined to see what influence they might have had on the responses.

## Method

Some student organization faculty advisors became aware that membership in their student organizations appeared to be de-

clining though the recruitment efforts had not changed. The advisors wanted to know what factors influenced students to participate or not participate in a student organization. The research was conducted at two colleges in Georgia each with a student population of less than 6,000. The colleges are each state schools and have similar active student organizations available. Full-time students from the two-year college and the four-year college were randomly selected to complete a survey instrument. The respondents were asked if they belonged to a student organization related to their major. Based on that response, they were asked to choose the one factor (from a list of factors) that most influenced their decision to join or not join that organization. They were then asked to complete a number of demographic questions. A total of 813 usable survey instruments were returned.

## Limitations

The research was limited to organizations that are related to a college major such as the Psych Club and the Data Processing Management Association. These organizations are open for membership to anyone interested in that particular area. This study did not include honor societies, fraternities and sororities, or the student government association all of which have membership by invitation or election.

## Findings

### *Description - Sample*

**Four-year College Respondents.** Of the 387 four-year college respondents, sixty-three percent were females and thirty-seven

percent were males. Sixty-one percent were between the ages of 17-22, twenty-three percent were between the ages of 23-27, six percent were between the ages of 28-32, and three percent were between the ages of 33-37. The other seven percent were 38+. Twenty-two percent lived in a residence hall, fourteen percent lived with parents or guardians, and sixty-four percent lived off-campus. Thirty-three percent of the respondents had grade point averages from 2.5-2.9, twenty-six percent had g.p.a.'s from 3.0-3.5, and twenty percent had g.p.a.'s from 2.0-2.4. Fourteen percent had g.p.a.'s between 3.5-3.9, four percent had a g.p.a. of 1.9 or less, and three percent had a 4.0 g.p.a.

**Two-year College Respondents.** Of the 426 two-year college respondents, forty-seven percent were females and fifty-three percent were males. Sixty-nine percent were between the ages of 17-22, eleven percent were between the ages of 23-27, eight percent were between the ages of 28-32, eight percent were between the ages of 33-37, and four percent were age 38+. Twenty-nine percent of the respondents lived in residence halls, twenty-nine percent lived with parents or guardians, and forty-two percent lived off-campus. Twenty-nine percent had grade point averages from 2.5-2.9, twenty-seven percent had g.p.a.'s of 3.0-3.4, and twenty percent had g.p.a.'s of 2.0-2.4. Eight percent had a g.p.a. from 3.5-3.9, and ten percent had a g.p.a. of 1.9 or less. Six percent of the respondents had a 4.0 g.p.a.

**Table 1**  
*Demographic Profile of Respondents*

	Four-Year College (n = 387)	Two-Year College (n = 426)	Combined (n = 813)
<b>Gender:</b>			
Female	63 %	47 %	55%
Male	37	53	45
<b>Age:</b>			
17-22	61	69	65
23-27	23	11	17
28-32	6	8	7
33-37	3	8	6
38+	7	4	5
<b>G.P.A.</b>			
2.5 - 2.9	33	29	31
3.0 - 3.5	26	27	26
2.0 - 2.4	20	20	21
3.5 - 3.9	14	8	11
1.9 or less	4	10	7
4.0	3	6	4
<b>Housing Arrangements:</b>			
Live in residence hall	22	29	25
Live off-campus with parents/guardians	14	29	22
Live off-campus	64	42	53

**Respondents Not Participating**

**Four-year College Respondents.** Eighty percent of the four-year college respondents did not belong to a student organization related to their major. Thirty-four percent of these respondents cited "job responsibilities -- no time for an organization" as the factor that kept them from joining. Twenty-three percent cited "not aware of any student organization related to major." Ten percent checked the category of "not interested in joining an organization related to my major." Eight percent cited "academic responsibilities -- no time for organization." Four percent said "family responsibilities" was the reason for not participating. The remaining twenty-one percent were scattered among the other eight factors.

**Two-year College Respondents.** Eighty-six percent of the two-year college respondents did not belong to a student organization related to their major. Twenty-seven percent of these respondents cited "job responsibilities" and twenty-seven percent cited "not aware of any student organization." Ten percent marked the category of "not interested." Nine percent cited "family responsibilities -- no time for an organization," and six percent cited "academic responsibilities." The remaining twenty-one percent were distributed among the remaining seven factors.

**Table 2**  
*Reasons for Not Participating in Major-Related Organizations*

	Four-Year College (n = 309)	Two-Year College (n = 366)	Combined (n = 675)
<b>Job Responsibilities -</b>			
no time for organization	34%	27%	30%
<b>Not aware of any student organization related to major at school</b>	23	27	25
<b>Have no interest in organization</b>	10	10	10
<b>Academic responsibilities -</b>			
no time for organization	8	6	7
<b>Family responsibilities -</b>			
no time for organization	4	9	6
<b>Other seven reasons</b>	21	21	22

**Respondents Participating**

**Four-year College Respondents.** Twenty-percent of the four-year college respondents did belong to a student organization. Thirty-six percent of these respondents marked "wanted the membership to list on resume" as the factor that influenced them to join. Seventeen percent joined because "it was suggested by a



professor." Fourteen percent joined because "they wanted to meet people with similar interests." Fourteen percent joined because "they might make contacts who would help them find a job." The remaining nineteen percent were scattered among the other five factors.

**Two-year College Respondents.** Fourteen percent of the two-year college respondents did belong to a student organization. Twenty-five percent of those respondents wanted "the membership to list on resume" while another twenty-five percent wanted "to meet people with similar interests." Fifteen percent joined because "their friends joined." Twelve percent joined because they felt "organization enhances what is taught in class." The remaining twenty-three percent were distributed among the other five categories.

**Table 3**  
*Reasons for Participating in Major-Related Organizations*

	Four-Year College (n = 78)	Two-Year College (n = 60)	Combined (n = 138)
Wanted membership to list on resume	36%	25%	31%
Suggested by professor	17	5	12
Wanted to meet people with similar interests	14	25	19
Wanted to meet contacts who might help find a job	14	3	9
Friends joined	1	15	7
Organization enhances what is taught in class	0	12	5
Other five reasons	18	15	17

**Responses by Demographic Characteristics**

The responses by the students from both schools were examined by demographic characteristics of gender, age, living arrangements, and grade point averages to look for similarities and differences in their choices on the survey instrument. Tables 4 and 5 show the breakdown of responses.

**Table 4**  
*Demographic Profile of Respondents Not Participating in Major-Related Organizations*

	Four-Year College (n = 309)	Two-Year College (n = 366)	Combined (n = 675)
<b>Gender:</b>			
Female	60%	47%	53%
Male	40	53	47
<b>Age:</b>			
17-22	62	66	64
23-27	20	13	16
28-32	6	7	7
33-37	3	9	7
38+	9	5	6
<b>G.P.A.</b>			
2.5 - 2.9	35	29	32
3.0 - 3.5	24	27	26
2.0 - 2.4	22	20	21
3.5 - 3.9	12	9	10
1.9 or less	5	8	6
4.0	2	7	5
<b>Housing Arrangements:</b>			
Live in residence hall	22	28	25
Live off-campus with parents/guardians	13	31	22
Live off-campus	65	41	53

**Table 5**  
*Demographic Profile of Respondents Participating in Major-Related Organizations*

	Four-Year College (n = 78)	Two-Year College (n = 60)	Combined (n = 138)
<b>Gender:</b>			
Female	77%	45%	63%
Male	23	55	37
<b>Age:</b>			
17-22	54	85	67
23-27	36	3	22
28-32	8	8	8
33+	2	4	3
<b>G.P.A.</b>			
2.5 - 2.9	27	27	27
3.0 - 3.5	32	25	29
2.0 - 2.4	14	25	19
3.5 - 3.9	24	2	14
1.9 or less	3	5	4
4.0	0	16	7
<b>Housing Arrangements:</b>			
Live in residence hall	23	32	27
Live off-campus with parents/guardians	17	20	18
Live off-campus	60	48	55

## Conclusions and Recommendations

Based on the findings from this study, a majority of college students, both two-year and four-year, are not participating in organizations that are related to their major. The deciding factor in their decision appears to be the perceived lack of time. The time needed to devote to jobs, family, or academics outweighs the time needed to participate in a student organization.

What can be done to circumvent these time constraints? Students who have family responsibilities cannot easily drop everything to attend meetings and club sponsored events. One idea might be to include spouses and children in some after hours events. Meetings could be scheduled at staggered times, one meeting at night, next a breakfast meeting at a local breakfast bar. If sitters are a problem, perhaps a TV, VCR and responsible club member in an adjoining room is the answer.

Most students who also have jobs work flexible schedules to accommodate their school hours. If these flexible hours could extend to include time for organizations, students may be able to realize the benefits of participation.

As for academic responsibilities, research has found that students who are active in organizations related to their majors actually have higher GPA's than those who do not participate. Maybe participation in a major related organization should be considered an academic responsibility.

More troubling is the number of respondents who chose "not aware of a student organization related to their major" and "not interested in an organization." Both schools have an abundance of student organizations that need students but apparently the advertising and recruitment methods are coming up short. In addition, faculty, especially the business communication professors, and advisors need to be more diligent in explaining to students about the personal and academic benefits that they can receive from belonging to an organization.

It is obvious that something must be done to better inform students of the benefits of participating in major related organizations and of their existence on campus. These benefits have been documented by several studies in recent years (Beilke, 1990; Benacci, 1991; Rainey, 1995).

Involvement in organizations increases the likelihood of success in college; helps to develop leadership skills; builds self-confidence; and, facilitates the transition from school to workplace. Additionally, student learn to share responsibility, make group decisions, manage conflict and plan for future commitments. One of the hidden benefits of belonging to a student organization, according to Hill (1990), is the opportunity to form long-term friendships within the organizational peer group that can last for many years.

Ways to increase awareness and participation will vary based on the major area of the organization and on the student's reasons

for not already participating. Some suggested ways to solve the problem of non-participation are:

Send questionnaires to students with their acceptance letters asking for information concerning major interests and participation in high school organizations. Current officers or members of the college organization could then personally contact the students to welcome them to the school and encourage them to join.

Include information on student organizations at the orientation sessions for new students. Have the club advisor or members speak to groups that have been separated out for information and focusing on majors.

Even though time may be limited, academic advisors could take advantage of registration advisement time to inquire whether the student is aware of the appropriate organization and is active in it. If the student is not aware, perhaps the advisor could promote the next meeting, distribute some sort of brochure, or put the student in contact with a member.

Promote activities of the organization in the school newspaper, on the college radio station, and through local community media. Report the results of members participation in competitions, state conferences, and fund-raising projects.

Sponsor study sessions for students enrolled in major courses. Schedule them at a convenient time and ask the instructor to announce them during class time.

Ask alumni members to speak to classes explaining how participation in the organization has helped them to be successful as they have gone on to further study or into their careers.

Post attractive banners and posters in the division to announce meetings and events.

Remind students in majors classes that participation in major-related organizations can be an integral part of their education, enhancing their leadership skills and networking opportunities. Emphasize that a major-related organization is an academic responsibility.

## Implications for Future Research

Research shows that students benefit greatly from belonging to a student organization. Skills needed to succeed in the workplace are honed and enhanced by membership in a student organization. But students are not participating. Where will they get these skills if they don't belong? Are student organizations outdated? Are they just not meeting the needs of today's students? Future research should address these questions and others such as "why" students, especially traditional age students, are working so much despite the fact that there is still considerable financial aid available.

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# Financial Ratio Analysis of a Nonprofit Organization Delta Pi Epsilon, 1980-1995

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## Abstract

The purpose of this study was to determine the financial condition of Delta Pi Epsilon over time. Data analysis and standards confirmation include the following three areas: Statement of Financial Accounting Standards (SFAS) No. 117, Financial Statements of Not-for-Profit Organizations; National Council instituted budget commitments and priorities; and financial ratio analysis of Delta Pi Epsilon including categories of (1) liquidity, (2) debt capacity, (3) sources of funds, (4) uses of funds, and (5) net operating results.

Except for a Statement of Cash Flow, the organization is meeting the SFAS No. 117 requirements. National Council establishes budget commitments and priorities and these are being followed by National Officers. The financial ratio analysis of Delta Pi Epsilon indicated the following for each category (1) liquidity=High, (2) debt capacity=No Debt, (3) sources of funds=Good with Possible Future Concern, (4) uses of funds=Concern, and (5) net operating results=Major Concern.

## Introduction

In for-profit business organizations, objectives may include maximize shareholders' wealth, operate profitably and effectively, and maintain long-term stability and the capability to absorb financial reverses (Chabotar 1989). Nonprofit organizations also share many of these financial concerns. While nonprofits may not have the same short-term financial objectives, nor account for their financial resources in the same manner, financial ratio analysis can be used by many nonprofit organizations to provide effective financial guidance.

## Review of Literature

The financial condition of nonprofit organizations may be the important determinant when an organization considers right-sizing. With membership declines and additional sources of funds limited, financial ratio analysis can become a tool that management must consider when strategic planning alternatives are deliberated.

Ratio analysis has been used in higher education for a number of years by the National Association of College and University Business Officers (Dickmeyer and Hughes 1980). Nonprofit organizations measure the sources of revenues and determine the expenses of services provided both to members and non-members. The common thread for all tax-exempt nonprofit organizations is that they cannot provide profits or the generated surplus to members of the organization (Weisbrod, 1988). To monitor organizational efficiency, ratio analysis must measure the sources of revenues and the service associated with incurred expenses.

Although ratio analysis is only one of management's decision making tools, this analysis does offer the advantage of providing quantified data to begin organizational priority analysis. While one ratio by itself may not determine a standard and may not even be relevant, averages over time will provide information concerning prevailing financial conditions. These conditions must be examined whether the results are acceptable or not acceptable.

One of the tools suggested by Chabotar (1989) is the organization of financial ratio analysis into categories. These categories for nonprofit colleges and universities and other nonprofit professional organizations include: liquidity, debt capacity, sources of funds, uses of funds, and net operating results.

Basic to the small business entrepreneur knowledge base is timely information on the expense and revenue on a per unit basis. Therefore, in a period of potential right-sizing, it is essential that expenses be effectively controlled and the future realistically assessed. One of the first tasks for nonprofits is to assess the revenue and expenses generated annually on a per member basis. Contribution analysis of programs and activities can quantify how much each of these units contribute to the organization (Livingston 1992).

Theoretically based financial studies focus on designing functions for quantitative financial data analysis. There are difficulties in choosing significant indicators that are as efficient as profit. Studies indicate that effectiveness and efficiency are indicators that are irreplaceable in the analysis of profit-making organizations (Pina and Torres 1992). Another distinction between profit and nonprofit is that a nonprofit cannot distribute

earnings. Individuals who are involved in nonprofits typically tend to be idealistic, concerned about high quality, and prefer not to compromise their standards (Press 1990).

The Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards (SFAS) No. 117, Financial Statements of Not-for-Profit Organizations, in June 1993. For nonprofit organizations with less than \$5 million in total assets and less than \$1 million in annual expenses, the effective date was December 15, 1995. For nonprofit organizations, SFAS No. 117 prescribes standards in three fundamental areas: (1) basic financial statements, (2) content of financial statements, and (3) classification of financial statement information (Robbins and Polinski 1995).

### **Review of Delta Pi Epsilon Structure**

The structure of Delta Pi Epsilon indicates authority resides in the National Executive Board with the National Council developing rules and regulations. The National Structure Committee may recommend changes in the framework and functions of the Society, and thereby, revision of the Bylaws (Delta Pi Epsilon 1983-1995). Financial analysis appears to be the responsibility of the National Treasurer. The Budget Committee of the National Council is responsible for the development of and securing approval for the budget for the next biennium. "By its final decisions on the budget and the resulting financial commitments, the National Council indicates its priorities of action for the organization on the national level for the next biennium" (Delta Pi Epsilon 1983a).

In 1983, the Delta Pi Epsilon National Executive Board initiated planning for a contingency fund (\$1 per initiate). Responses from 38 organizations were solicited with 23 responses received. The survey results indicated a tremendous variation in planned contingency funding. The range of responses was from nothing to \$2 per member up to one-quarter million dollars plus the value of a headquarters building. Percentage responses ranged from one and one-half times basic operating expenses to one half the annual budget to ten percent of total budget. A somewhat typical response of a small organization was "amount of funds unspent" (Delta Pi Epsilon 1983b).

### **Purpose**

The purpose of this study was to determine the financial condition of Delta Pi Epsilon over time. Included in the purpose was a determination of financial implications and recommendations for future financial priorities.

### **Procedures and Methodology**

To conduct the determination of financial condition of Delta Pi Epsilon over time the following procedures were followed:

### **Data Collection**

Financial data were collected from the *Minutes and Reports* of the National Council Meetings from 1983 through 1995. The data from agenda item 10.4-Report of the National Treasurer, included Statements of Assets and Liabilities and Statements of Revenues, Expenses and Changes in Equity for the years 1980-1993. Audited statements are included in the *Minutes and Reports* from the preceding two years, for example: 1983 Report included the 1980 and 1981 financial reports. The financial reports for the years 1994 and 1995 were secured through the National Office. Membership information was obtained from the same source (Agenda item 11.1-Report of the Executive Director).

### **Data Analysis**

Data analysis and standards confirmation included the following three areas:

First, the SFAS No. 117 establishes standards in three areas with a total of 18 reporting requirements. This procedure requires yes or no responses to whether the reporting requirements were being followed.

Second, the National Council establishes budget commitments and priorities. This procedure also requires ascertaining whether procedures were followed.

Third, the financial ratio analysis of Delta Pi Epsilon was divided into the categories of (1) liquidity, (2) debt capacity, (3) sources of funds, (4) uses of funds, and (5) net operating results. The ratios calculated were compared to standards for other nonprofit organizations presented by Chabotar (1989).

### **Analysis and Findings**

#### ***Statement of Financial Accounting Standards No. 117***

The analysis indicated the reporting requirements as required by the SFAS No. 117 and whether each requirement (1-18) was being followed (Yes) or (No). The first requirement was a statement of financial position (1) (Yes) and if the aggregated information about resources and obligations was reported by combining all funds and showing total assets, liabilities and net assets (5) (Yes). Assets and liabilities that possess similar characteristics were aggregated into reasonably homogeneous groups (15) (Yes) and assets and liabilities were ordered in the balance sheet according to their order of liquidity and nearness to maturity (16) (Yes).

The second requirement was a statement of activity (2) (Yes) that reports revenues and expenses (6) (Yes) and reports gains and losses (7) (Yes) presented as an aggregated statement of

activity (9) (Yes). A statement of functional expense (4) (No) was not included. The amounts of change in permanently restricted net assets, temporarily restricted net assets and unrestricted net assets were reported separately in the statement of activity (17) (No). These items were reported in the availability of investments under investment allocations individually and as a total unavailable for operations. Therefore, changes were reported in permanently restricted, temporarily restricted and unrestricted net assets (8) (Yes). Externally-restricted contributions were differentiated in the statement of financial position (14) (No) and net assets reported as fund balance were classified as permanently restricted, temporarily restricted, and restricted (18) (No). Again, these items were reported under investment allocations unavailable for operations.

The third requirement was a statement of cash flows (3) (No). However, this organization reports all revenues, expenses and changes in equity on a **modified cash basis**. The organization did report changes in cash and cash equivalent (10) (Yes), cash provided and/or used by operations (11) (Yes), cash provided and/or used by investing activities (12) (Yes), and cash provided and/or used by financing activities (13) (No). Item 13 was not a fair comparison since the organization had not had to use financing activities during the period under study. The investment account report, changes in revenue, expenses and equity, and line item analysis of biennium budget numbered accounts, even though reported on a modified cash basis, may need to be supplemented with a statement of cash flows.

#### *National Council Establishes Budget Commitments and Priorities*

The DPE National Council is a unique organization that results in financial conflict resolution to balance priorities held by local members and the needs of DPE. The organization has managed to build an equity position over time and meet a wide range of research priorities. A comparison of final budgets determined by National Councils revealed a budget in balance in 1981 and 1983. To meet the needs of the relocation of the National Office a budgetary surplus of \$60,000 was voted in 1985. Since that time budgetary deficits were voted in each biennium, from (\$50,000) in 1987 down to (\$11,000) in 1995. In 1981, the equity of the organization was over \$12,000. The equity increased each biennium to a high of \$205,000 in 1993, then declined to \$183,000 in 1995. This reversal coupled with a steady decline in membership has created concern among the members. Although nonprofits do not exist to earn a profit, the organization cannot survive deficits indefinitely.

#### *Financial Ratio Analysis*

The first category in the analysis was liquidity. This is ability to pay bills in a timely manner. The most common ratio is the current ratio (current assets/current liabilities). Also calculated was the quick ratio and the available funds ratio. Since the organization only utilized checking accounts, investments, and since 1988 added accounts receivable but no current liabilities,

results of the three ratios will be the same. The standard for the current ratio is 2:1. The current ratios ranged from 1.9:1 in 1985 to 190.6:1 in 1986. In all cases, the current ratio was lower in the second year of a biennium. Accounts receivable at year-end averaged less than \$100. Since the beginning of 1988, the organization did not report current liabilities, therefore, current ratio analysis could not be computed. Only in one year was the cash position above \$10,000 at year-end (1986). However, the investments moved from \$28,000 to over \$102,000 during that year, an indication of sound cash management.

The second category in the analysis was debt structure. During the years of the study, 1980-1995, the organization did not report long term liabilities and since the end of 1987 did not report current liabilities. Debt to equity ratios and debt service ratios could not be calculated.

The third category in the analysis was sources of funds. The sources of funds for DPE in order of importance were: membership dues, publication income, new member initiation fees, interest income, new charter (chapter) petition fees (fees discontinued in 1994), and other income. Dues income as a percentage of total receipts ranged from 65.0 percent (1981) to 76.5 percent (1983) and was 70.2 percent in 1995. Publication income as a percentage of total receipts ranged from 8.9 percent (1989) to 22.8 percent (1981) and was 16.4 percent in 1995. New member initiation fees as a percentage of total receipts ranged from 4.5 percent (1990) to 9.4 percent (1984) and was 6.7 percent in 1995. The three sources, dues, publications, and initiation fees, represent the **contributions ratio** of funds.

Also computed were sources of funds as a percent of total expenditures. Lacking any outside sources of funding the organization must depend on 100 percent internal funding. During the first year of the biennium, the organization had more funds and the ratios ranged from 159 percent in 1986 to 106 percent in both 1980 and 1994. The second year of the biennium, normally involved more cash outflow and the ratios were all in the 90+ percent range except for 1993 (100 percent) and 1995 (85 percent).

Projections by DPE officials are that publication income will be reduced as library subscriptions fall in the future. To test the impact of a loss of publication income on sources of funds, publication income was deleted from the available data for all years and the new sources of funds as a percent of total expenditures were computed. In only four years (compared to nine) would a positive cash flow occur (100 percent or more). In 1994 (95 percent) and 1995 (71 percent), a combined additional deficit for the biennium of more than (\$53,000) would have occurred. This would be almost one-third of the investment position. If publication income and publication expenditures were deleted for all years, the results would be in all years except 1995 (99.9 percent) a positive (sometimes excessive) cash flow.

The fourth category in the analysis was uses of funds. Planning the uses of funds is the ultimate mission statement, strategic

plan, and presidential inaugural statement rolled into one and is dictated by the actions of the National Council. Uses of funds establish true priorities. The expenditure of funds in order of importance were: National Office, publications expense, National Council (in odd years), National Executive Board, National Standing Committees, and other.

Chabotar (1989) suggested that administrative cost should range from 12 to 15 percent of total expenditures. The National Office for the 1996-1997 biennium was budgeted at 51 percent of total expenditures. The percentage for the years of the study was from a low of 35.6 percent (1981) to a high of 55.8 percent (1988). The percent of expenditures for all expense accounts (except National Council) will be lower in odd years because of National Council expense. Finally, the national trend upward of fringe benefit cost (perhaps 25 to 30 percent of salary) may restrict future economics of scale.

Publication expenses consist of items such as the *DPE Journal* which has a regular publication schedule. Other publications may be published on a less demanding time schedule. Thus the percentage of expenditures for the years of the study ranged from a low of 21 percent (1993) to a high of 34.3 percent in 1980. In 1995, the percentage was 28.6. Historically, the greater the number of different publications the greater the publication revenue.

National Council expenses occurred in odd years and had a high expense year of 17.2 percent (1983). Since 1991, the percentages and actual dollars have trended downward. The National Executive Board tended to be trending downward in expenses. With the reduction in officers this trend will continue. The expenses range was from 12.6 percent in 1986 to 6.0 percent in 1993. National Standing Committees' expenses tend to be concentrated in even numbered years. While Standing Committees are working in even numbered years, the reason for high expenses in even numbered years is that the National Research Conference is held in even numbered years and is allocated approximately fifty percent of the funds for this function. However, the Research Conference flow of funds is designed to break-even. Therefore, percentage analysis of aggregated National Standing Committee data would not be meaningful. It should be noted that Research Conference receipts are listed under other income.

The fifth category in the analysis was net operating results. Net total revenue as a percent of total revenue is normally the ratio used. Some prefer the net change in equity as the final guide to results. Chabotar (1989) suggests that the following would be disturbing: (a) two consecutive years of operating fund deficit, (b) a general fund operating deficit greater than the previous year, (c) a deficit in two or more of the last five years, and (d) a large deficit in any one year of more than 10 percent of total revenue.

During the first year of the biennium (even numbered years), historically DPE has had more funds and each even numbered year from 1980-1994 a surplus was generated and equity in-

creased. The second year of the biennium (odd numbered years) historically has more expense and cash outflow. However, the equity had increased at the end of each biennium from 1981 (\$12,481) to 1993 (\$204,692). In 1994, equity increased to \$216,488 but a deficit of \$33,866 in 1995 decreased equity to \$182,622. The decline in equity reduces the possibility of reaching the standard of one years revenue as a (reserve) equity position.

### *Membership and Dues*

Membership in DPE continued to grow during the 1970's reaching a peak in 1979 of 9,884 members. Only membership data not initiated were counted in this analysis. DPE experienced 42 years of growth averaging an additional 235+ members each year. In 1939, initiation fees were \$6.00 and National dues were \$1.50. In 1951, initiation fees were raised to \$7.50 and National dues were \$2.50 establishing the traditional \$5.00 differential between initiation fees and dues. In 1980, the fees and dues were raised to \$14.00 and \$12.00, respectively. In 1991, the National Council raised fees and dues to \$35.00 and \$30.00. No fees or dues changes were approved in 1993. The 1995 National Council raised fees and dues to \$45.00 and \$40.00, respectively. In 1995, the membership was reduced to 4,874 members, an average annual decline of 313+ members (a 50.6 percent decline) since 1979. Projections of membership by the 1995 National Council Budget Committee were for 4,400 members in 1996 and 4,000 members in 1997. Life membership has become a financial drain on chapters established before the mid-1960's.

### *Conclusions and Recommendations*

The organization is currently fiscally fit. Projections long run, using current financial and membership data, suggest that without major changes in the way the organization operates it will not be financially viable in ten years (pessimistic=6 years, optimistic=14 years). Except for a Statement of Cash Flow, the organization is meeting the SFAS No. 117 requirements. National Council establishes budget commitments and priorities and these are being followed by National Officers. The financial ratio analysis of Delta Pi Epsilon indicated the following for each category (1) liquidity=High, (2) debt capacity=No Debt, (3) sources of funds=Good with Possible Future Concern, (4) uses of funds=Concern, and (5) net operating results=Major Concern.

Based on the analysis presented the following recommendations are made:

1. The National Council needs persuasion to avoid deficit budgets. The lack of a dues increase (cut in expenditures) for the 1994-1995 biennium created a major concern.
2. The decline in membership must be halted. While the data suggested that major percentage change in dues appears to reduce membership when implemented (1979, 1981, and

1991), in recent years without dues increases membership still declined (1994 and 1995). The National Membership Coordinator is a positive step. A greater number of State Chapters may be needed.

3. Publications may need to be the *DPE Journal* plus other publications undertaken on a break-even basis with limited ventures at fifty percent budget monies and five percent anticipated revenue.
4. Life membership is a fiscal nightmare for local chapters and may not break-even at the National level. A Standing Committee needs to examine this concern.
5. The National Office is budgeted for slightly more than fifty percent of the expenditures. The financial experts indicate this to be diseconomies of scale. In the year 2000, can an unpaid volunteer achieve proficiency and maintain the communications that are essential for a professional organization?
6. The new dues collection process, when approved, should help both cash flow and membership.
7. The National Council is unique, but needs to be maintained in a less expensive format with reduced meeting expenditures. National Council Representatives or their chapters probably need to pay more of the representatives National Council expense.
8. Should the final DPE budget for the biennium be adopted before the balloting for National Officers?

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Tables and Financial data for the years 1980-1995 may be obtained from the authors.



# The Human Factors Effects of Using the Mouse as a Computer Input Device<sup>1</sup>

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## Abstract

The objectives of this study were to create awareness and offer techniques to be taught by business educators related to ergonomic and medical issues of the mouse as an input device. In this study, teachers taught work habits, relaxation techniques, varied class assignments, covered an ergonomics unit, and provided adjustable monitors or chairs to relieve the stress and heighten awareness of working at computers. Pain and stiffness in hands, wrists, arms, or shoulders appeared to be the complaints heard from students when using computers. Students preferred the mouse as an input device, probably due to familiarity with the design.

## Statement and Theoretical Framework of the Problem

When the mouse as an input device was introduced with the Macintosh® personal computers, it was touted as a unique way to input data and text into the computer. The "point, click, and drag" feature of the mouse was hailed as its finest feature. It was also the source of many computer jokes. In fact, serious computer users did not see its lasting value. It has lasted and been improved. And there are many shapes, sizes, and uses. And therein lies the rub: The mouse and the traditional keyboard as input devices are being cited in medical, legal, and business literature as causes of computer-related injuries, specifically, cumulative trauma disorders (CTD), repetitive stress injuries (RSI), and carpal tunnel syndrome (CTS). Lack of regard for ergonomics (defined by Gilbert [1990, p. 45] as an applied science combining engineering, medicine, and psychology to improve human performance and health) appears to contribute to these injuries. For the purposes of this study, the mouse refers to a class of computer peripheral input devices which have been described as "an extension of the human hand, fingers, and mind" (*On Line*, p. 3, 1990).

Carpal tunnel syndrome is a degenerative nerve disorder caused by the compression of the median nerve as it passes through the carpal tunnel in the bones of the wrist (Pagnanelli, 1989, p. 20). Prolonged, repetitive use of the keyboard and the mouse can produce stiffness, pain, and eventual loss of mobility in the wrist. Extensive physical therapy and/or surgery may prove to be a remedy but not a cure. As a result of these injuries, business and industry have experienced rising costs in insurance and workers' compensation claims, OSHA citations and fines, and employee absenteeism.

## Review of Related Literature

The literature review of the factors critical in this study are presented in four sections: Business and Industry, Business Education, Medical Literature, and Research Studies.

### *Business and Industry*

By the year 2000, experts estimate that 50% of all Americans will be operating video display terminals at work (LaBar, 1992). Working in front of a computer terminal places new demands on the way people work and on their work environment. A search of the literature from 1987 to the present related to ergonomics and human engineering factors reveals a dramatic rise in the number of workers' compensation claims related to carpal tunnel syndrome. A sampling of specific research reveals the following:

In 1988, repetitive motion injuries, such as carpal tunnel syndrome, accounted for 48% of the 240,900 workplace illnesses reported in private industry. In 1989, approximately 284,000 new cases were reported; about one-half of these cases were associated with repeated trauma. Carpal tunnel syndrome accounted for 60% of work-related injuries in 1990. It is anticipated that computer-related injuries will continue to be the work-related illness of the '90s and may affect an estimated one-half of the workforce by 2000. The estimated costs in terms of lost wages and medical services has been estimated conservatively at \$40 billion (Verespej, 1994; Kerr, 1993; Dembe, 1991; *Bulletin of the American Society for Information Science*, 1991; LaBar, 1991; Hackey, 1991; Susser, 1989; Falkenburg, 1988; Eckenfelder, 1987.)

<sup>1</sup> The authors gratefully acknowledge The Delta Pi Epsilon Research Foundation, Inc., for its financial support of this research study.

The constant, repetitive use of the keyboard or the mouse for entering and keying input is being blamed for the rising insurance costs and claims.

In response to these trends, government and industry are taking steps to establish ergonomics standards for employers. One major effort is in process under the auspices of the American National Standards Institute (ANSI). A committee of ANSI, sponsored by the National Safety Council, is working to draft a national consensus standard concerning the control of cumulative trauma disorders (Dembe, 1991). The Occupational Safety and Health Agency (OSHA) has begun the process of creating a general industry standard for ergonomics management (Atkinson, 1991; Smith, 1993). The National Institute for Occupational Safety & Health (NIOSH) also is developing ergonomics prevention strategies (LaBar, 1991). Industry is continuing to institute measures to counteract and/or prevent computer-related illnesses. These measures might include ergonomics inspections, more variety of work duties, rest breaks, massages and exercises, and education and training.

Office ergonomics focuses on finding a comfortable working position for a body that is simply not designed to sit for long periods of time. The following guidelines may be instructive for this study:

It is recommended that companies teach employees that *the most neutral position is when the mouse/keyboard height is such that the elbow is at a 90-degree angle without reaching out* [emphasis by researchers]...In addition, the top of the monitor screen should be three to five inches below the horizontal eye view, and the viewing direction should be parallel to lighting sources, with appropriate measures taken to reduce glare (Verespej, 1995, p. 37).

The key to avoiding or at least mitigating the negative effects of working with computers, according to Seymour (1991), is "to set up a PC that is tailored to the user, rather than adapt the user to the PC" (p. 32). Eby and Mahone (1991) also advocate "tailoring the job to fit the employee rather than vice versa" (p. 42). A survey of computer equipment literature reveals that manufacturers are changing the layout of the keyboard (Health Care Keyboard Company, Inc., Industrial Innovations, DataDesk International, Inc., Applied Learning, Kinesis Corporation, Apple Computer, Key Tronic Corporation); reconfiguring the mouse (Microsoft); and offering alternative input devices, such as trackballs (Kensington), foot pedals (Bilbo Innovations), and touch pads (Synaptics, Inc.) to avert computer-related health problems (Kaimann, 1993, p. 16; Del Nibletto, 1993, p. 26; *Managing Office Technology*, 1995, pp. 47, 49). These devices may have implications for this study.

### **Business Education**

Teaching keyboarding techniques has been the specific domain of business education. Keystroking technique focuses on the

way motions are made, not to the keys struck (West, p. 59, 1983). The two kinds of motions used in keyboarding are fixed movements (where complete control is exerted) and ballistic movements (where freedom of movement is determined by momentum). Keystroking requires ballistic motions, where the fingers are "thrown" at a key through momentum and are then relaxed when brought back to rest in "home row" (West, pp. 59-60). The ballistic movements provide physiological freedom and relief for the fingers, wrists, and hands through fast motions. This allows the muscles in the fingers, wrists, and hands to come to rest (momentarily) between keystrokes.

When using the mouse as an input device, however, fixed movements appear to prevail. That is, the fingers, hand, and wrist lie in the same position for long periods of time between movements. Additionally, the same finger movements are employed when manipulating the mouse; these movements do not allow for the freedom from muscular tension created in ballistic movements. This study seeks to discover what techniques, methods, and/or strategies may be suggested to create awareness and avoidance of the potential physical effects of prolonged use of the mouse.

### **Medical Literature**

Carpal tunnel syndrome is a degenerative nerve disorder caused by the compression of the median nerve as it passes through the carpal tunnel in the bones of the wrist (Pagnanelli, 1989, p. 20). Specifically, the *carpal tunnel* is formed by the carpal bones of the wrist on three sides and a ligament on the fourth. Through it pass the *median nerve* and the *tendons* which close the fist. The tendons are surrounded by a slippery tissue (synovia) which allow them to slide smoothly back and forth. *Repeated, forceful* use of the fingers, especially with a *bent wrist*, may cause the tendons to inflame...a condition known as *tendinitis*. The inflammation may compress or pinch the median nerve, causing *carpal tunnel syndrome*. Prolonged, repetitive use of the keyboard and the mouse can produce stiffness, pain, and eventual loss of mobility in the wrist. [Researchers' emphases in *italics*.]

Extensive physical therapy, expensive surgery, and a long recuperation may prove to be a remedy but not a cure. As a result of these injuries, business and industry have experienced rising costs in insurance and workers' compensation claims, OSHA citations and fines, and employee absenteeism.

### **Research Studies**

Several research studies related to ergonomic issues in the workplace have been undertaken, revealing a variety of interest in this area (Brown, 1992; Arbour, 1990; Mhidze, 1990; Schmidt, 1987; Mogensen, 1994; Lopez, 1993; Kelsh, 1993; Orta-Anes, 1991; Blake, 1993; Barker, 1994; Harman, 1991; and Smutz, 1991). Several of these studies (notably, Barker, Harman, Smutz, and Lopez) appear to have significance to the present study.

## Objectives and Need for the Study

The business education literature has remained relatively quiet about the mouse as an ergonomic issue. Therefore, the objectives and specific aims of this study seek to create awareness, knowledge, technique, and skills which should be taught by business educators related to ergonomic and medical issues (specifically, carpal tunnel syndrome) of the mouse as an input device. In addition, this research seeks to find out what selected industries, students, and office workers know and do about ergonomic factors and physical stresses related to prolonged use of the mouse. Specifically, the following research questions will be addressed:

1. What ergonomic factors related to input devices are being taught by business educators? What noticeable effects, if any, have business educators observed in students after prolonged use of the mouse?
  2. What kinds of techniques related to the use of the mouse are being instituted by business educators to avert computer-related injuries?
  3. What noticeable effects, if any, have managers in business and industry observed in office workers after prolonged use of the mouse? What kinds of measures are being instituted to counteract the effects of cumulative trauma disorders with specific attention to carpal tunnel syndrome?
  4. How aware are students and/or office workers of the risk of carpal tunnel syndrome in using the mouse to enter exercises or tasks? What kinds of self-monitoring techniques do students or workers use to avoid the risk of carpal tunnel syndrome?
  5. What conclusions and recommendations can be made to business educators and others to heighten awareness and knowledge of health risks using the mouse? What techniques can be implemented in the classroom (and workplace) to alleviate the effects of prolonged usage of the mouse and to enhance the preparation of prospective office workers or computer users?
3. A survey instrument was developed and mailed to business educators to answer questions, such as: What ergonomic factors are taught by business educators related to input devices? What noticeable effects, if any, have business educators observed in students after prolonged use of the mouse? What kinds of techniques are being used in business classrooms to create awareness and prevention of potential injuries for computer users? How aware are students of the risk of carpal tunnel syndrome in using the mouse? What self-monitoring techniques, if any, do students use to avoid the risk of carpal tunnel syndrome?
  4. Three telephone interviews to selected business, industry, and government sites where ergonomic programs have been implemented were undertaken. Discussions with managers, ergonomists, and workers sought to answer the questions, such as: What noticeable effects, if any, have industries observed in office workers after prolonged use of the mouse? What kinds of measures are being instituted to counteract the effects of cumulative trauma disorders with specific attention to carpal tunnel syndrome? How aware are managers and workers of the risk of carpal tunnel syndrome in using the mouse?
  5. The data collected from the experiment, surveys, and interviews were analyzed using descriptive statistics. The relationship among variables is described by the use of correlational techniques. The descriptive and statistical information are presented in a series of tables complemented by written narrative.

Data from the experiment, surveys, and interviews enabled the researchers to formulate conclusions and make recommendations to business educators and others to heighten awareness and knowledge of health risks using the mouse and to suggest techniques to use in the classroom to prepare computer users to avoid computer-related injuries.

## Research Methodologies

This project employed descriptive, experimental, and survey research methods to accomplish the objectives of the study. For each of the research questions addressed in this study, the following methods were used:

1. An analysis of research studies and medical literature related to ergonomic issues was undertaken and is reflected in the opening discussion of the paper;
2. An experiment was conducted to examine the effects of three configurations of input devices: the trackball, the traditional QWERTY keyboard, the mouse, and a keyboard with a

gliderpoint device. During the experiment, posture and fingering were videotaped and factors such as comfort, ease of use, and physical stress were observed. Students in the experiment also were asked to rate each device after they used it.

## *Description of Human Subjects Involved*

The survey instrument utilized in this study was constructed so that responses were anonymous and confidential. During the experimental phase of the study, videotaping focused only on arms, necks, wrists, hands, and fingers; no participant can be identified. Each of the participants was asked to sign a release form after understanding the nature and scope of the study. Interviewees (doctors, ergonomists, managers, and workers) will not be identified unless specifically asked for permission to quote them or use materials which they may provide. Care was taken to provide credit for materials and other data which were provided to the researchers in this project.

## Presentation and Analysis of Data

The specific aims of this study were to create awareness and knowledge and to suggest techniques and skills which should be taught by business educators related to ergonomic and medical issues (specifically, carpal tunnel syndrome) of the mouse as an input device. In addition, the researchers sought to find out what options are available to business and industry, students, and office workers to learn about ergonomic factors and to alleviate physical stresses related to prolonged use of the mouse or the computer.

### Results of Survey

To accomplish partially the aims of the study, a survey was sent to the members of the National Association for Business Teacher Education (NABTE). In all, 162 surveys were mailed during the fall of 1995. Two surveys were included to each member, asking that the second copy of the survey be passed on to a colleague or a secondary business teacher. A total of 324 surveys could have been returned to the researchers.

A total of 151 surveys (46.6%) were returned, seven (7) were unusable. The responses from the 144 surveys (44.4%) were utilized. A pilot survey was tested during a 1995 summer workshop for business teachers; the responses of the 20 teachers also are included in the findings, since little changes were suggested. Therefore, a total of 164 responses will be utilized to present the findings from the survey. The 164 respondents represented college and university teachers (74.4%) and secondary schools (25.6%). The NABTE membership is located in 42 states; responses were received from NABTE members in 38 states. The responses represent a cross-section of the United States. The survey utilized in this study sought to answer the research questions devised for this study.

The first two questions in the survey related to the awareness of carpal tunnel syndrome. Table 1 displays the responses to Questions 1 and 2 in the survey. Question No. 1 asked, How aware are you of carpal tunnel syndrome? Responses indicated that 55.5% of the respondents were **very aware**, 34.1% were **aware**, 9.75% were **somewhat aware**, and 0.65% (1 response) was **not at all aware**. Question No. 2 asked, How aware are your students of the risk of carpal tunnel syndrome? Respondents indicated that 18.3% were **very aware**, 39.6% were **aware**, 36.6% were **somewhat aware**, and 3.65% were **not at all aware**. Two respondents indicated that they did not know how aware their students were and there was one non-response.

On the whole, it appears that teachers are more aware of carpal tunnel syndrome than their students. Several teachers indicated that they had had carpal tunnel syndrome and/or surgery. It appears that students need to be made more aware of repetitive stress injuries, regardless of the subjects they teach. The responses to Questions 3, 4, 5, and 6 in the survey are presented below in table format.

**Table 1**  
*Awareness of Carpal Tunnel Syndrome*

Group	Very Aware	Aware	Somewhat Aware	Not at all Aware
Teachers n=164	55.50%	34.10%	9.75%	0.65%
Students n=163	18.30%	39.60%	36.60%	3.65%

Table 2 represents the answer to the following question, What ergonomic factors are you currently teaching or using in any of your business classes related to carpal tunnel syndrome?

From Table 2 it can be observed that teachers most often teach work habits to alleviate the stress of repetitive stress disorders, vary class assignments to provide time away from the computer, and provide adjustable computer monitors or adjustable chairs to help students relieve the stress of working at the computer or using input devices. Comments from respondents focused mostly on the need for ergonomic equipment and furniture, but that there was a lack of resources to provide ergonomic furniture and equipment.

**Table 2**  
*Factors Taught or Used by Teachers*  
n=164

Factors	Percentage
Teach work habits that will alleviate pain and stress	64.00%
Vary assignments to include time away from computer	55.50%
Provide adjustable monitors	54.90%
Provide posture chairs	47.60%
Teach symptoms of CTS or other repetitive stress disorders	44.50%
Conduct ergonomic checks of the classroom	40.20%
Teach relaxation techniques	36.00%
Modify work space; lighting, sunlight, etc.	32.90%
Provide adjustable keyboards	30.50%
Build in time for exercises, massages, and rest breaks	29.90%
Redesign task; provide task rotation	28.10%
Provide adjustable desks	22.60%
Provide alternative input devices; the keyboard was the most often mentioned alternative device	16.50%
Provide wrist rests/splints	8.50%
Refer to specialist	6.70%

Table 3 answers the research question, What noticeable effects or complaints, if any, have you observed in or heard from students after prolonged use of the mouse?

**Table 3**  
**Noticeable effects or complaints from students**  
*n=164*

Effects or Complaints	Percentage
Pain in hands, wrists, arms, or shoulders	31.70%
Stiffness in hands, wrists, arms, or shoulders	22.50%
Eye strain	21.30%
Neck pain	20.10%
No mouse used with equipment	14.00%
Back pain	12.20%
Headaches	12.20%
Tingling sensations	10.40%
Dizziness	1.80%
Nausea	1.20%

From Table 3 it can be noted that pain and stiffness in hands, wrists, arms, or shoulder appear to be the effect observed in or complaint heard from students when using the computer. One effect or complaint should be of concern to business or computer teachers--the *tingling sensations*.

Table 4 highlights the self-monitoring techniques, if any, that students use to avoid the risk of carpal tunnel syndrome.

It appears that relaxing arms, wrists, and hands (even shaking hands) and rubbing hands, wrists, arms, or shoulders appear to be the most common self-monitoring techniques used by students. Taking breaks and focusing eyes away from the computer monitor screen also are used by students. This is strong evidence that teachers should be teaching relaxation techniques, symptoms of carpal tunnel syndrome, and varying assignments to include time away from the computer.

**Table 4**  
**Self-Monitoring Techniques**  
*n=164*

Self-Monitoring Techniques	Percentage
Relaxing arms, wrists, and hands at their side often (shaking hands)	51.20%
Rubbing hands, wrists, arms, or shoulders	50.00%
Taking frequent breaks (walking around room, pushing chair away from computer, etc.)	32.30%
Focusing eyes away from the computer monitor screen	30.50%
Voicing complaints related to prolonged sitting at the computer	17.70%
Massaging shoulders of another student	7.30%
Asking for aspirin	2.40%

Table 5 focuses on the kinds of techniques teachers are using in their classrooms to create awareness and prevention of potential injuries for computer users.

Teaching techniques to alleviate physical stress while using the computer appears to be most often used by teachers, followed by teaching an ergonomics unit, and teaching techniques as they are needed. To a lesser degree, teaching techniques as they are needed or prior to using the computer appear to be used, also.

When asked if they include an Ergonomics unit in the classes they teach, 54.9% of the business teachers indicated that they did; 40.2% indicated that they did not include an ergonomics unit. The percentage that said they used this as a technique appears to be lower (46.3%).

If an ergonomics unit was included (or even integrated into the content of computer courses), the courses most often mentioned in which ergonomics was included or integrated were: Methods of Teaching Business/Keyboarding/Computers, Information/Word/Document Processing Applications, Administrative Office Management, Office Procedures, Keyboarding, Office Systems & Technologies, Records Management, Business Communication, Office Automation, Computer Principles and Literacy, Management Information Systems, Desktop Publishing, and Employability Skills. Several teachers stated that their students were required to take a course in Ergonomics and to complete a field project.

**Table 5**  
**Techniques Used by Teachers**  
*n=164*

Techniques	Percentage
Teach techniques to alleviate physical stress while using the computer	57.90%
Teach an Ergonomics unit	46.30%
Teach techniques to alleviate physical stress as they are needed	40.20%
Teach techniques to alleviate physical stress prior to using the computer	34.80%
Show video/films related to Ergonomics	15.90%
Take field trips to office equipment dealers to observe and learn about ergonomic equipment, furniture, and/or workstations	15.20%
Invite guest speakers into the classroom who have knowledge of computer-related illnesses	11.60%
Take field trips to businesses that have ergonomics programs	5.50%

**Results of Experiment**

Twenty students, who were enrolled in an introductory computer literacy course at the University of Missouri-Columbia, participated in the experimental phase of the study. The subjects (17 females and 3 males) ranged in age from 17 to 21 years. The subjects performed a simple keyboarding task from a popular keyboarding textbook using a standard keyboard and three different peripheral input device configurations--mouse, trackball,

and touchpad. Video pictures of the subjects keyboarding and using the peripheral input devices were taken from two fixed side positions, one focusing on body posture and the other on arm/wrist/hand movement.

The subjects were provided ample time to acquaint themselves with the peripheral input devices and adjust the workstation arrangement and seating before each keyboarding session began. Following each keyboarding session, a questionnaire was administered to assess the user's acceptance and preferences concerning the peripheral input device used. Using a five-point Likert-type scale, the questionnaire asked the subjects to rate the features of the peripheral input device and its effect on comfort and posture. Open-ended questions concerning the best and worst features of the input device also were included.

Although selected features of each of the peripheral input devices received high ratings, the preferred input device was the traditional mouse. Acceptance of the other two input devices appeared to be reduced due to problems with comfort, ease of use, and size of device. The trackball also was rated considerably lower in the areas of general design, shape, and finger position. However, both the touchpad and trackball received high ratings from the subjects relative to ease of learning. The familiarity of the traditional mouse design was most frequently cited as the reason for its high ratings.

The postural demands of the peripheral input devices were examined by systematically viewing the videotapes of the keyboarding sessions. The use of all three peripheral input devices affect body posture and increase shoulder, arm, elbow, wrist, and hand movements. The three peripheral input devices were clearly different in terms of posture, arm, hand, wrist, and finger movements required to operate the devices. Greater wrist movements were apparent when the mouse and trackball were used. The fixed location of the touchpad in relation to the keyboard tended to affect the neutral posture position of the subjects and increase shoulder, arm, and wrist movements.

### Results of Telephone Interviews

Extensive telephone interviews were conducted with safety, ergonomics, and training managers of three large industries in Missouri. Each industry varied in the amount of time and training offered for employees related to ergonomics and repetitive stress-related injuries. Each manager interviewed indicated that, although company-wide ergonomic programs are available for employees, managers and supervisors of individual departments and employees are responsible for making the training available. Training is not mandatory. Two of the managers indicated that they were not aware of increases in workman's compensation claims related to repetitive strain injuries. One manager indicated that his company paid close attention to workman's compensation claims and tried to provide training for its supervisors in order to avoid these high costs. None of the managers was aware of the dollar costs of these kinds of injuries to his/her company.

The managers interviewed in each of these companies indicated that they do try to provide ergonomic furniture and other aids to employees who voice concerns about physical pain or discomfort. One safety manager stated that her company used a series of videotapes entitled, *VDT Comfort™*, developed by Visucom Productions, Inc., Redwood City, CA. In this company, supervisors are trained in the content of the videotapes and encouraged to make them available to their employees. Employees are encouraged to view the tapes on an individual basis--especially employees who use the computer as the main input mechanism in their jobs. A review of the Table of Contents of the *VDT Comfort™ Supervisor's Guide* is instructive, as shown in Table 6.

The contents of the training videotapes appear to touch on the various issues related to ergonomics--from the design of the office, to the incorporation of computers without thought to the human element, to an understanding of the musculoskeletal system, to the need for equipment and furniture that is adjustable, and to the inclusion of stretching and relaxation techniques. Feedback from employees who viewed and used the information from the videotapes highlighted that the information about the musculoskeletal system and the stretching and relaxation techniques are the most helpful. Overall, the videotapes appeared to heighten employees' awareness to the potential physical discomforts of using the computer and input devices.

**Table 6**  
*Table of Contents*  
*VDT Comfort™ Supervisor's Guide*

Chapter	Subjects Covered
Chapter 1	Introduction The Office of the 90's The Computer--A Productivity Paradox We Forgot the Human Being! Awareness Observation Equipment and People
Chapter 2	Awareness Observation The Human Machine: Physical Abilities and Limitations The Musculoskeletal System High-Risk Activities Human Variation
Chapter 3	Managing the Equipment and Environment
Chapter 4	Adjusting Equipment for Physical Comfort
Chapter 5	Stretching and Relaxing Activities Torso Stretches Hand and Finger Massages and Strengthening Activities Eye Relaxation and Strengthening Activities Micro-Breaks
Chapter 6	Designing the Tasks
Chapter 7	How to Handle Physical Complaints

It is impossible to make definitive, exact inferences from the information gained in the interviews. However, the information from the three managers appeared to support the need cited in the literature to make employees more aware of repetitive stress injuries, to help employees avoid the pain and discomfort from these injuries, and to decrease the loss of productivity through training and proper ergonomic environments.

### Conclusions and Recommendations

Data from the survey instrument, interviews, and experiment enable the researchers to formulate conclusions and make recommendations to business educators and others to heighten awareness and knowledge of health risks of using the mouse and to suggest classroom techniques that prepare computer users to avoid computer-related injuries.

Based on the results of this study, the following conclusions are offered for consideration:

Teachers most often teach work habits to alleviate the stress of repetitive stress disorders, vary class assignments to provide time away from the computer, and provide adjustable computer monitors or adjustable chairs to help students relieve the stress of working at the computer or using input devices. Comments from respondents focused on the need for ergonomic equipment and furniture (and the lack of resources to do so) and the need to teach and emphasize proper keyboarding techniques.

Pain and stiffness in hands, wrists, arms, or shoulders appear to be the effects most often observed in or the complaints heard from students when using the computer. However, many teachers mentioned that they had had no complaints from students due to several factors: minimal use of or exposure to the mouse and short class periods.

Teaching relaxation techniques to alleviate physical stress while using the computer appears to be the technique most often used by teachers, followed by teaching an ergonomics unit, and teaching relaxation techniques as they are needed. To a lesser degree, teaching keyboarding techniques prior to using the computer appears to be used, also. Teachers also mentioned providing a handout to students on carpal tunnel syndrome as a technique.

User acceptance of and preference for the three different peripheral input devices revealed that the traditional mouse is preferred. Familiarity with design, ease of use, size, and comfort are the reasons most frequently cited for the preference. Users play a critical role in product design and development because they generally "mold" the characteristics and features of a product and ultimately determine its permanence.

The general consensus of researchers, medical practitioners, engineers, managers, and users is that the neutral posture posi-

tion is recommended for keyboarding and using input devices. The hand, wrist, and finger positions are much more dynamic than the overall posture of individuals when a computer keyboard and peripheral input devices are used. During computer keyboarding, many parts of the arms and hands are moved. The interrelationships of these movements with the actual locations of the keyboard and the peripheral input device highlight the importance of the individual's being able to adjust the workstation to conform to his/her needs and preferences.

Interviews of three managers in business and industry support the need to make prospective employees aware of the potential hazards of prolonged use of the computer.

The conclusions from the study and the comments offered by the respondents make the following recommendations compelling:

Regardless of the subject taught and the amount of time spent completing work on the computer, knowledge of repetitive stress injuries and carpal tunnel syndrome should be included in the instruction. Teachers should continue to teach the symptoms of repetitive stress injuries and carpal tunnel syndrome. Students will take this knowledge with them into the workplace and make them more informed and healthier users of technology.

When, where, and if possible, attention to providing ergonomic furniture and equipment should be part of any classroom or office layout. Administrators, technology specialists, and managers in education and industry must be educated about the risks and costs of repetitive stress injuries. Awareness and prevention are the keys to avoiding painful injuries and lost work time.

Business teachers should continue to stay informed about repetitive stress injuries so that they are able to recognize the symptoms and offer immediate solutions to their students. Providing varied assignments that take students away from the mouse or keyboard, teaching good work habits, reinforcing proper keyboarding techniques, and teaching relaxation exercises appear to be some of the techniques which will alleviate the physical stress associated with working with technology. Teachers are the *key* to providing employers with prospective employees who are aware of and sensitive to specific work habits which will enhance their productivity.

Attention should be given to students' being able to adjust the arrangement of their workstations and the locations of the keyboard and the peripheral input device in order to assure their preferences and comfort.

After employment, employees who use computers and input devices for prolonged periods of time should take advantage of training opportunities to learn stretching and relaxation activities and job redesign techniques.

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# The Impact of Selected Variables on Office Roles and Responsibilities

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## Abstract

The purpose of the study was to identify competencies needed in various types of office positions. Two hundred and fifteen office support personnel, including secretaries, administrative secretaries/assistants, executive secretaries/assistants, and office managers participated in a survey to identify the skills performed in office support positions. Responding to a list which included administrative skills, customer/human/public relations skills, end-user computer skills, and professional behaviors, respondents noted how frequently they perform each skill on the job. Respondents also identified the most desirable personal and professional qualities.

The skills which office support workers most frequently perform include operating the copying machine, receiving and routing telephone calls, assisting telephone callers and taking messages, printing final copies of business documents, and word processing business documents. Professional behaviors include following oral and written instructions and maintaining confidentiality of files. Dependability was listed as the most desirable personal/professional quality.

## Introduction

Erickson and Asselin (1986) raised an important question "...what will be the competencies needed by office workers of the future?" (p. 325). The question continues to be relevant today. Several studies, including Stallard, Bahniuk, and Petree (1979); Kirby and Oliver (1988), Everett and O'Neil (1990), and Capelli (1993) have identified competencies needed for specific positions in the automated office. These studies, and others, have served as a benchmark for curriculum development in office occupations.

Because of constant changes in technology, the number of jobs and the nature of office work continues to change. Office workers are expected to have a broad set of skills including adaptability, flexibility, and the ability to learn new and emerging technologies (Marino, 1993). More specifically, Curchack (1989) noted that graduates of two-year college secretarial programs need to be able to handle all communication requirements, be knowledgeable about word processing, be able to supervise junior level support workers, among other tasks. Hosler (1988) also noted that secretaries (probably the most popular job title in the office) are assuming new duties in the office. These duties include project work formerly assigned to managers—gathering information, selecting relevant data, incorporating meaningful graphics, and presenting the final report. These tasks all demand the ability to make good decisions.

## Review of Related Literature

Many studies have examined job competencies for office employees. Goodrich (1989) examined the impact of office auto-

mation on roles of office employees. The study found that the content of office support work had remained fairly consistent but methods of completing tasks had changed. She concluded that office support workers will be doing more creative work, together with more traditional routine tasks. On the other hand, researchers like Boddy and Buchanan (1982) and Flynn (1988) believe that office automation has led to the deskilling of office professionals as many tasks become simplified or redundant.

Marino (1993) found that office support personnel are performing few higher-level information processing tasks. However, the same study supports the view that office support workers are expanding the range of support skills beyond word processing, to include spreadsheets, databases, desktop publishing, and graphics.

Gonzenbach and Davis (1994) conducted research which identified tasks performed by office support staff. The tasks performed by the largest number of respondents were filing/records management, photocopying, answering the telephone, and handling the mail. Computer tasks included word processing, computer-aided transcription, spreadsheets, and databases. The research concluded that basic competencies such as telephone techniques, handling mail, and greeting visitors continue to be relevant in office education. To these should be added computer tasks that are also needed in office support roles.

Previous studies such as those cited earlier have focused on specific types of office employees such as secretaries, or on specific aspects of office work such as use of computer technology. This study takes a more general approach, trying to identify office roles (based on job titles) and the tasks performed.

## Significance of the Study

The competencies emphasized in programs designed to train office support personnel should be closely tied to the tasks performed in office support jobs. Tasks should be the basis for competencies. Hosler (1988) noted that the majority of secretaries are educated at the high school level and that the emphasis has traditionally been on shorthand, typing, and accounting. She challenged educators to include microcomputer skills such as spreadsheets, graphics, word processing, and database management; decision making skills; conflict resolution skills, human relations skills; and team skills. Oswalt and Arn (1990) emphasized the importance of articulation between business and education to ensure that competencies necessary for employment are taught in office administration and business education departments.

The competencies needed to perform and advance in the business office should be directly linked to the tasks being performed by practicing office support professionals. This study contributes to updating the literature on office support tasks. As such, it also lays the groundwork for effective curriculum development in business and office education. The primary beneficiaries of the study will be business and office educators in high schools, community colleges and four-year colleges.

### Purpose of Study and Research Questions

The purpose of the study was twofold:

1. To identify the competencies needed for various types of office positions, based on the duties and tasks which workers frequently perform, and
2. To identify the characteristics of office support personnel, and to measure the impact of selected professional variables on office support roles and responsibilities.

The problem of the study was: What are the necessary competencies for office support personnel and which professional variables impact office roles and responsibilities?

Answers were sought to the following research questions:

1. What are the personal and professional characteristics of office support personnel?
2. What job competencies are most frequently needed in office support roles?
3. What are the desirable personal and professional qualities of office support personnel?
4. What differences exist among office support personnel with different job titles, based on selected professional variables?

## Methodology

Since the study is primarily concerned with prevailing facts and conditions, the descriptive research design was most appropriate. A mail survey was used to collect the data.

The study started by soliciting job descriptions from 300 offices in mid-western private and public sector organizations. Based on the method presented by Wunsch (1986), and using a table of random numbers, the sample was selected from the government directories and from directories of companies in the region. Job descriptions received were used in two ways:

- a. To compile a list of tasks under three areas (Administrative, Human Relations, End-User Computing) as well as a list of professional behaviors.
- b. To compile a list of organizations which were willing to involve their office employees in the study.

Information gathered through this mailing was the basis for designing the data collection instrument used in the study. The next step was to survey office support workers. The sample included:

- a. Office support workers from companies which indicated a willingness to participate in the study.
- b. A random sampling of members of Professional Secretaries International.

The questionnaire used required respondents to indicate how frequently various tasks and professional behaviors were performed in their jobs. The questionnaire also collected demographic data and allowed participants to provide a list of the most important personal and professional qualities for their jobs.

The population of the study was office support personnel in private and public sector organizations. The sample was drawn from selected organizations (based on their willingness to participate) and from a random sampling of members of Professional Secretaries International. This was necessary to ensure that office support personnel at various levels of the career ladder and from a wide range of organizations were sampled. Altogether, 485 surveys were mailed to office support personnel. Follow-up efforts resulted in a total usable response of 215—a response rate of 44 percent.

The data were analyzed through the use of the Statistical Analysis System (SAS) and the mainframe computer. Statistical procedures included descriptive statistics and ANOVA. The results are presented in a series of charts and tables.

## Findings

The findings of the study are presented in the following subsections: Personal and Professional Characteristics, Job Com-

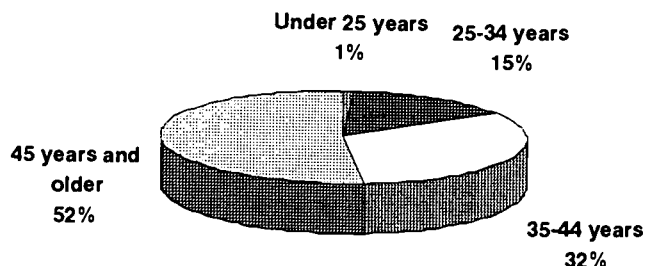
petencies Most Frequently Needed, Desirable Personal and Professional Qualities, and Variables affecting Office Support Roles and Responsibilities.

**Personal and Professional Characteristics of Office Support Personnel**

**Gender.** The respondents to the study were predominantly females. Only three respondents or approximately 1 percent were males. This eliminated gender as a variable in the study.

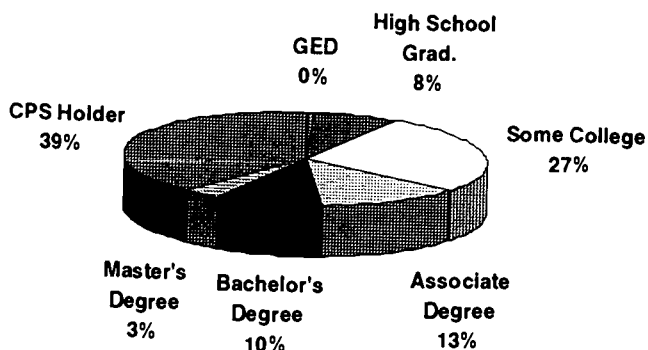
**Age.** The respondents ranged in age from under 25 years to over 45 years of age. The modal age range was 45 years and older. Figure 1 shows the breakdown of respondents by age range. Over 80 percent of the respondents are over 34 years old, and over 50 percent are over 44 years old.

**Figure 1**  
*Respondents by Age Range*



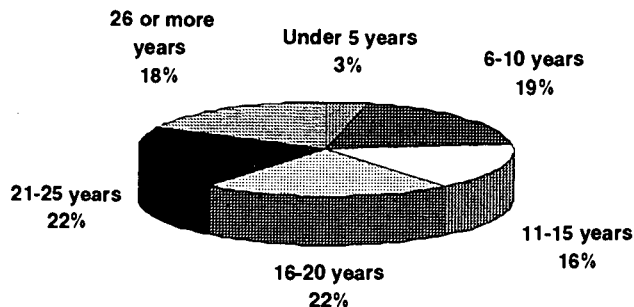
**Education.** Most respondents listed the Certified Professional Secretary (CPS) qualification as their highest educational achievement. Approximately 39 percent of respondents hold the CPS certificate. Figure 2 shows the breakdown of respondents based on highest educational level attained.

**Figure 2**  
*Educational Level of Office Support Personnel*



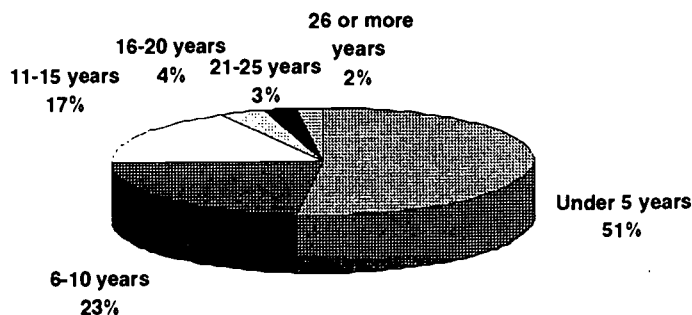
**Work Experience.** Related work experience for respondents ranged from under five years to over 26 years. Over 75 percent of the respondents had more than 10 years of related work experience. As shown in Figure 3, over 40 percent had more than 20 years of related work experience

**Figure 3**  
*Years of Related Work Experience*



**Years in Present Position.** Fifty-one percent of respondents have been in their current positions for under five years. Twenty-six percent have held their present positions for over 10 years, and 5 percent for over 20 years. Figure 4 provides greater details.

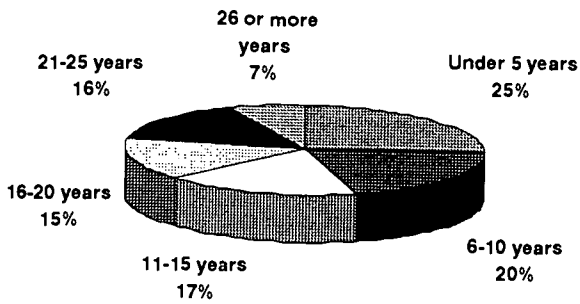
**Figure 4**  
*Years in Present Position*



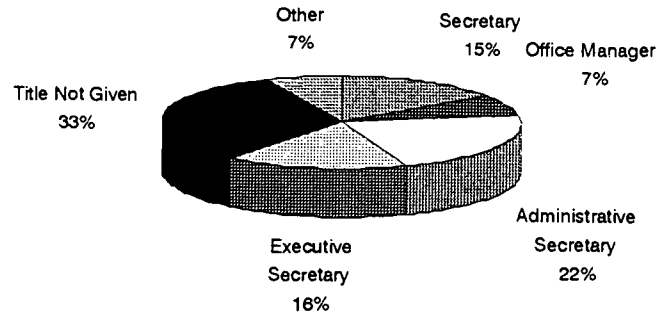
**Years in Present Organization.** Most respondents have been employed in their current organization for over 10 years. Figure 5 shows that over 20 percent of respondents have remained with the same organization for over 20 years.

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**Figure 5**  
*Years in Present Organization*



**Figure 6**  
*Job Titles of Office Support Personnel*



**Job Titles.** Respondents of the study had the following job titles: Secretary, Office Manager, Administrative Secretary/Assistant, Executive Secretary/Assistant. Some respondents did not indicate their job title and several fell into much smaller groups and were included in the general category—other. The group “Other” included Administrative Clerks, Clerk Stenographers, Administrative Representatives, and Chief of Secretary. Figure 6 shows the breakdown based on job titles.

***Job Competencies Most Frequently Needed in Office Support Roles***

Table 1 lists the skills that are most frequently needed in office support roles. These indicate the competencies that are most needed by workers in office support positions. These may be considered as “Need to Have” skills.

**Table 1**  
***Skills Most Frequently Used in Office Support Positions\****  
***(n=215)***

Job Skills	Frequency on the Job (Percentage of Respondents)				
	Very Often	Often	Sometimes	Never	N/A
<b>Administrative Skills</b>					
Operate copying machine	87.5	6.3	6.3	0	0
Receive and route incoming telephone calls	84.8	12.5	3.1	0	0
Proofread for spelling, grammar, and punctuation errors	78.1	12.5	9.4	0	0
Maintain manual or electronic filing system	71.9	12.5	6.3	9.4	0
Key routine office correspondence (letters, memos, etc.	66.8	25.0	3.1	0	3.1
Sort/distribute incoming mail	62.5	15.6	18.8	3.1	0
Prepare requisitions and vouchers for purchasing equipment and supplies	59.6	15.6	18.8	3.1	3.1
Review and log incoming mail	56.3	15.6	15.6	3.1	9.4
Prioritize/assign work	56.3	15.6	21.9	0	6.3
Maintain office supplies	56.3	18.8	15.6	6.3	3.1
Schedule appointments	46.9	21.9	25.0	3.1	3.1
Schedule meetings and coordinate meeting agenda	46.9	15.6	25.0	9.4	3.1
Maintain manager’s calendar	43.8	89.4	34.4	3.1	9.4

Table 1, continued

Job Skills	Frequency on the Job (Percentage of Respondents)				
	Very Often	Often	Sometimes	Never	N/A
Establish and maintain confidential files	43.8	12.5	25.0	12.5	6.3
Perform liaison work with other administrative and management personnel in the organization	37.5	37.5	18.8	3.1	3.1
Maintain payroll and/or personnel records	34.4	21.9	9.4	21.9	12.5
Complete expense reports	31.1	21.9	34.4	9.4	3.1
Sign correspondence on behalf of the manager	28.1	28.1	31.3	12.5	0
Perform liaison work between the organization and representatives of other organizations	15.6	37.5	34.4	6.3	6.3
<b>Customer/Human/Public Relations Skills</b>					
Assist callers and take complete messages	84.4	12.5	3.1	0	0
Assist in resolving administrative problems	34.4	18.8	31.3	9.4	6.3
Represent the manager through routine oral and written contact	31.3	28.1	21.9	3.1	15.6
Handle customer complaints	28.1	28.1	31.3	9.4	3.1
Problem solve and trouble shoot customer enquiries	25.0	46.9	15.6	0	12.5
<b>End-User Computer Skills</b>					
Print final documents	84.4	15.6	0	0	0
Use word processing software	81.3	15.6	3.1	0	0
Use personal computer to key a variety of material	71.9	21.9	3.1	3.1	0
Revise stored documents	68.8	28.1	3.1	0	0
Utilize personal computer to obtain information	65.6	18.8	3.1	12.5	0
Use a fax machine	65.6	25.0	3.1	6.3	0
Maintain up-to-date archive library, copying, deleting, and retrieving documents as necessary	59.6	31.3	9.4	0	0
Do data entry	56.3	18.8	12.5	6.3	6.3
Maintain diskettes and index files	56.3	15.6	18.8	9.4	0
Prepare and maintain spreadsheets	46.9	9.4	25.0	15.6	3.1
Compile reports and distribute information	46.9	28.1	12.5	6.3	6.3
Maintain and update mailing lists	37.5	25.0	6.3	21.9	9.4
Use local area network and or e-mail	37.5	12.5	6.3	25.0	18.8

\* Those skills performed "Often" or "Very Often" by at least 50% of respondents.

The skills listed in Table 2 are "Sometimes" performed by a fairly large percentage of office personnel. As such they may be classified as "Nice to Have" skills.

**Table 2**  
**Skills Sometimes Used in Office Support Positions\***  
*(n=215)*

Job Skills	Frequency on the Job (Percentage of Respondents)				
	Very Often	Often	Sometimes	Never	N/A
<b>Administrative Skills</b>					
Supervise technical/clerical staff	12.5	18.8	31.3	18.8	18.8
Assist in preparing annual budget	18.8	18.8	21.1	28.1	12.5
Coordinate the development and maintenance department's procedures manual(s)	15.6	28.1	12.5	21.9	21.9
Prepare extensive reports	15.6	28.1	37.5	15.6	3.1
Take dictation	6.1	21.9	40.6	25.0	6.3
Conduct/plan on-the-job training	18.8	6.3	31.3	34.4	9.4
Make travel arrangements	34.4	12.5	28.1	18.8	6.3
Review and post daily attendance data	34.4	9.4	12.5	28.1	15.6
Maintain petty cash funds and other similar records	34.4	6.3	18.8	31.3	9.4
Attend meetings and take and transcribe dictation	9.4	25.0	34.4	28.1	3.1
Gather, analyze, and interpret data to complete assigned projects	21.9	21.9	31.3	12.5	12.5
Key legal documents, contracts, plans, etc.	18.8	15.6	18.8	25.0	21.9
Update and maintain job description index and file	15.6	15.6	25.0	34.4	9.4
Research and compile statistical data	12.5	13.8	28.1	18.8	21.9
<b>Customer/Human/Public Relations Skills</b>					
Develop and revise department's/organization's policies	9.4	15.6	28.1	25.0	21.9
<b>End-User Computer Skills</b>					
Do desktop publishing	28.1	15.6	12.5	31.3	12.5
Update files via personal computer directly into the mainframe computer	21.9	15.6	18.8	25.0	18.8
Prepare and maintain database files	43.8	3.1	18.8	31.3	3.1
<b>End-User Computer Skills</b>					
Maintain computerized calendars	28.1	15.6	15.6	28.1	12.5
Create graphs	21.9	12.5	34.4	25.0	6.3

\* Those skills performed "Sometimes," "Often," or "Very Often" by at least 50% of respondents.

Table 3 shares the professional behaviors that are frequently associated with office support roles, regardless of specific job titles.

All but one of the behaviors listed are frequently performed by more than 50 percent of the respondents.

**Table 3**  
*Professional Behaviors Performed in Office Support Roles*  
(n=215)

Professional Behaviors	Frequency on the Job (Percentage of Respondents)				
	Very Often	Often	Sometimes	Never	N/A
Follow oral and written instructions	84.2	14.4	.5	0	.9
Assure security/confidentiality of files	81.4	11.6	4.7	.5	1.9
Exercise discretion and judgement in handling handling issues	78.1	19.5	2.3	0	0
Review forms and documents for accuracy	77.7	16.3	6.0	0	0
Set own work schedule	67.5	20.5	7.9	2.3	1.4
Exercise independent judgement in interpreting and releasing information	62.8	27.4	7.4	2.3	0
Use good judgement in selecting alternative courses of action	60.9	33.5	4.2	1.4	0
Monitor personal progress and performance	55.8	29.8	9.3	3.3	1.9
Practice personal time management	40.0	9.3	0	0	50.7

*Desirable Personal and Professional Qualities of Office Support Personnel*

Table 4 shows the personal and professional qualities identified by office support personnel as being most important in their jobs. The table shows “dependability” to be the most important quality.

**Table 4**  
*Personal and Professional Qualities Desired in Office Support Personnel*  
(n=179)\*

Personal/Professional Quality	Frequency	Percentage
Dependability	88	49
Initiative	37	21
Flexibility	23	13
Confidentiality	17	9.5
Honesty	11	6
Creativity	2	1
Tolerance	1	0.5
Total	179	100

\* Some respondents ignored this open-ended question.

*Variables affecting Office Support Roles and Responsibilities*

Table 5 displays the results of ANOVA tests for differences among various types of office employees (job titles) based on three professional variables—experience in type of work, experience in present position, and experience with present organization. Significant differences were found in the variable “experience in type of work.” The Newman Keuls test showed that executive secretaries had more related work experience than those workers who fell into the general category “other.” There were no significant differences found among secretaries, administrative secretaries/assistants, executive secretaries/assistants, and office managers. No significant differences were found among the different categories of office support employees based on experience in present position or experience in the organization in which they currently work.



**Table 5**  
**Analysis of Variance of Mean Differences Across Job Titles**  
**(n=145)<sup>a</sup>**

Source of Variance	df	MS	F Ratio	P
<b>Experience in type of work<sup>b</sup></b>				
Model	4	30705.47	2.59	0.039 <sup>c</sup>
Error	140	11852.40		
<b>Experience in present position<sup>b</sup></b>				
Model	4	3900.18	.50	0.736
Error	140	7802.70		
<b>Experience in present organization<sup>b</sup></b>				
Model	4	6477.42	.64	.63
Error	140	10042.97		

<sup>a</sup> Respondents who did not indicate their job title were left out of the model.

<sup>b</sup> Measured in months

<sup>c</sup> P<.05

### Conclusions and Discussion

The following conclusions were drawn from the findings of the study:

- Office support positions are still largely staffed by females. Only 1.4 of the respondents are males.
- The cadre of office support personnel seems to be aging. Only one percent was under 25 years and 52 percent was 45 years or older. This statistic, however, is not consistent with the finding of Sullivan (1993) who found that 48 percent of respondents were in the 20-29 age group. She found only 5.4 percent of respondents to be in the 40 or older age group. It must be noted that the Sullivan study was limited to the 1975-88 graduates of three secretarial/office administration degree programs.
- Most office support workers have less formal education than a two years college degree (Associate Degree). This finding supports the observation of the U.S. Office of Education's Office of Career Education which noted that the majority of secretaries receive their education from a high school business education program. However, a fairly large percentage of office support workers hold the Certified Professional Secretary (CPS) certificate. In fact, 39% of respondents listed that qualification as their highest educational achievement.
- Office support personnel are well experienced and tend to spend several years in the same organization.
- Administrative secretaries/assistants seems to be the most popular job title in office support positions. Most office support job titles contain the word "secretary," for example "secretary," "administrative secretary," and "executive secretary." This is consistent with Marino (1993) who also found that the majority of respondents in her study reported "secretary" as the job title and Sullivan (1993) who found executive secretary to be the most popular job title. Both studies also found that three of the job titles most commonly used include the word "secretary."
- Most tasks that were prevalent in traditional offices are still relevant in today's more technological office environment. These include basic skills like operating a copy machine and receiving and routing telephone calls. Some newer tasks which are sometimes performed include supervising technical/clerical staff, assisting in preparing annual budgets, and preparing extensive reports. Earlier findings by Goodrich (1989) also indicated that the content of office support work had not changed dramatically. There is also support for the trend toward office support personnel taking on greater responsibility. Sullivan (1993) noted that although most respondents considered themselves to be administrative support, they were involved in activities such as coordinating personnel, scheduling, research, and customer relations. These are tasks that office support workers sometimes perform on their jobs.
- End-user computer skills still appear to be at the very basic level such as printing documents, and using word processing software. These findings are similar to those of Marino (1993) who found that most office support workers were proficient only in using text-intensive technologies. They also support the finding of Sullivan (1993) whose study found that while 97 percent of respondents were required to use word processing skills on their jobs, only 69.3 percent felt very competent in word processing. Further, only 50.6 percent of respondents were required to use spreadsheet skills

of which only 7.8 percent considered themselves to be very competent and another 13.3 percent rated themselves as competent.

8. Professional behaviors are very important in office support positions. They include following oral and written instructions and maintaining confidentiality of files.
9. Dependability is a critically important professional quality—identified by over 49% of the respondents. Also important are initiative, flexibility, confidentiality, and honesty.
10. Office support workers in various types of positions (as denoted by their job titles) have similar professional backgrounds. Except on one minor point, they have similar amounts of related work experience, work experience in their present position, and work experience in the organization in which they currently work. There does not seem to be any clear, logical reason for the differences in job titles.

### Recommendations

The following recommendations are based on the literature and findings of the study:

1. Strong effort should be made to market business and office education programs to a wide group of potential students at all levels of the education system. Special efforts should be made to improve the gender balance and age distribution of office support workers.
2. Business and office education programs at the college levels should investigate the need for continuing education among current office support workers. With the continuous evolution of office job responsibilities and the current educational level of the average office support employee, many may be interested in higher education. There might also be need for technology courses to enhance current skill levels of office support personnel especially in such areas as spreadsheets, databases, graphics, and electronic communication.
3. Carefully review business and office education curriculum based on this and other studies to ensure that competencies being taught are directly tied to the tasks that are being performed in office support positions. Sound research should replace any tendency to base curricula changes on the latest technological innovation before verifying its impact on office work.
4. Business and office education programs need to continue to stress the importance of professionalism—the soft skills which are generally considered to be most important in job retention and advancement.

More research should be done to:

- a. clearly define office support roles and to distinguish between them based on qualification, experience, and job responsibilities.
- b. to identify (at regular intervals of two or three years) changes in the nature of office work so that curricula of business and office education programs can continue to be relevant to the needs of the workplace.
- c. examine the aging of office professionals to determine the demand for qualified office support personnel.
- d. determine the need for continuing education geared towards the needs of office support personnel, especially in the use of office technology, including telecommunications.

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# Linking School with the Workplace: Case Studies of Exemplary School-to-Work Business Programs

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## Abstract

The School-to-Work Opportunities Act of 1994 allows states to combine federal education and job-training program monies so that meaningful school-to-work activities can be provided to all students. The purpose of this study was to identify and describe exemplary business education school-to-work programs. Case study methodology was used to insure that the context for each exemplary program was captured. Information about school-to-work transition programs was gathered via community profile studies. Findings from the study indicate that exemplary school-to-work programs require commitment on the part of educators, the business community, and students. Besides building alliances with the business community, business educators must accept a number of changes in the ways they have traditionally done things. Selected examples of exemplary school-to-work business programs implemented at the sites we visited have been included.

## Overview and Purpose

The School-to-Work Opportunities Act of 1994 allows states to combine federal education and job-training program monies so that meaningful school-to-work activities can be provided to all students. To receive funding from the School-to-Work legislation, three components must be in place: school-based learning, work-based learning, and connecting activities that link school- and work-based learning. School-to-work involves educators and business, industry, public service, and community representatives cooperatively providing education. For school-to-work to succeed, articulation and collaboration activities must be carefully designed and implemented. All stakeholders must be involved, including teachers. School personnel have not been prepared to actively engage in activities associated with a school-to-work system. Additionally, they do not perceive students' transition from school to work as an integral part of instruction and may give little or no effort to interfacing with employers. The identification of organizational changes that occurred when exemplary school-to-work business programs were implemented can serve as a basis for others who plan to implement a school-to-work program.

Deep-rooted tradition has led to school personnel viewing school-based learning as separate from work-based learning. The challenge, then, is to provide all teachers with opportunities to gain occupational-related knowledge, instructional expertise, and associated attitudes needed to interface effectively with employers (Pauley, 1994). To meet the school-to-work goal of moving from isolated programs to a system that helps large numbers of students successfully transition to work, all school personnel must support the effort. As Stern, Finkelstein, Stone, Latting, and Dornsife (1994) note, "Within schools, major decisions must be made about the curriculum of school-to-work programs."

They continue, "Building integrated school-to-work programs for large numbers of students will require the active collaboration of non-vocational teachers and departments" (p. 143).

The purpose of this study was to identify and describe exemplary business education school-to-work programs. Case study methodology, including interviews with various school, business, and community representatives, was used to insure that the context for each exemplary program was captured. Information was gathered that detailed the school and community setting; actions of key players in the school-to-work linkage; and school, business, and community involvement in the process.

## Procedures

Information about school-to-work transition programs was gathered via community profile studies. The communities participating in the study were selected based on several criteria including (a) the extent and effectiveness of school-to-work linkages and other involvement between schools and employers, (b) the extent to which school- and work-based programs were fully operational and graduating students from these programs, and (c) documentation of the long-term commitment that schools, employers, and the community have made to school-to-work transition. Nominations for sites selected were sought through mailed surveys to state school-to-work coordinators from across the US. In addition, key individuals were telephoned in five states. They were selected based on information in the literature about ongoing state and local school-to-work activities.

The complete study spanned a two-year time frame with information collected from eleven sites. At each of the sites, information was gathered from teachers, administrators, counselors,

employers, and business, industry, and community representatives. These were individuals involved in school-based learning, work-based learning, and activities linking school-based and work-based learning at the sites. The primary information collection approach was the long interview, with a total of 220 interviews conducted at the sites. Included in the interview protocol were questions and probes designed to assist interviewees in identifying and describing best school-to-work practices at each site, including practices where school personnel effectively interfaced with business, industry, and the community. The critical-incident technique was used in the protocol to help interviewees focus on describing specific examples. In addition, questions were asked that focused on identifying professional development activities having the greatest positive impact on teachers, with the critical-incident technique again used to stimulate interviewees' descriptions. From the interviews, business programs were identified that we felt exemplified outstanding school-to-work practices.

### Findings

Following are selected examples of exemplary school-to-work business programs implemented at the sites we visited.

One technical center visited was particularly committed to business education's role in equipping students with marketable skills that qualify them for immediate entry into the job market upon graduation. It has over 200 business and community members involved with advisory committees and has a number of linkages between school and work within the region. The center has taken the leadership role in establishing a school-based bank, with students being trained by bank personnel in an actual working branch bank housed at the center. Banking students have the option to earn academic credit through the banking apprenticeship course offered on-site at the technical center. Students working in a financial institution outside of school may participate in this school-to-work apprenticeship program as well.

In addition to banking, this technical center offers a variety of business and marketing courses for its students. Students enrolled in the Business and Marketing Education Work Training program are provided with an opportunity to work part time to develop an occupational skill in the business and/or marketing field while gaining a work experience record. This work experience can be gained through a paid position outside of school, through working in the school store, or through community service activities. Students may additionally gain six college credits through their high school business management courses.

Desiring to be on the cutting edge of the rapidly changing health care industry, one metropolitan high school has not only developed an extensive nursing program, but has formed a partnership with health care providers for its Medical Office Administration program. Administrators of local health services organizations had cited labor shortages as a major problem in the city. This high school rose to the challenge to prepare workers as entry-level medical office assistants by forming a

partnership with an insurance firm. Students are trained to prepare medical claims. The local insurance provider has set up a "dummy account" for the high school and its computers are linked directly to the insurance firm. The medical forms processed by the students are checked for accuracy, exactly as those produced by the insurance company are checked.

Students participating in the Medical Office Administration program are not only linked via computer to the world of work, but also interact with corporate sponsors through mentoring, shadowing, clinical internships, work experience, and other work-based learning activities. Realizing that in no industry is technology more significant than in the health services, students are trained to complete forms on the screen, comprehend facts and information, order supplies, and send test results from labs to doctors' offices, and other sophisticated applications of computers in health-related occupations.

The Young Executive Management Program at an inner city school has established partnerships with a number of local businesses. Classroom skills in management, marketing, and entrepreneurship are combined with practical hands-on experiences. One example is the KFC Partnership where a mobile restaurant was given to the school to be used by students as a learning lab. KFC provides the \$225,000 mobile restaurant and underwrites the cost for food, paper, marketing and maintenance. Students are responsible for operating the unit from marketing to accounting--from customer service to employee relationships--and from food preparation to food sales. The restaurant is open for business two days a week and is in its fourth year of operation. All income earned from the sales in the mobile restaurant goes to the seniors involved in the project in the form of scholarships. These scholarships are based on the students' academic excellence and their involvement in KFC's partnership with the school. The program has been heralded nationwide and KFC feels it is making an investment in the future workforce by forming and supporting this KFC-Business Management Project with the local high school.

One vocational technical center in the midwest involves students from a number of vocational disciplines in an on-site construction project. The students build a house from the ground up right next to the technical center. When completed, the house is sold and moved to the lot of the purchaser. Business education students are involved in this project by providing administrative support services such as record-keeping and business correspondence. Further, students enrolled in desk-top publishing and graphics arts at this site have established a school-based enterprise to publish flyers and brochures for local businesses.

One site's school-to-work efforts have focused on a Back-to-Industry program for teachers. Students in business education have been particularly instrumental in implementing this program by preparing a handbook for the teachers participating in this program, as well as compiling data from teachers participating in the Back-to-Industry project.

A western site has its marketing program physically housed in the local mall. The mall has donated a storefront space to the school where students operate a licensed retail store. The teachers and the classroom are based in the mall. Students operate the store as a seasonal project. In the fall the students decide what to sell, they are actively involved in starting the store, purchasing, stocking, working in the store, and closing out the store at the end of the Christmas season. Students not only learn marketing concepts in a classroom environment, but are able to actually put these marketing concepts into practice. In addition, business students are involved in "legal accounting," where they maintain accounting records for school-based enterprises. The principal noted, "We have to be very careful about actually generating money with students, so we're very careful about that. But we have funded over \$60,000 in equipment purchases in the last five years out of these school-based enterprises."

One office occupations coordinator in the midwest has sixteen seniors serving in internship positions with local businesses. Long-term partnerships have been developed with two companies that have had students from the program every year for ten years. Students are placed at other local companies as well. This internship program has provided valuable school-to-work linkages for students to learn in the work environment and to apply in the work setting the concepts taught in the office occupations classroom.

A business teacher at a western site commented that the FBLA organization has evolved from a social club to an organization that really helps students in the school-to-work transition process. She noted that the organization focuses on combining the communication skills and the technological "computer skills" that students need to be successful in the workplace. The FBLA students at this site did marketing research and opened a school store. Another school-based enterprise conducted by FBLA students was creating and distributing flyers, posters and brochures for the annual boat show as well as other community activities. Additionally, at this site students are actively involved in shadowing and interning activities. Keeping up-to-date on technology is especially emphasized at this site as teachers visit the Microsoft Company three times a year to bring technical updates back to their classrooms.

### Educational Implications

As shown by the preceding examples, exemplary school-to-work programs require commitment on the part of educators, the business community, and students. Besides building alliances with the business community, business educators must accept a number of changes in the ways they have traditionally done things. For example, to accommodate students' work-based experiences, teachers frequently have to adjust rigid time schedules. Further, content traditionally taught does not always provide knowledge students need for their work-based learning. Observation of common elements across the diverse school-to-work business programs visited through this research can provide a basis for helping business educators implement effective school-to-work

programs. Further, these observations can help identify professional development needs the teachers may have. These needs are more fully discussed by Schmidt, Finch, & Moore (1995) in a related paper on the topic of Professional Development That Supports Teachers' School-to-Work Transition Efforts.

The examples cited provide business educators with realistic expectations as to contributions they can expect businesses to make to school-to-work programs. Knowledge of what has worked in exemplary settings across the United States can enable business educators to approach individuals in the business community with confidence. Through the outcomes of this research, business educators have the advantage of being able to go to the business community with specific examples of what has worked, how students were involved, and how businesses contributed. They can cite specific examples of ways that students have been better prepared for work through the linking of work-based and school-based learning.

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# Methods of Teaching Electronic Spreadsheets: Hands-on vs. Lecture/Demonstration

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## Abstract

The study compared the effectiveness of the hands-on method and the lecture/demonstration method of teaching electronic spreadsheet applications. Two intact sections of computer software applications classes at the collegiate level were studied. A computer generated spreadsheet skills test was used to determine the skill level and the amount of transfer of learning from a familiar to an unfamiliar program. Both sections were taught by the same teacher. No statistically significant differences were found between the hands-on and the lecture/demonstration methods of teaching electronic spreadsheet applications relative to content knowledge achievement, skills performance, and skills/knowledge transfer. However, the mean scores of the hands-on group were consistently higher in the three areas tested. The hands-on method group also indicated a higher perception of the course.

Computer technology is changing the world. We share our homes, schools, and workplaces with computer systems that are changing our very existence. No segment of our society embraces computer technology as aggressively as the business world. "Today the personal computer (PC) is a fixture in most business organizations, large and small" (Alexander & Echternacht, 1990). Understanding computer concepts and procedures and possessing high level computer competencies have become basic skills that are essential to our future.

Since its inception, business education has accepted the mission of educating potential employees for business and about business. Today computer skills have become a basic requirement for persons entering the workplace. "The schools which have instituted new, computer-based curriculums in business education in response to changing office practices will find themselves well positioned to meet the new challenges of the 1990s if they have focused on teaching basic concepts and principles of computers and information systems" (Daggett & Jaffarian, 1990).

In order to meet the challenge of providing a workforce with computer skills, most secondary, postsecondary, and college/university business education programs have increased the number of course offerings in the computer applications area. "In recent years high school business programs have made substantial additions to their offerings. The focus is still on preparation for work immediately following graduation from high school, and major attention is given to the development of computer skills" (Hall, 1990). With technology changing at an increasing pace and employers expecting students to possess higher levels of skills when they exit from programs, a concern exists among business computer applications teachers as to whether the hands-

on method or the lecture/demonstration method is the more effective instructional method.

## Statement of the Problem

The goals of business education have been and continue to be focused on providing students opportunities to develop the concepts and skills required by employers and needed for personal achievement. To accomplish these goals, computer software applications, concepts, and skills must be taught. Which method of computer classroom instruction, hands-on or lecture/demonstration, is more effective? If teachers of computer software applications are to be prepared appropriately, information relative to the effectiveness of various instructional methods must be analyzed systematically.

## Purpose of the Study

The study was designed to identify if the hands-on method or the lecture/demonstration method is more effective for teaching electronic spreadsheet applications. The specific research questions addressed were:

1. Is there a difference in the mean scores on the electronic spreadsheet content knowledge test between students who receive hands-on instruction and students who receive lecture/demonstration instruction?
2. Is there a difference in the mean scores on the electronic spreadsheet skills test between students who receive hands-on instruction and students who receive lecture/demonstration instruction?

3. Is there a difference in the mean scores on the electronic spreadsheet skills test between students who receive hands-on instruction and students who receive lecture/demonstration instruction when an unfamiliar spreadsheet is used?
4. Is there a difference in the mean ratings of course perceptions between students who receive hands-on instruction and students who receive lecture/demonstration instruction?

## Method

### *Research Design and Analysis*

The research study utilized an experimental design. Two groups were studied. Group A was taught using the hands-on method. Group B was taught using the lecture/demonstration method. A pretest and post test were used to determine the knowledge achievement level of each individual in the two study groups. A *t* test was applied to analyze the differences of the means of the two groups.

A commercially marketed computer generated spreadsheet skills test was used to determine the skill levels of the two groups. The spreadsheet skills test incorporated the actual program (Lotus 1-2-3) on which instruction had been provided. The spreadsheet skills testing program was designed to administer and grade the skills test and to generate the results. In addition, a questionnaire was used to determine the perceptions of the participants toward the course.

The questionnaire contained eight questions; each question consisted of a four-point Likert-type scale response. The computer generated spreadsheet skills test and course perceptions questionnaire were administered to each participant at the end of the treatment.

On the following day, another version of the computer generated spreadsheet skills test, which utilized a different spreadsheet program (Excel) not taught as part of the treatment, was administered to each person in the two groups. The results of the unfamiliar spreadsheet skills test were used to determine the amount of transfer of learning from a familiar to an unfamiliar program.

### *Variables*

Two sets of variables were identified in the study. The dependent variables were (1) student achievement in content knowledge, (2) student performance in skill demonstration, and (3) student performance in transferring knowledge and skills obtained to an unfamiliar electronic spreadsheet program. The independent variables were (1) hands-on method of instruction and (2) lecture/demonstration method of instruction.

### *Population*

The population of the study consisted of students enrolled in two intact sections of undergraduate computer software applications classes at the University of Missouri-Columbia. The two classes were taught by the same computer software applications teacher.

### *Experimental Treatments*

The two treatments were conducted during the 1996 winter semester. Students in Treatment Group A were taught in a computer lab with each student seated at a computer. Treatment Group A received the hands-on method of classroom instruction. Students in Treatment Group B were taught in a regular classroom with only one computer used by the instructor for demonstration purposes. Treatment Group B received the lecture/demonstration method of classroom instruction. The treatments were administered during nine class periods (three weeks).

Treatment Groups A and B used the same course materials. Both groups were expected to complete the same textbook readings, skills development assignments, written test, computer generated spreadsheet skills test, and course perceptions questionnaire.

In the last phase of the study, students in both Groups A and B were asked to complete a second computer generated skills test using an unfamiliar spreadsheet applications program. No formal instruction was provided on the second spreadsheet program.

### *Hypotheses*

The research questions were formulated into the following null hypotheses and tested at the .05 confidence level:

$H_{01}$ : There is no statistically significant difference between students' performance relative to content knowledge of electronic spreadsheets when the lecture/demonstration method of classroom instruction and the hands-on method of classroom instruction are used.

$H_{02}$ : There is no statistically significant difference between students' performance relative to electronic spreadsheet skills when the lecture/demonstration method of classroom instruction and the hands-on method of classroom instruction are used.

$H_{03}$ : There is no statistically significant difference between students' performance relative to electronic spreadsheet skills using an unfamiliar spreadsheet program when the lecture/demonstration method of classroom instruction and the hands-on method of classroom instruction are used.

### *Findings*

Table 1 presents the means and standard deviations of the content knowledge pretest and post test for the hands-on and lec-



ture/demonstration groups. The mean score gain of the hands-on method group was higher than the mean score gain of the lecture/demonstration method group. The t test applied to the

differences between the pretest mean scores and the post test mean scores of the hands-on and the lecture/demonstration groups revealed no significant difference.  $H_{o1}$  was not rejected.

**Table 1**  
*Means and Standard Deviations of Content Knowledge Pretest and Post Test*

Method	No.	Pretest		No.	Post Test	
		Mean	S.D.		Mean	S.D.
Lecture/Demo	13	77.308	12.01	13	87.308	5.410
Hands-on	22	74.773	9.060	22	88.682	5.472

Table 2 reveals that the hands-on method yielded the higher mean score on the electronic spreadsheet skills test administered at the conclusion of the treatments. The t test applied to the scores generated by the electronic spreadsheet skills test of the hands-on group and the lecture/demonstration group revealed no significant difference.  $H_{o2}$  was not rejected. The transfer

test results were used to measure the skill level of students on an unfamiliar electronic spreadsheet. While the mean score of the hands-on method group was higher than the mean score of the lecture/demonstration group, the t test revealed that the differences were not statistically significant.  $H_{o3}$  was not rejected.

**Table 2**  
*Means and Standard Deviations of Skills Test and Skills/Knowledge Transfer Test*

Method	No.	Skills Test		No.	Transfer Test	
		Mean	S.D.		Mean	S.D.
Lecture/Demo	13	70.85	9.04	13	59.70	17.32
Hands-on	22	75.27	9.29	22	62.10	10.43

Table 3 presents data relative to the participants' perceptions of the course at the conclusion of the treatments. The four choices for responding to the items on the course perceptions questionnaire were Excellent, Good, Fair, and Poor. The participants' responses revealed that the hands-on method group had an overall

higher perception of their course than the lecture/demonstration group. The greatest differences in perceptions between the two groups occurred on the questions concerning "use of class time" and "relevance/usefulness of course." The participants in the hands-on group rated both items higher.

**Table 3**  
*Course Perceptions*

Question	Hands-on			Lecture/Demo		
	3*	2*	1*	3*	2*	1*
Course as a whole	24%	64%	12%	7%	93%	0%
Content of course	40%	56%	4%	27%	67%	7%
Use of class time	44%	44%	12%	13%	60%	27%
Relevance/usefulness of course	48%	52%	0%	20%	80%	0%
Clarity of responsibilities	36%	52%	12%	40%	40%	20%
Amount learned	24%	68%	8%	27%	47%	27%
Instructor's explanations	40%	52%	8%	33%	53%	13%
Confidence in ability to transfer	20%	60%	20%	27%	53%	20%

\*3 = Excellent, 2 = Good, and 1 = Fair and Poor ratings.

## Summary and Discussion

No statistically significant differences were found between the hands-on and the lecture/demonstration methods of teaching electronic spreadsheet applications relative to content knowledge achievement, skills performance, and skills/knowledge transfer. However, the mean scores of the hands-on group were consistently higher in the three areas tested. The hands-on method group also indicated a higher perception of the course.

Business software applications teachers need to evaluate the effectiveness of instructional methods used. The need for data to justify specific instructional approaches commonly used in business education is evident. This is especially apparent when consideration is given to the increasingly dissimilar levels of computer competencies students bring to the classroom. Also, the impact of distance learning, just-in-time learning, and multimedia on the teaching of spreadsheet concepts, skills, and transfer should be studied.

## Recommendations for Further Study

The study should be replicated with a larger number of participants and with groups more equal in number.

Other instructional methods for teaching spreadsheet concepts, skills, and transfer need to be investigated.

The effectiveness of teaching other types of business software applications using different instructional methods should be compared.

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# Nontechnical Competencies of Administrative Support Personnel Required in Egyptian and American Business Enterprises: A Comparative Study

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## Abstract

The purpose of this study is to analyze the perceptions of business executives and administrative support personnel working in various Egyptian business organizations concerning the importance of 52 selected nontechnical competencies related to administrative support workers. The perception of respondents regarding the importance of nontechnical competencies compared to technical skills was assessed. The objective is to develop a balanced curriculum of the Secretarial Studies Program (SSP) of the American University in Cairo (AUC) to match the market employment needs. The data which constitute the basis of the present research were collected using questionnaires addressed to 110 business executives and 136 administrative support workers. The effect of the demographic factors on the respondents' perceptions was also assessed. The implications for SSP/AUC curriculum revision based on the analysis of the data are presented. The findings of this study were compared with those of other researchers on the administrative support personnel working in different organizations in the USA.

## Introduction

As a result of pursuing an open-door economic policy in Egypt, most state-owned enterprises are being privatized. In the last few years, many American and multi-national business firms have been heavily investing in Egypt. This changing business environment created an increasing need for highly qualified administrative support personnel.

A work force requires workers to have a new set of knowledge, skills and attitudes that are not formally taught in the present educational systems (Miles, 1994). McNulty (1995) indicated that business seeks employees who work as team players, are logical and critical thinkers, possess the ability of problem solving, have computer literacy, and have communication and interpersonal skills.

Nontechnical competencies of the average administrative support personnel continue to be a major area of concern to employers (Anderson-Yates et al. 1992). Anderson-Yates and Penny (1996) reported that almost ninety percent of executives regarded both technical and nontechnical competencies as equally important and are needed by administrative support personnel to respond to the challenge of the office; this confirms the SCANS (1992) findings concerning the skills in demand by employers.

Despite the current emphasis on the technical skills in educational programs preparing students to work as administrative support personnel, nontechnical competencies have not been given enough attention in the related curricula. A business education program of the study developed without input from the

business community would surely be lacking some necessary components (Crews and Stitt-Ghodes, 1994).

The curriculum of the Secretarial Studies Program (SSP) of the American University in Cairo (AUC) is periodically updated to prepare graduates to survive in the new Egyptian business environment. To properly develop a balanced secretarial studies curriculum, the perception of the administrative support personnel and their organization executives concerning different nontechnical competencies should be identified. A survey of the literature revealed that no research work concerning the perception of nontechnical competencies related to administrative support personnel in different business organizations in Egypt has been conducted. This study appears to be the first one to be carried out in Egypt on this topic.

Another concern of the researcher is to find out the differences and similarities of the perceived importance of the nontechnical competencies by executives working in Egyptian and American business organizations.

## Purpose of the Study

1. To determine how administrative support personnel and business organizations' executives perceive the importance of nontechnical competencies.
2. To determine the effect of demographic variables on the executives' and administrative support personnel's perception of the perceived importance of nontechnical competencies related to administrative support workers.

3. To gain insight into types of nontechnical competencies deemed important in American business environments, which are thus likely to be deemed important in the multinational firms operating in Egypt.
4. To make recommendations pertinent to revamping and developing the current secretarial studies curriculum in the Secretarial Studies Program at the American University in Cairo.

## Methodology

### Sample

The study involved graduates of the Secretarial Studies Program at the American University in Cairo (SSP/AUC) from 1991 to 1996, other administrative support personnel graduated from various educational institutes, and executives of different business organizations.

As the largest business center in Egypt, Cairo was chosen as the location for carrying out this research. A list of 200 SSP/AUC graduates with known business addresses in Cairo was prepared. Of those, one hundred graduates were randomly selected to receive the questionnaire. From the same business organizations at which the SSP/AUC graduates are working, a stratified random sample including 200 secretaries graduated from other educational institutions and 180 business executives were selected. The questionnaires were distributed to the sample individuals. The valid responses received were 136 from administrative support personnel and 110 business executives.

### Questionnaire

Permission to use an instrument developed by Anderson-Yates and Penny (1996) in their research entitled "Workplace nontechnical skills: Requirements for corporate level administrative support" was obtained. The questionnaire was prepared to be used for collecting data from organizational executives and another modified version of the questionnaire was prepared for administrative support personnel. The two questionnaires were piloted with 10 executives and 15 administrative support personnel. Based on their feedback, minor modifications were made.

The first part of the questionnaire addressed demographic information regarding gender, age, educational level completed, years of experience, and type and size of business. The second part was composed of 52 questions to measure the perceived importance of nontechnical competencies thought to be required in the administrative support personnel. The 52 nontechnical competencies were classified into six categories (professional characteristics, communication skills, intercultural communication skills, human relation/motivation skills, time management and problem solving/decision making skills. The following four-point Likert-type scale was used in this part of the questionnaire to compare the perceptions of the groups of respondents concerning the perceived importance of each competency item:

- (4) very important, (3) important, (2) somewhat important and (1) not important.

The third part included six statements to determine respondents' perceived importance of nontechnical versus technical skills. A three-point scale (agree, not sure and disagree) was used in this part of the questionnaire.

### Statistical Data Analysis

The demographic data were analyzed using frequencies and relative frequencies. Data collected through the Likert-type scale resulted in quantitative comparisons of means of perceptions of the different groups concerning nontechnical skills. A two-tailed t-test, F-test, and Chi-square statistic were used to determine whether there is a significant difference in perception between the studied groups. A 0.05 level was used to determine the significance. A computer package (Statistical Package for Social Sciences "SPSS/PC+") was used for data analysis.

## Findings

### Demographics

The first research area examined was the demographic characteristics of the executives and administrative support personnel responding to this study. The distribution of responding executives and administrative support personnel by gender, age, educational background, years of experience, current position and type and size of business is shown in Tables 1-8 respectively.

### Gender

Males constituted 78.2% of business executives and only 4.4% of the administrative support personnel respondents. Administrative support personnel career is still almost a female one.

**Table 1**  
**Gender**

	Executives		ASP <sup>(a)</sup>	
	No.	%	No.	%
Female	24	21.8	130	95.6
Male	86	78.2	6	4.4
	110	100.0	136	100.0

(a) ASP= Administrative Support Personnel

### Age

The age of business executives ranged from 24 to 67 years with an average of 43.2 years. Administrative support personnel age ranged from 19 to 61 with an average of 28.8 years. The largest number of business executives and administrative support personnel were in the 41-50 and 21-30 age groups respectively.

**Table 2**  
*Distribution of Respondents by Age*

Age Group (Years)	Executives		ASP <sup>(a)</sup>	
	No.	%	No.	%
<=20	-	0.0	6	4.4
21-30	11	10.0	74	54.5
31-40	29	26.4	30	22.0
41-50	31	28.2	7	5.2
51-60	24	21.8	1	0.7
60+	2	1.8	1	0.7
Missing	13	11.8	17	12.5
	110	100.0	136	100.0

(a) ASP: Administrative Support Personnel

**Education**

The educational level achieved by the respondents is displayed in Table 3. About sixty-five of the business executives obtained a bachelor's degree and 28.2% completed other postgraduate degrees. From the responding administrative support personnel, 66% obtained a bachelor's degree, 29.4% received their secretarial certificates from the SSP/AUC and 6.6% from other institutes (Table 3).

**Table 3**  
*Level of Postsecondary Education Achieved by Respondents*

Education	ASP		Executives	
	No.	%	No.	%
None	6	4.4	2	1.8
Presently Working on Bachelor's Degree	4	2.9	-	0.0
Secretarial Professional Certificate (SSP/AUC)	28	20.6	-	0.0
Secretarial Certificate (Other Institutes)	3	2.2	-	0.0
Bachelor's Degree	72	52.9	72	65.5
Bachelor's Degree + Secretarial Professional Certificate (SSP/AUC)	12	8.8	1	0.9
Bachelor's Degree + Secretarial Certificate (Other Institutes)	6	4.4	-	0.0
Master's Degree	3	2.2	23	20.9
Doctorate Degree	-	0.0	8	7.3
Missing	2	1.5	4	3.6
Total	136	100.0	110	100.0

**Years of Experience**

Almost half (52.7%) of the business executives spent more than 11 years in their current or similar position. More than half of the administrative support personnel spent 2-10 years in the same or similar position (Table 4).

**Table 4**  
*Respondents' Years of Experience in the Same or a Similar Position*

Years of Experience	Executives		ASP <sup>(a)</sup>	
	No.	%	No.	%
0-1	3	2.7	35	25.7
2-5	18	16.4	50	36.8
6-10	31	28.2	28	20.6
11+	58	52.7	23	16.9
	110	100.0	136	100.0

**Respondents' Current Positions**

Tables 5 & 6 display the distribution of the business executives and administrative support personnel by the current job title. Table 5 discloses that the chief executive officer, president, vice president, and partner were the titles for 17.3%, while department directors and managers constituted 67.3% and others 15.3% of the responding business executives.

Forty-two percent of the administrative support personnel hold the title of secretary and 31% hold the title of executive secretary. The administrative support personnel holding the titles of administrative assistant and administrative secretary constituted 10.3% and 5.9% respectively. Other titles identified were office manager, office assistant, junior secretary.

**Table 5**  
*Distribution of Executives by Current Title/Position*

Title/Position	Executives	
	No.	%
CEO/President/Vice President/Partners	19	17.3
Department/Division Manager/Director	74	67.3
Other	17	15.5
Total	110	100.0

**Table 6**  
*Distribution of Administrative Support Personnel by Current Title/Position*

Title	ASP	
	No.	%
Secretary	57	41.9
Administrative Secretary	8	5.9
Executive Secretary	42	30.9
Administrative Assistant	14	10.3
Other	15	11.0
<b>Total</b>	<b>136</b>	<b>100.0</b>

**Type of Business**

Of the 110 business executives who responded to the survey, the major types of organizations represented were banking & finance (19.1%), pharmaceutical (15.5%), hotel (13.6%) and oil/petroleum (10.9%). The majority of administrative support personnel respondents were from the previously mentioned business types. However, the remaining respondents represented other types of business including communications, advertising agencies, and health care organizations (Table 7).

**Table 7**  
*Distribution of Respondents by Type of Business*

Type of Business	Executives		ASP <sup>(a)</sup>	
	No.	%	No.	%
Hotel	15	13.6	18	13.2
Banking and Finance	21	19.1	24	17.6
Airlines/Travel Agencies	9	8.2	6	4.4
Computer	7	6.4	9	6.6
Education/Nonprofit Organizations	5	4.5	14	10.3
Pharmaceutical	17	15.5	21	15.4
Retail/Wholesale	3	2.7	7	5.1
Consulting	5	4.5	5	3.7
Oil/Petroleum	12	10.9	18	13.2
Other	16	14.5	14	10.3
<b>Total</b>	<b>110</b>	<b>100.0</b>	<b>136</b>	<b>100.0</b>

**Size of Business**

The size of business was determined according to the number of employees (large= 500+, mid-size= 50-499 and small= less than 50 employees). Table 8 displays the distribution of all respondents by the size of business.

**Table 8**  
*Organizational Size Classification*

Size	Executives		ASP	
	No.	%	No.	%
Small <50	25	22.7	24	17.6
Mid Size 50-499	42	38.2	44	32.4
Large 500+	43	39.1	68	50.0
<b>Total</b>	<b>110</b>	<b>100.0</b>	<b>136</b>	<b>100.0</b>

**Perception**

The perceived importance of the 52 nontechnical competencies related to administrative support personnel (ASP) was analyzed by mean and standard deviations and significance of difference between the perception of the compared groups. The 52 nontechnical competencies were divided into six categories: (1) professional characteristics, (2) communication skills, (3) intercultural communication skills, (4) human relations/motivation skills, (5) time management, and (6) problem solving/decision making skills. The mean of perceptions of each category was calculated and studied for the groups compared. Finally, the respondents' response to 6 statements used to determine respondents' perceived importance of nontechnical versus technical skills were reported and discussed.

**Perceptions of the Individual Nontechnical Skill Items**

The business executives and administrative support workers' responses regarding the 52 nontechnical competencies are rank ordered in Table 9. Executives' perceptions of competencies differed significantly from those of administrative support workers in 12 competencies. At the top half of the list of executives (the first 26 competencies), executives perceived the importance of "Follow oral and written instructions" and "minimize occurrence of problems" more highly than administrative support personnel did. Business executives are more concerned about having their oral and written instructions followed; they are also more concerned about minimizing the occurrence of problems than their administrative support personnel do. The perceived importance of the nontechnical competency item "be proficient in at least one foreign language" significantly differed between the two groups. The administrative support personnel's higher perception of this skill is probably due to dealing and communicating with non-Egyptian business people, as well as composing different types of business letters in English; hence creating their awareness of foreign languages.

The mean of perceived importance was significantly different between the two groups concerning the item "work without close supervision". Business executives desire that their administrative support personnel work without close supervision. This concept is not as well perceived by administrative support personnel as by business executives. Other significantly different perceptions are shown in Table 9.

**Table 9**

*Means of Perceived Importance and Ranks of 52 Nontechnical Skills by Business Executives and Administrative Support Personnel Working in Egypt and Ranking of Those Skills by Executives Working in the USA*

Category <sup>a</sup>	Nontechnical Competency	American <sup>(b)</sup>	Egyptian		ASP		t
		Executives (n= 110) R. <sup>c</sup>	Executives (n= 136) R. <sup>c</sup>	Mean	R. <sup>c</sup>	Mean	
1	Display Confidentiality and Loyalty	2	1	3.91	1	3.88	0.77
5	Organize quickly and accurately	15	2	3.83	5	3.76	1.27
2	Listen Effectively	8	3	3.80	3	3.76	0.65
2	Follow Oral and Written Instructions	3	4	3.73	14	3.58	2.11*
2	Exercise Accuracy in All Aspects of Work	7	5	3.71	10	3.62	1.35
1	Display Cooperativeness	4	6	3.71	4	3.76	0.88
2	Communicate Clearly and Correctly	13	7	3.68	7	3.67	0.15
5	Prioritize Work	5	8	3.67	6	3.72	0.77
1	Display Dependability and Responsibility	1	9	3.64	8	3.65	0.16
3	Be Proficient in at Least one Foreign Language	-	10	3.64	2	3.82	2.83**
1	Display Good Work Ethics	9	11	3.61	11	3.59	0.19
1	Display Professionalism	14	12	3.55	13	3.58	0.36
4	Work Well With Employees at All Levels	16	13	3.53	9	3.62	1.20
1	Possess Positive Attitude	11	14	3.52	20	3.45	0.89
5	Exhibit Ability to Handle Pressures and Tensions	17	15	3.52	23	3.41	1.31
4	Control Emotions Under Pressure	26	16	3.52	15	3.57	0.66
4	Work With Different Managerial Styles	22	17	3.50	28	3.35	1.75
4	Maintain Agreeable Positive Attitude	23	18	3.50	18	3.47	0.35
4	Respect the Property of Others	25	19	3.48	16	3.55	0.87
6	Acquire New Information and Skills and Apply to the Job	33	20	3.47	17	3.48	0.06
6	Accept Responsibility for Failures	32	21	3.47	30	3.32	1.63
4	Be a Team Player	10	22	3.47	21	3.45	0.22
5	Manage the Company's Time and Resources Effectively	29	23	3.46	24	3.39	0.90
6	Minimize Occurrence of Problems	27	24	3.46	32	3.29	2.01*
5	Set Goals, Plan and Complete Tasks	18	25	3.44	12	3.59	1.76
6	Make Decisions Quickly and Accurately	34	26	3.40	31	3.31	1.02
6	Exercise Good Judgement	12	27	3.36	33	3.29	0.72
6	Recognize, Analyze and Solve Problems Where Possible	28	28	3.33	36	3.24	0.97
4	Provide or Respond to Praise or Criticism Constructively	35	29	3.31	42	3.03	3.23***
4	Willing to Help Others to Learn	31	30	3.31	19	3.45	1.77
4	Be Respectful of Values Different From Their Own	--	31	3.31	25	3.38	0.83
6	Recognize the Need for Change	5	32	3.30	27	3.35	0.51
1	Display Initiative	6	33	3.26	22	3.44	2.01*
1	Work Without Close Supervision	9	34	3.25	51	2.76	4.59***
6	Make Suggestions to Reduce Costs and Improve Efficiency	--	35	3.24	40	3.16	0.74
6	Combine the Best of the Old and New Ways of Doing Things	--	36	3.17	35	3.25	0.82
6	Analyze Problems and Offer Alternative Solutions	--	37	3.16	37	3.22	0.58

table continued

Table 9, continued

Category <sup>a</sup>	Nontechnical Competency	American <sup>(b)</sup>	Egyptian		ASP		t
		Executives (n= 110) R. <sup>c</sup>	Executives (n= 136) R. <sup>c</sup>	Mean	R. <sup>c</sup>	Mean	
2	Ask and Answer Questions	19	38	3.15	26	3.35	2.24*
1	Demonstrate Flexibility	21	39	3.11	38	3.20	1.07
5	Ask for Help and Delegate Work	30	40	3.11	44	2.96	1.41
4	Value Individual Diversity	--	41	3.10	34	3.26	1.77
6	Weight the Business and Human Sides of a Problem Before Making Decisions	--	42	3.09	41	3.15	0.58
4	Motivate Others	--	43	3.08	39	3.17	0.89
3	Understand the Need for Diversity in Workplace	--	44	3.07	29	3.33	3.20**
5	Participate in Total Quality Management	--	45	3.05	43	3.00	0.44
3	Prepare International Communication	--	46	2.99	50	2.85	1.27
3	Be Aware of Global Interdependence	--	47	2.91	48	2.92	0.17
1	Participate in Continuing Education	--	48	2.78	46	2.93	1.34
2	Use Body Language/Nonverbal Communication	--	49	2.77	52	2.48	2.49*
3	Understand International Activities	--	50	2.64	45	2.93	2.65**
3	Possess Knowledge of International Protocol	--	51	2.63	47	2.93	2.55*
3	Understand the Diversity of Cultures	--	52	2.60	49	2.87	2.46*

a) No. Category

b) Andersen Yates, M. & Penny, A. (1996)

c) Rank

1: Professional Characteristics

2: Communication Skills.

3: Intercultural Communication Skills.

4: Human Relations and Motivation Skills.

5: Time Management.

6: Problem-Solving/Decision Making.

\*Significant at 0.05 level

\*\*Significant at 0.01 level

\*\*\*Significant at 0.001 level

### Comparison Based on Rank Orders

The most highly ranked nontechnical skill item by both executives and administrative support personnel was "display confidentiality and loyalty". Business executives perceived "organize quickly and accurately" as the second item in importance compared to the fifth rank in the administrative support personnel list. Business executives ranked "follow oral and written instructions" as number 4, while administrative support personnel ranked it as number 14. Both groups ranked "Listen effectively" as number 3.

In the nontechnical competency items ranked by business executives up to 26, the following items were ranked by business executives more highly than the administrative support personnel: "follow oral and written instructions", "exercise accuracy in all aspects of work", and "work with different managerial styles". Administrative support workers ranked "be proficient in at least one foreign language", and "set goals and complete tasks" more highly than the business executives did.

### Perceptions of Nontechnical Skill Categories

The study of the effect of demographic variables on the perceived importance of nontechnical competencies by business executives and administrative support personnel revealed that gender and title/position of business executives affected the perceived importance of the skill categories means (Tables 10 & 11), while size and type of business did not.

Female executives expressed a significantly higher importance of professional characteristics, communication skills and human relations and motivation skills than male executives. Both groups rank ordered communication skills, human relations and motivation skills, problem solving/decision making, and intercultural communication skills categories similarly as numbers 1, 4, 5 and 6 respectively.



**Table 10**  
*Effect of Executive Gender on Perception of Skill Categories*

Nontechnical Skills Category <sup>1</sup>	Females (n=19)		Males (n=91)		F-Value
	Mean	SD	Mean	SD	
Professional Characteristics	3.54	0.34	3.40	0.30	4.01*
Communication Skills	3.62	0.32	3.43	0.35	5.60*
Intercultural Communication Skills	3.07	0.74	2.88	0.54	1.98
Human Relations and Motivation Skills	3.52	0.40	3.33	0.38	4.02*
Time Management	3.56	0.39	3.40	0.40	2.94
Problem-Solving/Decision Making	3.46	0.43	3.27	0.47	3.26

<sup>1</sup>Nontechnical skill items in each category could be traced by reviewing table 9 (first column) and the footnotes.

\* Significant at 0.05 level

When executives were classified into 3 levels (I, II & III), F-test revealed significant differences between the groups concerning the perceived importance of the professional characteristics. Scheffé comparisons revealed significant differences between groups I and III and between groups II and III. The third group of business executives perceived this category of competencies higher than the other two groups.

**Table 11**  
*Effect of Executives' Title/Position on Perception of Skill Categories*

Nontechnical Skills Category	Level I <sup>a</sup> (n=19)		Level II <sup>b</sup> (n=74)		Level III <sup>c</sup> (n=17)		F-Value
	Mean	SD	Mean	SD	Mean	SD	
Professional Characteristics	3.32	0.29	3.42	0.32	3.63	0.21	5.12**
Communication Skills	3.39	0.32	3.46	0.36	3.60	0.29	1.80
Intercultural Communication Skills	2.85	0.55	2.88	0.59	3.18	0.57	1.92
Human Relations and Motivation Skills	3.28	0.40	3.36	0.39	3.53	0.41	1.88
Time Management	3.43	0.43	3.40	0.41	3.60	0.32	1.60
Problem-Solving/Decision Making	3.27	0.45	3.30	0.48	3.43	0.41	0.63

(a) CEO/President/Vice President/Partners

(b) Department/Division Manager/Director

(c) Other Titles

\*\* Significant at 0.01 level

The type of business affected the perception of the administrative support personnel concerning human relations and motivation skills. When the perception of administrative support personnel working in hotels, banking and finance, pharmaceutical and oil businesses were compared, a significant difference was found (Table 12). Scheffé post hoc comparison revealed the existence of difference between the perception of adminis-

trative support personnel in banking & finance and oil business. Respondents in the oil business field ranked the human relations category higher than the banking and finance administrative support personnel did. In addition, Novice administrative support workers (less than 3 years of experience) perceived the importance of "intercultural communication" significantly higher than the experienced ones (Table 13).

**Table 12**

*Effect of Administrative Support Personnel Business Type on the Perception of Skill Categories*

NonTechnical Skills Category	Hotel (n=18)		Banking & Finance (n=24)		Pharmaceutical (n=21)		Oil (n=18)		F-Value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Professional Characteristics	3.51	0.24	3.47	0.32	3.39	0.26	3.61	0.37	1.66
Communication Skills	3.52	0.38	3.42	0.28	3.46	0.33	3.43	0.24	0.37
Intercultural Communication Skills	3.15	0.54	2.10	0.47	3.01	0.53	3.10	0.38	0.29
Human Relations and Motivation Skills	3.49	0.35	3.25	0.39	3.41	0.38	3.64	0.25	4.26**
Time Management	3.53	0.36	3.34	0.30	3.40	0.40	3.42	0.43	0.94
Problem-Solving/Decision Making	3.37	0.35	3.21	0.45	3.26	0.38	3.53	0.44	2.32

\*\* Significant at 0.01 level

**Table 13**

*Effect of Administrative Support Personnel Experience Level on Perception of Skill Categories*

Nontechnical Skills Category	Novice (n=52)		Experienced (n=84)		F-Value
	Mean	SD	Mean	SD	
Professional Characteristics	3.44	0.34	3.42	0.30	0.11
Communication Skills	3.48	0.39	3.37	0.36	3.26
Intercultural Communication Skills	3.20	0.52	3.02	0.45	4.55*
Human Relations and Motivation Skills	3.43	0.41	3.37	0.34	0.89
Time Management	3.43	0.33	3.39	0.40	0.54
Problem-Solving/Decision Making	3.35	0.43	3.23	0.43	2.49

\* Significant at 0.05 level

It is noteworthy that administrative support personnel perceived this category of skills significantly higher than the business executives (Table 14).

**Table 14**

*Perception of Executives and Administrative Support Personnel (ASP) Regarding Nontechnical Competencies*

Nontechnical Skills Category	Executives (n=110)		ASP (n=136)		F-Value
	Mean	SD	Mean	SD	
Professional Characteristics	3.43	0.31	3.43	0.31	0.04
Communication Skills	3.47	0.35	3.41	0.37	1.84
Intercultural Communication Skills	2.92	0.59	3.09	0.49	6.16*
Human Relations and Motivation Skills	3.37	0.39	3.39	0.37	0.13
Time Management	3.44	0.41	3.40	0.37	0.13
Problem-Solving/Decision Making	3.31	0.47	3.28	0.43	0.37

\* Significant at 0.05 level

**Respondents Perceived Importance of Nontechnical Versus Technical Skills**

There was no significant difference between the perceptions of business executives and administrative support personnel concerning the six statements (Table 15). Gender, title and size of business did not significantly affect the responses of business executives. The responses of administrative support personnel

to the statements were not affected by size of business. However, novice administrative support personnel group differed significantly from the experienced group in statement 2 (Table 16). More than 60% of novice administrative support personnel did not agree that nontechnical competencies are only required of administrative support workers at the very top, compared to 44.7% of the experienced administrative support personnel.

**Table 15**  
**Frequency Distribution of Responses of American & Egyptian Executives and Administrative Support Personnel Concerning the Importance of Nontechnical Versus Technical Skills**

Statement <sup>(c)</sup> No.	Response	ASP (Egypt)		Executives (Egypt)		Executives <sup>(a)</sup> (USA)		X <sup>2</sup> Value
		No	%	No	%	No	%	
1	Disagree	48	35.3	36	32.7	44	48.4	5.62
	Not sure	14	10.3	20	18.2	11	12.1	
	Agree	74	54.4	54	49.1	36	39.6	
2	Disagree	69	50.7	55	50.0	78	85.7	28.89***
	Not sure	25	18.4	20	18.2	3	3.3	
	Agree	42	30.9	35	31.8	10	11.0	
3	Disagree	60	44.1	46	41.8	59	64.8	19.16***
	Not sure	23	16.9	19	17.3	20	22.0	
	Agree	53	39.0	45	40.9	12	13.2	
4	Disagree	60	44.1	43	39.1	58	63.7	12.21**
	Not sure	27	19.9	22	20.0	12	13.2	
	Agree	49	36.0	45	40.9	21	23.1	
5	Disagree	41	30.1	22	20.0	37	40.7	15.29***
	Not sure	36	26.5	30	27.3	29	31.9	
	Agree	59	43.4	58	52.7	25	27.5	
6	Disagree	5	3.7	5	4.5	5	5.5	b
	Not sure	9	6.6	12	10.9	7	7.7	
	Agree	122	89.7	93	84.5	79	86.8	

(a) Anderson-Yates & Penny (1996)

(b) Chi-square value was not calculated (expected frequency is less than 5 in a cell)

(c) No. Statement

1. Technical skills, more than nontechnical competencies, allow administrative support workers to respond to the challenges of the office.
2. Nontechnical competencies are only required of administrative support workers at the very top.
3. Employers need administrative support personnel with more technical skills than nontechnical competencies.
4. Technical skills, more than nontechnical competencies, are important for advancement and promotion to higher levels of responsibilities.
5. Lack of desired technical skills would lead to termination more than lack of nontechnical competencies would.
6. Technical skills and nontechnical competencies are equally essential for effective job performance.

**Table 16**  
*Difference in Perceived Importance of Nontechnical Versus Technical Skills Between Novice and Experienced ASP*

Statement Number <sup>(1)</sup>	Chi-square Value	df	Prob.
1	5.21	2	0.07
2	8.02	2	0.02*
3	2.73	2	0.26
4	1.20	2	0.55
5	3.96	2	0.14
6	3.00	2	0.22

\* = Significant at 0.05 Level.

<sup>(1)</sup> Statements and their corresponding numbers are mentioned in Table 15 (Footnote C)

**Comparison Between the Perception of Business Executives Working in Egypt and Those Working in US Organizations:**

The present study is based on a comparison of data collected about the perceptions of business executives working in Egypt and data provided by Anderson-Yates and Penny (personal communication) concerning the perceptions of executives working in US organizations. The comparison of the two groups included the perceptions of nontechnical skill items, the six skill categories, and the six statements used to determine respondents' perceived importance of nontechnical versus technical skills. Out of the 54 nontechnical skills perceived by executives in USA, Anderson-Yates and Penny (1996), provided the researcher with the skills rank ordered from 1-35 in their study (Table 9).

"Display confidentiality and loyalty", "organize quickly and accurately", and "listen effectively" emerged at the top of Egyp-

tian executives list, while executives working in American organizations rated them as the second, fifteenth, and eighth most important skills respectively. In the American study, the highest rated competency was "dependability and responsibility" which was rank ordered as number 9 in the Egyptian study. Major differences in ranking were found in "Display initiative", "Work without close supervision", "Be a team player", and "Exercise good judgement". In the American study these items' rank orders were 6, 9, 10 and 12 respectively to 33, 34, 22, and 27 in the Egyptian study.

Data concerning the perceived importance of nontechnical skills suggest that business executives working in Egypt and USA are more different than alike in this concern.

A comparison between the six categories of the nontechnical competencies may give more insight concerning the difference between the two groups. As the same questionnaire was used to rate the perceived importance of the nontechnical competencies of both Egyptian and American business executives, means and standard deviations for the six categories of nontechnical competencies were compared (Table 17). The American business executives reported significantly higher importance for professional characteristics and communication skills than their Egyptian counterparts. More significantly perceived importance was given to intercultural communication skills by Egyptian compared to that of American business executives. It is noteworthy that this category lies at the bottom of the six categories for the two groups of respondents when skill the categories are rank ordered (Table 17). Both Egyptian and American business executives ranked communication skills as number 1. In spite of the absence of any significant difference in the perception means between the two groups concerning human relations & motivation skills, time management and problem solving & decision making categories, these categories are rank ordered differently by the two compared groups of executives (Table 17).

**Table 17**  
*Perception Means of Business Executives Working in Egyptian and American Organizations*

Nontechnical Skills Category	Executive Egyptian (n=110)			Executive USA <sup>1</sup> (n=91)			T Value
	Rank	Mean	SD	Rank	Mean	SD	
Communication Skills	1	3.47	0.35	1	3.67	0.36	3.98**
Time Management	2	3.44	0.41	3	3.54	0.47	1.61
Professional Characteristics	3	3.43	0.31	2	3.64	0.36	4.44**
Human Relations & Motivation Skills	4	3.37	0.39	4	3.44	0.45	1.18
Problem Solving & Decision Making	5	3.31	0.47	5	3.33	0.51	0.29
Intercultural Communication Skills	6	2.92	0.59	6	1.95	0.63	11.25***

(1) Anderson-Yates & Penny (1996)

\*\* Significant at 0.01 level

\*\*\* Significant at 0.001 level

Concerning the six statements used to determine respondents' perceived importance of nontechnical versus technical skills, there were more differences than similarities in the responses of Egyptian and American business executives (Table 15). Their responses differed significantly concerning statements 2,3,4 and 5. More American business executives (85.7%) disagreed that nontechnical competencies are only required by administrative support workers at the very top compared to 50% of the Egyptian business executives. More than 40% of Egyptian business executives agreed that employers need administrative support personnel with more technical skills than nontechnical competencies, while 13.2% of the American business executives agreed on this statement. Sixty-four percent of the American business executives compared to 39.1% of Egyptian business executives disagreed that technical more than nontechnical competencies are important for advancement and promotion to higher levels of responsibilities. More than half of the Egyptian business executives (52.7%) agreed that lack of desired technical skills would lead to termination more than lack of nontechnical competencies compared to 27.5% of American executives. The great majority of both Egyptian and American business executives (84.5% and 86.8% respectively) agreed that technical skills and nontechnical competencies are equally essential for effective job performance.

Comparing the two groups, it is evident that Egyptian business executives give more weight to the importance of technical skills than their American counterparts do concerning the importance of technical in relation to nontechnical competencies for administrative support personnel at the very top of organizations, employees selection, promotion and termination decisions. However, 84.5% and 86.8% of Egyptian and American business executives respectively agreed that technical skills and nontechnical competencies are equally essential for effective job performance.

A thorough analysis of the perceived importance of nontechnical competencies in administrative support personnel by the Egyptian and American business executives revealed that more differences than similarities exist between the two groups. The importance of different nontechnical skill items and categories was perceived differently. In addition, the responses to the importance of nontechnical competencies compared to technical skills was differently perceived by the two groups in four out of six statements. This difference may be due to the difference in both culture and business environment in the two countries.

In his comparative study between the perceived importance of secretarial tasks and skills required in Egyptian and American business enterprises, Shaltout (1996) found that there were more similarities than differences between secretaries working in Egyptian and those working in American organizations concerning the perceived importance of the technical skills of the two groups. It seems that culture and business environment affect the perception of the importance of the nontechnical more than technical skills.

## Conclusions and Recommendations

Executives' perceptions of the importance of nontechnical competencies differed significantly from those of administrative support personnel in 12 out of the 52 studied competencies. However, differences between the perceptions of the two groups concerning the highest ranked 26 competency items are confined to 3 skill items. There was no significant difference in the perceptions of the two groups concerning the categories of competencies except in the intercultural communication skills category. However, this category was perceived to be of the least importance for both groups. Gender and current title/position affected the perceived importance of executives in three and one skill categories respectively, while size and type of business did not. Type of business and years of experience affected the perceptions of the administrative support personnel. Novice administrative support personnel perceived the importance of intercultural communication skills came significantly higher than experienced ones. When the perceptions of administrative support personnel working in hotels, banking & finance, pharmaceutical, and oil business were compared concerning the skill categories, a significant difference was found between those who are working in banking & finance and oil business concerning human relations and communication skills.

Comparisons between responses concerning the importance of nontechnical versus technical skills revealed no significant differences between the business executives and administrative support personnel. Business executives and administrative support personnel are more alike than different in terms of their perception of the importance of the nontechnical skills as compared to technical skills.

There are more differences than similarities between business executives working in Egypt and the USA. When means of perceptions of both groups were rank ordered, a difference between the two groups was evident.

A comparison between the perceptions of the two groups concerning the six skill categories revealed that the two groups perceived three categories differently. Business executives working in USA perceived communication skills and professional characteristics more highly than their Egyptian executives did. The perceived importance of the intercultural communication was higher for the Egyptian business executives.

The responses of American business executives concerning the importance of nontechnical in comparison to technical competencies were significantly different than those of Egyptian executives in four statements. A higher percentage of American respondents disagreed on statements 2,3,4,& 5 than their Egyptian counterparts did. This shows that the awareness of non-

technical competencies is much more higher in the American respondents. However, the great majority of both groups agreed that technical and nontechnical skills are equally essential for effective job performance.

It seems that the awareness concerning nontechnical competencies emerges after having technically competent employees. When the number of qualified graduates cannot meet the demand of business, firms hire administrative support personnel who are not fully qualified. The business executives in those firms will be aware of technical rather than nontechnical competencies. It seems that it is the case of the studied sample in Egypt. In addition, the difference between the perceptions of executives working in Egypt and the USA may be due to the difference in culture and business environment. These two factors seem to affect the perception of nontechnical more than technical skills.

Efforts should be made to provide students with the appropriate programs to teach them the important nontechnical skills in a balanced curriculum. Schneider (1910) stated that "Some aspects of every profession that cannot be learned in the classroom but must be learned where the profession is practiced... Judgment based upon experience must supplement theory". On the other hand, learning that results from work does not happen just by working. It must be nurtured and enhanced (Barbeau, J & Stull, W., 1990). It is evident that students should learn the nontechnical skills in both classroom and workplace. The cooperative education/internship programs seem to be one of the best methods to help students learn how nontechnical skills are practiced in the workplace.

The following recommendations are made, based on the findings and conclusions of this study:

1. Communication skills should be intensified in the SSP/AUC curriculum, with an emphasis on English language skills.
2. Nontechnical skills should be presented in the SSP/AUC by incorporating them in the existing courses.
3. Students should learn nontechnical skills through the integration of classroom teaching and on-the-job-training, where they would be structured to serve this purpose.
4. Since many SSP/AUC graduates are employed by American organizations working in Egypt, knowledge of American perceptions of nontechnical skills deems necessary for graduates serving in those organizations.

#### Recommendations for Further Research

1. Employers should be surveyed to determine the nontechnical skill areas in which SSP/AUC graduates are best prepared and the areas in which graduates could have been more prepared.
2. A study should be conducted to determine what SSP/AUC graduates wish they would have learned concerning nontechnical skills.

3. A study should be conducted to determine to what extent nontechnical competencies are taught in the various SSP/AUC courses and how instructors perceive the importance of these competencies.

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# Perception Of Business Educators About Information Systems Competencies Required by Business Professionals

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## Abstract

The purpose of this study was to examine the perceptions of secondary business educators about the national standards for information systems. Questionnaires were completed by Business Education and Office Technology teachers at two state-wide conferences in Tennessee. Items for the survey were drawn from competencies identified for each standard in the national study. The factors examined were whether or not each task (a) was taught, and/or (b) considered to be entry level. Data collected were analyzed as frequency count and percentages. Calculated affirmative percentages were compared for significance according to six demographic factors. Findings indicated that teachers predominately considered the competencies entry level, but a large percentage of respondents did not teach them.

## Business Education's Challenge

Business and industry have contended for decades that public schools fail to supply the needed competencies for workforce readiness. Hollifield (1990) supported this sentiment with his observation that there is a mismatch between the skills that education delivers and those that employers require.

Since the publication of *A Nation At Risk* in 1983 (the scathing commentary on the condition of American schools), our educational institutions have typically concentrated their resources in high level preparation designed for college-bound youth. In contrast, a report by the U.S. Department of Labor revealed that about three-fourths of high school graduates enter the work force each year rather than attending college (Improving, 1994). Unfortunately, programs for students going directly into the workforce have typically been sacrificed for advanced classes. Reich (1995) warned that unless workers are equipped to prosper in an era of rapid technological change and global competition, America's cherished tradition of shared middle class prosperity will remain imperiled.

Transformation of the workplace to a technological, information based economy has created a demand for employees who can adapt in an environment of continuous change. As a result, the business educator faces a broad spectrum of new challenges concerning curriculum development and delivery (Jaderstrom, White & Ellison, 1992). The training needed to properly enter, file, merge and interrelate data is an open door for the business teacher who is willing to make necessary adaptations. The factory method of educating our youth is not effective in preparation of the employee who will perform successfully in the 21st Century. Learning activities in the classrooms today require a facilitator of business education technology rather than a teacher, in the traditional sense. Programs must be workplace related, but broad enough to allow students the ability to adapt as change

occurs (Hall, 1990). Packer (1992) suggested that the most effective method of curriculum delivery today is to teach skills in the context of real life strategies with real life problems, i.e. through workforce integration.

## Business/Education Collaboration

The curricula that are so vital to the preparation of students cannot be developed in isolation. Jaderstrom, et al. (1992) proposed that through dialogue on a regular basis with business and industry, school personnel will have a better understanding of trends in the business world. Ongoing communication with this resource is vital to matching curricula knowledge, skills, and attitudes with the needs identified as essential by employers. Hoerner (1995) agreed that forming partnerships which involve every sector are required for developing an educational process that is meaningful and relevant to all young people. We all have a vested interest in the economic future of our youth (p. 22). Even so, the process requires that business educators continually review their program, have understanding of business trends and translate that knowledge into curriculum planning and implementation. LaSalle (1994) cautioned educators that vital business education programs can exist only in high schools where teachers are prepared to teach technological change. The survival of business education depends on the ability of the educators to adapt in accordance with advancements in technology.

Quarstein, et.al. (1994) observed that the capacity of competitive industry to upgrade products and applications within two to three years is often much less than the time required for academic institutions to identify changes and to get new or revised courses and programs online. By the time the need for a new course or program becomes identified and implemented, it is out of date. Consequently, students enter the business community with obsolete skills.

## *Standards of Performance in Business Education*

In 1995, the National Business Education Association (NBEA) published the *National Standards for Business Education*. These standards include the competencies that students must attain in order to compete successfully in a rapidly changing world. The National Curriculum Standards for Business define the discipline and stake a claim on those areas of the curriculum which should be taught by business educators (Treichel, Personal Communication, September, 1995).

A National Skill Standards Board (NSSB), consisting of representatives from business, industry, and labor, identified the broad occupational clusters for which a system of standards, assessment, and skills certification are needed (Education Reform, 1995). Responding to those standards in an NBEA newsletter (1995), Marino observed that in order for technology-powered change to result in school improvement, business educators must participate actively in defining what would be done educationally with technology.

Information Systems (IS) was targeted in the study as one of the essential skills. The IS standards developed by NBEA are primarily electronic. The NSSB wanted to alert teachers that these electronic systems are having an inexorable impact on paper-based systems. This is one of the standards for which every student must become competent, not only for earning a living, but for existing in the 21st Century. These standards are important to the instructor in that they define what education for and about business should include (New Standards, 1995).

### *Purpose*

The purpose of this study was to examine the perceptions of Tennessee teachers involved in Office Technology and Business Education programs in an attempt to determine whether or not they agreed with standards for information systems. The instrument used for collecting data was constructed from the national standards for IS developed under the direction of the National Business Education Association. Competencies determined to be the essential components of each standard were the 91 items addressed on the survey. Teachers were to indicate whether or not they: (a) taught the competency, and/or (b) considered it to be necessary for entry level.

A second purpose of the study was to examine these perceptions for differences between groups based on the independent variables of:

- area of instruction
- work experience in the career field being taught
- length of time since work experience was attained
- professional degree held
- frequency of communication with business/industry
- active placement of students in business

## *Research Questions*

1. Do the perceptions of classroom teachers agree or disagree with those of business professionals concerning necessary skills for success in performing information systems competencies?
2. Do the perceptions of classroom teachers agree or disagree with those of business professionals concerning the nature of information systems competencies as those which are essential in entry level positions?
3. For the competencies with which respondents agree, do the perceptions of classroom teachers differ according to:
  - area of instruction
  - work experience in the career field being taught
  - length of time since work experience was attained
  - professional degree held
  - frequency of communication with business and industry
  - active placement of students in business

## *Research Design and Methodology*

### *Population*

The population used in the study was the Office Technology and Business Education teachers who attended: (a) the Tennessee Vocational Association (TVA) Conference on August 2-3, 1995, and (b) the Tennessee Business Education Association (TBEA) meeting on September 22-23, 1995. Teachers who were in attendance at both conferences completed the survey only once.

### *Research Design*

To determine teacher perceptions about national standards, descriptive methodology was employed. This descriptive study of teacher perceptions is a pre-experimental design. The intent of the study was to examine the perceptions of the Tennessee Business Education and Office Technology teachers about the national standards for information systems. The scrutiny of their perceptions was an attempt to discover whether or not they agree with business professionals about the standards and competencies necessary for performance of these standards.

### *Instrumentation*

The survey was conducted through use of a questionnaire. The researcher developed the instrument from the national standards that were prepared under the direction of NBEA. The standards were validated by a panel of identified business experts from across the country. The competencies identified define the knowledge and skills students should derive from courses throughout the business education and office technology curriculum. In the



survey, a yes/no response was indicated for each competency identified as necessary to performance of the standard. The nature of the response indicated whether or not the competency was taught. A second response of yes/no to each competency indicated if it were believed to be entry level in nature.

### *Procedure*

Data were collected during the TVA Conference on the campus of Middle Tennessee State University on August 2-3, 1995. The survey was distributed to 135 voluntary participants on August 2, 1995. The completed surveys numbered 67 for a 50% rate of response for the day. On the second day of the meeting, additional teachers arrived and 15 instruments were distributed. Of these, 10 were completed and returned. A resulting total of 77 instruments were returned from 150 distributed for 51.3% return rate for this conference.

The questionnaire was presented again at the TBEA meeting in Memphis, Tennessee on September 22-23, 1995. Twenty of the questionnaires were given to willing participants. Of that number, 15 usable surveys were returned, for a 75% return for the day. The total count was 92 usable surveys of 170 distributed, resulting in a 54% rate of return for both conferences.

### *Statistical Analyses*

Since the researcher was unable to secure the data from NBEA's study, a statistical comparison between the results of the national study and the Tennessee survey was not possible. However, the teachers were able to respond either positively or negatively to the standards and the competencies for meeting those standards. Additionally, the dependent variables, teach task and consider entry level, were compared according to participant demographics. These independent variables were: (a) area of instruction, (b) type of related work experience, (c) length of time since work experience was attained, (d) professional degree held, (e) frequency of communication with the business community and (f) active placement of one's students in business/industry. A frequency count of yes/no responses to each of the competencies was the data collected. The nominal data gathered were analyzed as frequency count and percentages.

To evaluate whether or not agreement was indicated for the first dependent variable, teach task, a percentage of response was computed for each of the 91 survey items. The rationale for determining the importance of a task was whether or not the

respondent taught it. For research question number one, a resulting percentage of greater than 50% of affirmative responses signified that the teachers agreed with the skill as important.

To evaluate whether or not the second dependent variable, consider entry level, was agreed upon, a percentage of response was computed for each of the 91 items of the survey. A resulting percentage rate of greater than 50% of affirmative responses indicated that the majority of teachers surveyed agreed that the task was essential for an entry level worker to be able to perform.

Regarding research question number three, responses of the teachers that were in agreement with the national standards were compared for a significant difference based on the demographics. Chi-square for independent samples was the statistical tool used to compare responses according to each independent variable. This tool is appropriate to use when a researcher is interested in the number of responses that fall into two or more categories, yes/no responses (Huck, Cormier & Bounds, 1974, p. 218). The test of chi-square was performed at the .05 level of significance. Each factor in which agreement was indicated was evaluated for a difference between the observed and expected responses. When statistical significance was signified, the competency was examined in an attempt to determine whether or not any group was more inclined to either (a) teach the task, and/or (b) consider it entry level.

### **Results of the Study**

The first research question addressed the importance that the teacher placed on competencies which were identified as necessary for performance of the standard. Participants indicated whether or not they taught the task. A frequency count of positive responses was tallied, and the percentage computed. Affirmation in excess of 50% indicated agreement with the importance of each competency. The percentage of agreement for each standard is illustrated in Table 1.

The second research question dealt with whether or not teachers considered the competencies to be entry level. Originators of the national standards specified these skills as those that are essential for the entry level employee to be able to perform. Agreement was indicated with a positive response of greater than 50%. Table 1 illustrates the percentage of agreement for the items included in each standard.

**Table 1**  
*Percentage of Affirmative Responses*

Standard	Research Question #1	Research Question #2
Computer Application Systems	58	75
File and Database Management	36	55
Communication Systems and Networking	6	69
Keyboarding	100	100
Common Applications of Information Systems to Organizations	59	59
Ethical Issues Pertaining to Information Systems.	50	100
The Social and Economic Impact of Information Systems	75	100
Information Systems Across the Curriculum	33	67
Information Systems Careers .	100	100

Research question number three dealt with a comparison of the demographics as independent variables in an attempt to determine whether or not responses were specific to a particular area. For each dependent variable, the competencies on which the teachers signified agreement were compared for significance, according to each independent variable, using the chi-square test for independent samples. The level of significance used was .05.

For the dependent variable, teach task, the comparison of responses according to independent variables indicated:

**Area of Instruction.** Business Education Teachers were substantially more prone to teach these competencies than teachers of Office Technology.

**Type of Related Work Experience.** Analysis indicated that teachers with part-time experience in a related field taught the competencies more than teachers with a background of full-time experience.

**Length of Time Since Related Experience Occurred.** The category of teachers who had not been employed in the business sector from 11 to 20 years engaged in teaching the tasks specified more than teachers from either 10 years or less or over 20 years.

**Professional Degree Attained.** Only one task yielded a statistically significant chi-square. The teachers who held graduate degrees taught the competency dealing with ethical considerations in business practices by a greater percentage than persons with undergraduate training.

**Frequency of Contact with Business/Industry.** Statistical significance was indicated for each competency in that respondents who taught them had engaged in some form of communication with the business community, at least every semester.

**Active Placement of Students.** The tasks were taught by a marked percentage of teachers who placed students in employment situations. Analysis revealed that teachers without this resource do not consider these competencies essential by a very large percentage.

For the dependent variable, consider entry level, the comparison of responses according to the independent variables indicated the following results:

**Area of Instruction.** Business Education teachers were more prone to consider a majority of the competencies entry level. Exceptions were that Office Technology teachers considered tasks to be essential concerning the change in the structure of the office and its effect on workers.

**Type of Related Work Experience.** Chi-square comparison of responses indicated that teachers with a background of full-time related work experience, as opposed to part-time, were in agreement that the competencies were entry level.

**Length of Time Since Related Work Experience Occurred.** A greater consideration of tasks as essential for entry level was indicated by teachers from the time frame of 11 to 20 years since related employment occurred. One exception was for the skill of analyzing information systems to distinguish ethical issues and problems. The greatest propensity for considering this skill necessary came from persons who had been away from the business community more than 20 years.

**Professional Degree Attained.** The degree of professional training a teacher had attained was not a major factor in whether or not a task was considered to be entry level.

**Frequency of Contact with Business/Industry.** The tasks were considered essential for entry level by a substantial percentage of teachers who communicated with the business community.

**Active Placement of Students.** Respondents who worked actively in the business community by placing students in employment situations considered the competencies entry level by a markedly greater percentage than those who did not utilize this resource.

### Conclusions

Since the percentage of teachers who considered these tasks entry level greatly exceeded the percentage of those who taught them, barriers exist which prevent the teaching of these necessary skills. Lack of administrative support is a common barrier which inhibits the replacement of outdated equipment and that of upgrading teacher skills. Technologically advanced resources are quite costly, which presents another major deterrent.

With regard to the area of instruction, Business Education teachers exhibited a greater propensity to teach and consider entry level the competencies than did the Office Technology teachers. Business education teachers are responsible for administering instruction for a variety of subject areas in the field of business. This range of experiences gives them a broader base of knowledge from which to draw about the discipline. Relatively speaking, Office Technology is a newer area in the business education curriculum.

Concerning related work experience, teachers with part-time experience were more prone to teach the task. Many teachers have regular part-time jobs or engage in summer employment. When one is actively involved in the work process, relevant skills and knowledge are gained to complement the classroom. However, the teachers with a background of full-time experience considered the skills entry level by higher percentages than respondents with part-time experience. Related work experience is a major factor in what one teaches and considers entry level.

Regarding the length of time since the work experience occurred, respondents who had been away from work in the business community for more than 20 years were substantially less inclined to either teach the tasks or to consider them entry level. They are too far removed from what is happening in the business world of today. However, this group of teachers had a greater propensity for teaching the issues surrounding ethics than either of the other two groups. They also considered ethical issues essential for entry level.

The professional degree one had attained was relevant only for teaching ethics. Teachers with graduate degrees indicated that they taught the competencies encompassing ethical issues, whereas the teachers with undergraduate degrees did not signify agreement. Graduate and post-graduate training delve more into the realm of ethical behavior and practices than do classes for undergraduate degrees. As far as considering the competencies entry level, degree was not a relevant factor.

Research from this study showed that having contact with the business community made a notable difference in the response given about competencies for information systems, both for teach task and consider entry level. A teacher's communication with the business community, either as a classroom resource or for student employment, is a dominant influence on the teacher's perception of essential skills. One can only keep abreast of needs of the business community for today and the 21st Century by open dialogue with its members.

### Recommendations

Based on the findings of the study and conclusions derived from the analysis, several recommendations are made concerning the comparison of skills needed with those taught. These recommendations are as follows:

1. Further studies in this area should be done to identify the specific barriers teachers are experiencing to teaching skills for the 21st Century.
2. Conduct an analysis of the types of employment situations specific to areas in which students relocate to reveal the specific skills that are required.
3. A job analysis should be performed to disclose the upgrading that is necessary to enable the school to fulfill its mission of preparing the student with relevant skills.
4. Teachers of business programs should endeavor to build alliances with business/industry for internships and work-study arrangements.
5. Administration should provide teachers with opportunities for upgrading of skills as technology advances.

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# Perceptions of Individuals in Business and Industry Regarding Content Areas to be Included in an Information Systems Technologies Curriculum

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## Abstract

This international study identified perceptions of individuals in business and industry regarding content areas to be included in an information systems technologies curriculum. The 13 following content areas received the mark of "extremely important" by the largest number of respondents: business communications, telecommunications, programming language(s), word processing software, database software, groupware software and workgroup computing, project management methodology, information security, disaster prevention/recovery systems, troubleshooting, networks, operating systems, and systems analysis and design. A chi square test of independence showed significant dependencies between amount of emphasis to be placed on specific content areas and the respondents' age, gender, years of experience, and level of education.

## Introduction

Tremendous changes in technology are occurring, and the amount of information available at our fingertips is growing daily. Nowhere is this more visible than in the field of office and information systems. Advances in information technology are taking place at an unprecedented rate with new products entering the market on a daily basis. Not only are new products and technologies constantly developing and changing, their impact is reshaping methods and materials used for classroom instruction. We as educators must stay abreast of these changes to modify our curricula to meet the needs of business and industry. "Instructors must constantly be reviewing their instructional goals and strategies to prepare students for the changing workplace" (Jaderstrom, 1995, p. 8).

The worldwide communications network, known as the Internet, and interactive multimedia are becoming more accessible to our students. Taking advantage of the capabilities of electronic communication and other interactive instructional technologies in the classroom "will require profound changes in the roles of teachers, students, and schools. Instead of being the repository of knowledge, teachers will be guides who help students navigate through electronically accessible information" (Smith, 1995, p. 7A). Students are more actively involved in learning so that they have more opportunity to learn "the skills they will need to thrive in an information-based age" (Smith, 1995, p. 7A).

There is always concern among teachers about the topics that should be covered in the curricula. According to Kim, Keith, and Perreault (1995, p. 10), "although the content of the Infor-

mation Technology (IT) curriculum varies from campus to campus, in general, IT topics include computer hardware and software, systems design, telecommunications, productivity software packages, and information systems." In addition, most educators feel that IT topics should include strategic planning, analysis and design, and implementation and evaluation of systems. In analyzing managers' perceptions regarding content areas to be included in an information technology curriculum, Kim's et al. (1995) study found the topic of database concepts and principles to be the most important topic. Other important topics identified by the study were mainframe access through terminals; file concepts and file organization techniques; spreadsheet, database, and word processing applications; the role of information systems in organizations; and the impact of computers on people and organizations. Jaderstrom (1995) suggested that to respond to changes in the workplace, the business curriculum must develop and integrate new courses into the curriculum. Among her recommendations to be included in the curriculum were courses in telecommunications, operating systems, graphics and fundamentals of design, and presentation media.

Development and revision of curriculum and technological change go hand in hand. The technological impact on business and industry continues to occur, and incorporating technology into the workplace broadens the scope of jobs and redefines responsibilities for workers. Workers must therefore be educated to meet the changing needs in the workforce. In order to meet these needs, it is essential to identify them and to ask those most cognizant of the workforce what content areas educators should include in the curriculum and the amount of time to be given to each.

## Purpose

The proliferation of technology which has affected business and industry has had a tremendous impact within the educational arena as well. With the magnitude of change in technology, it becomes imperative for educators to assess the technologies and methods currently utilized in the workplace in order to better prepare students for the world of work. One way to identify what individuals in business feel is important is to survey them to determine what is being utilized in their companies and what they feel educators should incorporate into the classroom. Therefore, the purpose of the study was to contribute to a better understanding of the perceptions of individuals in business and industry regarding the content areas that should be included in the office/information systems curricula.

## Research Questions

In an attempt to provide information concerning content areas to be included in a four-year office/information systems degree, answers were sought to the following questions:

1. What are the perceptions of company employees regarding the amount of emphasis that should be placed on various content areas related to information systems technologies at the college level?
2. Is there a dependence between employees' perceptions regarding the content areas they feel need more emphasis in the curriculum based on the respondents' characteristics of: (a) age, (b) gender, (c) years of experience, or (d) level of education.

## Research Procedures

In order to remain abreast of the technologies incorporated in the workplace and enhance course curricula, an international research study was undertaken during the spring of 1996. The target population of the study was members of the Information Industry Association (IIA). The IIA represents more than 500 international companies with 4,500 members involved in the creation, distribution, and use of information in print and digital formats. A survey instrument was developed and mailed to a representative of each of the 519 member companies. Of these companies, 438 had addresses within the United States and 81 had international addresses. The survey instrument included sections on demographics, telecommunications and information systems used by the businesses, and content areas that might be included in an information systems technologies' curriculum. One hundred ten instruments were returned for a response rate of 21%; however, the results were compiled from the 108 instruments that were fully completed. The responses for each survey were coded onto a computer sheet for optical scanning, and analyses were completed using the Statistical Analysis System, Version 6.07.

## Findings and Results

### *Demographic Information*

There were 108 survey instruments that were analyzed statistically. Some questions were not answered by all 108 respondents, but all of the questions regarding the respondents' personal characteristics of age, gender, years of experience, and educational level as well as the company's size and type were answered by at least 107 if not all 108 of the individuals.

**Job Title.** The largest number of respondents, 30 (27.8%), indicated they had the job title of president or CEO; 14 (13%) were managing directors; 11 (10.2%) were vice presidents; 10 (9.3%) were chief information officers; 9 (8.3%) were communications/telecommunications managers; 8 (7.5%) were information systems managers or specialists; and 4 (3.7%) were office systems managers. Twenty-two of the respondents (20.3%) indicated other job titles which included network managers and records information managers.

**Age.** In regard to age, only 2 (1.9%) of the respondents were 30 years of age or under; 33 (30.8%) were 31 to 40; 38 of the respondents (35.5%) were in the age range of 41 to 50; 27 (25.2%) were in the range of 51 to 60; and 7 (6.5%) were over the age of 60.

**Gender.** Of the 107 respondents, 33 (30.8%) were female and the remainder (69.2%) were male.

**Years of Experience.** When asked how many years of experience the respondents had in this profession, 15 (14.0%) responded 1 to 5 years; 14 (13.1%) had 6 to 10 years; 20 (18.7%) had 11 to 15 years of experience; 25 (23.4%) had 16 to 20 years, and 33 (30.8%) had more than 20 years of experience.

**Level of Education.** Only 7 individuals (6.5%) did not have at least a bachelor's degree; 28 (25.9%) had a bachelor's degree; 14 (13%) had some graduate credit hours; 45 (41.7%) had a master's degree, and 14 (13%) had doctoral degrees.

**Company Type.** The respondents were given 14 choices to mark when indicating the classification that best described their type of company; however, no respondents indicated they were employed by manufacturing, agriculture/mining, construction/architecture/engineering, wholesale/retail trade, utilities, government, transportation, hotel/entertainment/amusement, or hospital/medical facilities. Twenty-six (24.3%) indicated a company classification of information technologies, 15 (14%) financial, 12 (11.2%) indicated communications, another 12 (11.2%) marked consulting, and 3 (2.8%) marked education. However, the largest number of respondents, 39 (36.4%), marked the "other" category. When asked if the company did business on an international basis, 51 (47.7%) marked yes they had sites outside of their country; 32 (29.9%) also marked yes, but indi-

cated all company sites were located within their own country; and 24 (22.4%) indicated they did not do business on an international basis.

**Company Size.** Almost half of the respondents, 53 (49.5%), indicated their company employed less than 100 individuals; 26 (24.3%) had 101 to 500 employees; 6 (5.6%) indicated 501 to 1000 employees; another 6 (5.6%) indicated 1001 to 1500; 3 (2.8%) had 1501 to 2000 employees, 11 (10.3%) employed over 2000 people; and 2 respondents (1.9%) did not know how many employees they had within the organization at that location.

**Research Question 1**

The first research question was: What are the perceptions of company employees regarding the amount of emphasis that should be placed on various content areas related to information systems at the college level?

The respondents were asked to indicate the level of importance they felt should be placed on 25 different content areas. They were to respond by selecting a number between 1 and 5, with 1 being not important, 2 being somewhat important, 3 being important, 4 being very important, and 5 being extremely important.

The choice of extremely important was selected by the largest number of respondents for the courses of business communications, telecommunications, programming language(s), word processing software, database software, groupware software and workgroup computing, project management methodology, information security, disaster prevention/recovery systems, troubleshooting, networks, operating systems, and systems analysis and design. Table 1 indicates the importance the respondents felt should be placed on each of the content areas.

**Table 1**  
*Respondents' Emphasis on Courses to be Included in the Curriculum*

	Not Important	Somewhat Important	Important	Very Important	Extremely Important	n
Accounting	10	27	38	14	13	102
Business Communications	2	8	19	33	40	102
Business Law	13	40	29	11	9	102
Statistics	5	29	37	20	12	103
Telecommunications	1	7	14	37	44	103
Programming Language(s)	6	15	27	22	33	103
Word Processing Software	4	12	26	26	34	102
Spreadsheet Software	2	11	36	28	27	104
Database Software	1	7	32	25	39	104
Groupware Software and Workgroup Computing	1	10	32	28	33	104
Project Management Methodology and Software	1	11	31	24	36	103
Data Modeling	2	13	36	28	24	103
Information Security	0	7	32	28	36	103
Disaster Prevention/Recovery Systems	0	12	30	28	34	104
Encryption	1	23	39	25	14	102
Quality Assurance	0	14	27	33	29	103
Hardware and Software						
Capital Expense Budgeting	1	20	44	24	14	103
Troubleshooting	1	19	25	28	31	104
Networks (LANs and WANs)	1	6	26	28	42	103
Operating Systems	1	7	23	26	47	104
Decision Support Systems	1	9	38	28	26	102
Integrated Information Systems	1	6	28	34	34	103
Systems Analysis and Design	1	5	27	26	44	103
Records Information Management	1	24	43	21	13	102
General Principles of Management	2	7	28	33	33	103

## Research Question 2

The second research question was: Is there a dependence between employees' perceptions regarding the content areas that they feel need more emphasis in the curriculum based on the respondents' characteristics of: (a) age, (b) gender, (c) years of experience, or (d) level of education?

This research question was answered by use of a chi square test of independence; a chi square is used to test the significance between observed and expected or theoretical frequencies (Slavin, 1992). Data were analyzed for statistical significance using an alpha level of 0.05.

The chi square test of independence showed a significant dependency between the age of the respondent and the emphasis

to be placed on accounting in the curriculum. No dependencies were attributed to the content areas of business communications, business law, statistics, telecommunications, programming language(s), word processing software, spreadsheet software, database software, groupware software and workgroup computing (e-mail, calendaring, etc.), project management methodology and software, data modeling, information security, disaster prevention/recovery systems, encryption, quality assurance, hardware and software capital expense budgeting, troubleshooting, networks (LANs and WANs), operating systems, decision support systems, integrated information systems, systems analysis and design, records information management (paper, film, and electronic files), and general principles of management as shown in Table 2.

**Table 2**  
*Dependencies of Importance of Content Areas on Age*

Courses	Value	p	n
Accounting	37.063	0.002*	101
Business Communications	24.214	0.085	101
Business Law	22.145	0.139	101
Statistics	15.710	0.473	102
Telecommunications	21.529	0.159	102
Programming Language(s)	24.066	0.088	102
Word Processing Software	15.948	0.457	101
Spreadsheet Software	11.212	0.796	103
Database Software	17.117	0.378	103
Groupware Software and Workgroup Computing	24.020	0.089	103
Project Management Methodology and Software	16.544	0.416	102
Data Modeling	10.130	0.860	102
Information Security	16.141	0.185	102
Disaster Prevention/ Recovery Systems	10.119	0.606	103
Encryption	11.090	0.804	101
Quality Assurance	9.445	0.665	102
Hardware and Software Capital Expense Budgeting	12.463	0.712	102
Troubleshooting	8.686	0.926	103
Networks (LANs and WANs)	20.412	0.202	102
Operating Systems	20.857	0.184	103
Decision Support Systems	11.972	0.746	101
Integrated Information Systems	17.760	0.338	102
Systems Analysis and Design	19.829	0.228	102
Records Information Management	6.904	0.975	101
General Principles of Management	15.669	0.476	102

Note.  $df = 24, p < .05^*$ .

The chi square test of independence showed a significant dependency between the gender of the respondent and the emphasis to be placed on content areas in the curriculum. Analyses showed a relationship between the gender of the respondent and

the content areas of disaster prevention/recovery systems, troubleshooting, and general principles of management in the curriculum. No dependencies were attributed to the other content areas based on gender as can be seen in Table 3.



**Table 3**  
**Dependencies of Content Areas on Gender**

Courses	Value	p	n
Accounting	5.367	0.252	101
Business Communications	1.514	0.824	101
Business Law	5.963	0.202	101
Statistics	2.718	0.606	102
Telecommunications	2.122	0.713	102
Programming Language(s)	1.651	0.800	102
Word Processing Software	1.378	0.848	101
Spreadsheet Software	3.432	0.488	103
Database Software	2.031	0.730	103
Groupware Software and Workgroup Computing	8.591	0.072	103
Project Management Methodology and Software	4.667	0.323	102
Data Modeling	8.465	0.076	102
Information Security	6.052	0.109	102
Disaster Prevention/Recovery Systems	8.729	0.033*	103
Encryption	2.200	0.699	101
Quality Assurance	4.718	0.194	102
Hardware and Software Capital Expense Budgeting	3.610	0.461	102
Troubleshooting	10.957	0.027*	103
Networks (LANs and WANs)	2.875	0.579	102
Operating Systems	6.785	0.148	103
Decision Support Systems	4.335	0.363	101
Integrated Information Systems	7.086	0.131	102
Systems Analysis and Design	9.285	0.054	102
Records Information Management	5.607	0.230	101
General Principles of Management	10.592	0.032*	102

Note.  $df = 24$ ,  $p < .05^*$ .

A significant dependency, based on a chi square test of independence, between the years of experience of the respondent and the emphasis to be placed on the content area of word processing was found. No dependencies were attributed to the other content areas based on experience as depicted in Table 4.

Significant dependencies, based on a chi square test of independence, between the education of the respondent and the emphasis to be placed on the content areas of telecommunications, project management methodology, and information security were found. No dependencies were attributed to the other content areas based on education of the respondent as shown in Table 5.

**Table 4**  
*Dependencies of Content Areas on Years of Experience*

Courses	Value	p	n
Accounting	20.371	0.204	102
Business Communications	13.164	0.661	102
Business Law	19.257	0.256	102
Statistics	13.641	0.625	103
Telecommunications	13.011	0.672	103
Programming Language(s)	13.104	0.665	103
Word Processing Software	28.120	0.031*	102
Spreadsheet Software	18.994	0.269	103
Database Software	8.239	0.941	103
Groupware Software and Workgroup Computing	17.429	0.358	103
Project Management Methodology and Software	12.205	0.730	102
Data Modeling	19.323	0.252	103
Information Security	10.409	0.580	103
Disaster Prevention/ Recovery Systems	10.827	0.544	103
Encryption	15.931	0.458	102
Quality Assurance	12.204	0.429	102
Hardware and Software Capital Expense Budgeting	13.107	0.665	103
Troubleshooting	18.226	0.311	103
Networks (LANs and WANs)	11.150	0.800	103
Operating Systems	13.909	0.606	103
Decision Support Systems	18.664	0.286	102
Integrated Information Systems	15.643	0.478	103
Systems Analysis and Design	13.948	0.603	103
Records Information Management	17.411	0.360	102
General Principles of Management	8.212	0.942	103

Note.  $df = 24$ ,  $p < .05^*$ .

**Table 5**  
*Dependencies of Content Areas on Level of Education*

Courses	Value	p	n
Accounting	23.638	0.259	102
Business Communications	16.083	0.711	102
Business Law	26.818	0.140	102
Statistics	21.404	0.374	103
Telecommunications	31.824	0.045*	103
Programming Language(s)	19.647	0.480	103
Word Processing Software	19.639	0.481	102
Spreadsheet Software	14.637	0.797	104
Database Software	20.470	0.429	104
Groupware Software and Workgroup Computing	25.335	0.189	104
Project Management Methodology and Software	48.064	0.0001*	103
Data Modeling	27.553	0.120	103
Information Security	27.097	0.028*	103
Disaster Prevention/Recovery Systems	18.372	0.244	104
Encryption	21.356	0.376	102
Quality Assurance	14.148	0.514	103

table continued

Table 5, continued

Courses	Value	p	n
Hardware and Software Capital Expense Budgeting	18.196	0.574	103
Troubleshooting	10.719	0.953	104
Networks (LANs and WANs)	14.143	0.823	103
Operating Systems	20.888	0.404	104
Decision Support Systems	12.555	0.896	102
Integrated Information Systems	20.217	0.444	103
Systems Analysis and Design	19.079	0.517	103
Records Information Management	10.655	0.955	102
General Principles of Management	13.684	0.846	103

Note.  $df = 24$ ,  $p < .05^*$ .

### Conclusions and Recommendations

Based on the findings of the study, the following conclusions were made:

1. The respondents recommended placing the most emphasis within the curriculum on the content areas of business communications, telecommunications, programming language(s), word processing software, database software, groupware software and workgroup computing, project management methodology, information security, disaster prevention/recovery systems, troubleshooting, networks, operating systems, and systems analysis and design.
2. The importance of the content area of accounting was dependent upon the age of the respondents.
3. The importance of the content areas of disaster prevention/recovery systems, troubleshooting, and general principles of management were dependent upon the gender of the respondents.
4. The years of experience of a respondent had an impact upon their perception of the importance attached to the content area of word processing.
5. The level of education of an individual had an impact upon the perception of the importance attached to the content areas of telecommunications, project management methodology, and information security.

The following recommendations were made with regard to this research study:

1. Educators must place more emphasis on select content areas that those in business and industry feel are important, as these are the individuals employed in the workplace.

These selected content areas include business communications, telecommunications, programming language(s), word processing software, database software, groupware software and workgroup computing, project management methodology, information security, disaster prevention/recovery systems, troubleshooting, networks, operating systems, and systems analysis and design.

2. More research should be done to identify those content areas that are considered to be the most important by individuals in business and industry.
3. Educators must continue to work with those in business and industry developing partnerships and discovering new ways to better prepare students for the world of work.

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# Perceptions of National Industry-Based Skill Standard Technical Committees of the Impact of Skill Standards on Vocational Education

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## Abstract

National industry-based skill standards are meant to improve productivity of U. S. workers and quality in the international marketplace as well as improve vocational education. A goal of these standards is to link instructional content to employment needs and address the basic job-readiness and academic skills that high performance work organizations require. The objective of this study was to determine how technical committee members perceive skill standards will impact on the effectiveness of vocational education. The main themes which emerged from the 20 telephone interviews were: improving curriculum development based on industry needs; improving communication between business and industry and education, producing a better prepared entry-level worker, graduating students who will be better able to make the connection between school and work; adopting the standards which will improve the teaching and learning process; and making vocational educators more accountable.

## Introduction

As the international marketplace demands quality, timeliness, and customization in producing goods and services, increasing importance is being placed on the skills of individual workers. Thus, while it is important to prepare new workers, improving schools for today's and tomorrow's students is not enough to assure an American workforce that will be globally competitive. Nearly 85% of America's workers for the year 2000 are the workforce today. Of that number, an estimated 25 million of today's workers need to update their skills to keep pace with the changing economy and technology (Office of Work-Based Learning, 1992). Because of the need to train and retrain American workers, the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (Perkins Act) (U. S. Congress, 1990) and the Goals 2000: Educate America Act legislation (U.S. Congress, 1994) authorized the development of national business and education skills standards.

Vocational educators are being asked to reform their programs to provide occupational preparation that reaches higher standards for entry-level skilled workers. The needs for reform have emerged in part from a call for greater accountability in vocational education and concern about the condition of American economy as it aligns with productivity and globalization. As vocational educators, we are addressing occupational preparation of entry-level skilled workers within the framework of (a) program standards and (b) performance standards that have

been mandated by the Perkins Act and Goals 2000: Educate America Act. These standards call for assessing what is currently being taught, determining present and future needs of students, and determining how those specific needs will be met by both teachers and students. A third standard, industry-based skill standards and certification was also mandated by the Perkins Act and more recently the Goals 2000: Educate America. National skill standards to be used on a voluntary basis will provide a framework needed to ensure that workers have the portable skills required by today's fast-changing, global economy according to Secretary of Labor Robert B. Reich (U. S. Department of Labor, 1993). Standards should help improve productivity of U.S. workers and quality in the international marketplace as well as improve vocational education.

One part of both the Perkins Act and the Goals 2000: Educate America Act was to provide matching grants to develop voluntary industry-based skill standards. Both sets of legislation authorized the developments of voluntary national business and education skills standards for occupational competencies in select industries and trades. The standards program provides financial assistance in the form of matching federal grants for organizing and operating committees that developed national skill standards for competencies in industries and trade. The 22 matching federal grants were given to coalitions of industrial associations, educators, and labor representatives to define the skills and knowledge needed by our current and future workforce. A goal of these grants was to "link instructional content

to employment needs and address the basic job-readiness and academic skills that high performance work organizations require" (Vocational Education Weekly, 1993, December).

### Significance

Over the past decade, concern has developed for the condition of the American economy. As a result, business and education leaders in the United States have acknowledged the interdependence between education and the economy. The keys to linking education and the economy are workforce preparation and performance. One major outcome of the concern about the economy and workforce preparation has been the development of industry-based standards, including certification of occupational skills and competencies. Because skill and certification standards have been in the development phase, little attention has been given to how these standards might be used by industry and education. The identification, by those who developed the standards, of their perceptions of the adoption of the standards might enable business and industry and the labor and education communities to better utilize skill standards. This study contributes to research on national voluntary industry-based skill standard development. Both business and industry and education will be able to look to this research to seek recommendations which could provide focus for educators as they develop curriculum, determine performance measures, strengthen their business partnerships, and create professional development activities.

### Statement of Problem

The objective of this study was to determine how technical committee members perceive skill standards will impact on the effectiveness of vocational education. Technical committee members' views of the impact skill standards will have on vocational education are presented. The main themes which emerged from the interviews relevant to the above objective were: improved curriculum development based on industry needs; performance measurements and assessment tools; communication among and between business, industry, education, labor, and government which results in meaningful partnerships; continued funding; and producing an entry-level worker who possesses the skills needed in a high performance workplace.

### Research Methods and Procedures

The U. S. Departments of Education and Labor awarded 22 grants to support the development of voluntary skill standards for occupational competencies. The skill standards matching grants provided financial assistance for organizing and operating business-education-labor technical committees to develop national skill standards for competencies in trades and industries. Technical committee members were in an ideal position to influence skill standard development. It was important that representatives from each area gave input so that separate business and education systems became integrated and communication between business and education was facilitated. The first 13 grant recipients have completed the skill standard process.

Primarily qualitative methods were used in this study to determine an understanding of the perceptions of technical committee members regarding the adoption of national skill standards in vocational education programs at the secondary and post-secondary education levels. A survey was mailed to 223 technical committee members. The 100 returned surveys were used to identify technical committee members' demographic and occupational characteristics and perceptions of the process and results of the standard development project. The survey also served as a base for the telephone interview phase of the study. In-depth telephone interviews were conducted with 20 technical committee members to determine their perceptions regarding vocational educators use of skill standards in workforce preparation, factors that would enhance or inhibit the adoption of skill standards, and how skill standards will impact on the effectiveness of vocational education. Skill standards technical committee members' perceptions of their work on the committees provide a significant opportunity to assess the skill standard projects and determine whether the work of the committees was focused on the goals set by the Perkins Act, the U. S. Departments of Education and Labor, and the National Skill Standards Board.

### Discussion

Themes which emerged from the interviews included: improving communication between business and industry and education; making the curriculum content more relevant; producing a better prepared entry-level worker; graduating students who will be better able to make the connection between school and work; adopting the standards which will improve the teaching and learning process; and making vocational educators more accountable. One interviewee summed up his response regarding the impact on the effectiveness of vocational education this way:

If you expect vocational education to produce a product that industry wants, they [business and industry] should make their expectations darn effective. As long as vocational educators know the stated goals then it can be darn effective. So the best we can expect of our students is to learn the skills we asked vocational educators to teach and bring them in their back pocket when they walk through the door; and industry can shape them when they get in the door. We can expect the students will learn the spectrum of knowledge and be able to tie together.

All respondents felt there would be a positive impact on the effectiveness of vocational education but some believed more work needed to be done to further develop the standards before their full potential would be reached. For example, one replied "They can be very effective but not until they can follow through on the entire package, not just a list of skills, but an entire package—until you have a curriculum for educators to adopt, you are saying the skill standards aren't going to be as effective as they need to be. Not only do we need to identify those skills, we also need to identify the method to attain those skills." Another agreed that "The task now is to rewrite the curriculum; to make the curriculum content more relevant to the needs of business.

Once local schools can determine the curriculum and an accepted performance level for the standards, produce an improved teaching and learning process, provide the additional training and work experiences for teachers so they can teach effectively, then vocational education will turn out the kind of employee that business needs." He also felt that vocational educators must be held accountable to make the necessary changes and meet the criteria established by the skill standards.

A positive impact which is occurring is that business and industry are communicating with each other. Most respondents felt lack of communication has been a major problem, and the development of skill standards has become an effective way to address the need for communication among business, industry, and education. Effective, ongoing communication creates a better direction than many vocational reforms have had in the past. Effective communication can help educators understand what "needs to be done." "Educators get highly creative once they have an understanding of what is expected of them and their programs. This will enable students to make the connection between the skills being taught and relate them to work."

There was an overall feeling that once the curriculum had been rewritten to meet the needs of business and industry, and teachers had an understanding of what was expected of them—with relevant training then there would be the desired effectiveness. There was disagreement, however, on whose responsibility it was to develop the curriculum. Some felt it was business and industry's responsibility while others felt vocational educators must take the standards as presently developed and develop curriculum which produces graduates who will be more employable. Once vocational educators "buy into the standards," education is going to be more relevant to the needs of business and industry and help students make a better connection between school and work. One respondent felt the goal should be to "help the student become a fully competent, contributing, self-motivating and self-fulfilling member of society. The connection between teaching and learning, the standards, and meeting the needs of business will help students see that meaning taking place."

Vocational educators have a "target to shoot at which is very relevant—a set of minimum standards which will bring vocational education into today's technology." Some respondents felt educators can place their students because they can show industry what the students know. It gives business and industry a common ground for talking and the teacher becomes more responsive to industry. Industry and education will be able to work together to identify what the learner needs to know. There are some things which are important and the teacher can point to them and say, "This is what industry is saying it wants."

Yes, respondents felt in time, with additional work, skill standards could have an effective impact on vocational education. They will help make the curriculum more relevant to the needs of business, make vocational educators more accountable to the needs of business and industry, make students better prepared to

enter the workforce, and make business and industry more efficient and productive. In addressing accountability, one interviewee definitely felt that vocational educators would become more accountable as a result of incorporating skill standards into the teacher training programs and responded:

I could get a student in here and I start showing him things and doing things, and he says, "I've never heard of that. I've never seen that." And the person is intelligent. I know that he's telling me the truth. I know that the opportunity wasn't afforded him to learn this. Then I'm going to hold that educator responsible. I'm going to say, "You told me this boy went through a certified course, and he did not." I'm not going to deal with those people again.

Another respondent said "The standards show another way that a marriage can occur between business, industry, and education. The standards themselves will give educators a feeling that they are actually providing what industry wants—a better entry-level worker. Students will be better prepared and that's good for everybody. They provide tools to allow the teacher to carry the educational program further than if those standards didn't exist. They will certainly affect the quality of vocational programs and have a real positive impact." Another believed they would make vocational educators more effective: "It makes the process and the education of the student more applicable to today's business environment so that they are theoretically better educated. They have a better experience because it's a realistic situation, and it's based on fact and not something that doesn't bear any resemblance to the workplace." One interviewee provided this summary to the question of effectiveness:

Basically as you look at it, the skill standards can be very effective in terms of not only improving the product that a particular institution produces, i.e., the student. Once that product is produced, industry will benefit from having better products, from not having to invest their own resources to teaching them again when they get into industry. There's a lot of things across the U.S. that education doesn't meet the bill. Industry is currently having to re-educate employees, whether it be electronics-related or simply English as a second language.

If we have an effective use of the skill standards, industry should be able to at least back off—I don't know if we'll ever get to the point of not having to do it—at least back off on some of the investment we currently make in that. If you look back to the days that some of us can remember back when they used to have an F.C.C. license. F.C.C. license used to mean something across the U.S. Nowadays it doesn't because it's fallen by the wayside in terms of technology and everything else. I'd like to see the skill standards become the new F.C.C. license so that it has some meat and it's recognized in industry around the U.S. and around the world, for that matter; that's F.C.C. in another league. I believe it can

and will get there. I don't think it's going to happen overnight, by a long shot.

And what you'll find is that it will happen over time. It's going to happen in pockets. You'll find people having success with it and success breeds success. You'll find one company saying, "Hey, this is good," and another company saying, "Hey, that's good." It will be like a snowball coming down the hill. It will pick up momentum.

What's going to happen is education is going to have to start the ball rolling. They have to be out there building that little snowball at the top of the hill, and they have to be patient and hang in there. The seed they plant today won't graduate—depending on what particular institution they're at—for two to four years down the road. Then it's going to take that long for an industry to begin seeing it. So it's like an investment in a small company. You have to start with a few dollars now and depend on it to grow later on. So people just have to have faith and kind of believe it's going to go.

### Findings and Conclusions

All respondents felt there would be positive impact on the effectiveness of vocational education but some believed more work needed to be done to further develop the standards before their full potential would be reached. A positive impact which is occurring is that representatives from business and industry are communicating with each other. Most respondents felt that the skill standard projects have become an effective way to address the need for communication among business and industry and education.

There was an overall feeling that once the curriculum had been written or rewritten to meet the needs of business and industry, and teachers had an understanding of what was expected of them—with relevant training, then there would be the desired effectiveness. There was not complete agreement on whose responsibility it was to develop curriculum, business and industry or education. They did agree that the standards provide vocational educators with goals which are very relevant and which can help bring vocational education into today's technology. Respondents felt that in time, with additional work, skill standards could have an impact on vocational education by making the curriculum more relevant to the needs of business and industry, make vocational educators more accountable to the needs of business and industry, make students better prepared to enter the workforce, and make business and industry more efficient and productive.

### Implications and Recommendations

The skill standards projects were initiated in part to strengthen the education system and provide employers with high performance workers. This in turn would strengthen our economy and place the United States in a competitive position in the glo-

bal marketplace. The 22 national skill standard projects provided the mechanism for developing a skill standards system. Technical committees played a vital role in developing these standards. The perceptions of the interviewees regarding their work on the skill standards technical committees has provided this researcher with insights as to whether the standards would impact vocational education. While much progress has been made to develop standards and have them accepted by business and industry and education, there is much which needs to be done.

In order to develop skill standards which will provide employers with high performance workers, the standards must be tested in industry and assessment tools must to be developed. Further development of the standards provides an opportunity to foster additional dialogue among business and industry, education, labor, and government. The standards as developed have given business and industry a means to let vocational educators know their needs, but there is still a long way to go. Therefore, continued dialogue could provide occasions for labor representatives and business and industry to develop that common language and bring technicians and frontline workers into the communication process. In addition, continued communication provides the opportunity for industry to "sell" the standards to those employers who do not see the need to develop the high performance worker. Communication can also strengthen the support of local administrators and local advisory committee members.

One implication of this study is that the skill standards should be used to develop relevant curriculum for vocational programs at the secondary and post-secondary levels. Training programs need to be developed for worker retraining, updating of skills, and retraining teachers. This training could be provided by industry trainers, private training facilities, and community college continuing education programs. This is an area where employers and educators must work closely so that the curriculum provides the tools for teaching the skills. A result of appropriate curricula would be that students can acquire the skills for particular jobs or occupations. A relevant curriculum would mean that pertinent learning would take place because educators would know and focus on the needs of industry. Federal funding is an issue which has been of key significance in the advances made by the skill standards committees. Federal funding should continue so that the committees can complete the work of developing curriculum, establishing performance measurements, and planning how the standards will be updated. However, industry must take the lead in assuring that the standards committees continue their work and must ultimately provide the funding for updating the standards, providing education with the necessary equipment and tools, and fostering effective dialogue among all partners.

This study provides evidence that skill standard technical committees serve as viable mechanisms for establishing skill standards. The study also provides evidence that improved communication and stronger partnerships between business and industry and education can help establish relevant vocational

education curricula. The study suggests that the development of national industry-based skill standards contributes to reforming education which could lead to supplying qualified workers for high-performance work places.

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# Postsecondary Office Systems Instructors: Their Expertise and Their Perceptions of Program Competencies

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## Abstract

The purpose of this study was to analyze (1) community college office systems educators' perceptions of competencies to be achieved by students completing two-year office systems degree programs and (2) how those instructors gained and update their teaching expertise. Everett and O'Neil's (1990) instrument entitled "Competencies for Information Systems Workers" was used to design the instrument used to survey office systems instructors in midwestern states.

Findings from 134 respondents (70.2% response rate) revealed that instructors rated highest program competencies relating to keyboard operation while rating lowest higher technological competencies. They gained their technological teaching expertise through formal education and update their expertise by attending conventions/professional meetings. Respondent age and years of teaching experience and their perceptions regarding essential program competencies were statistically significant.

## Introduction

Skills and competencies that helped secretaries reach the top of their profession in the past may be inadequate in today's dynamic offices. Skill-based curricula are not appropriate for providing higher-level office systems students with necessary knowledge, skills, and attitudes. Especially important are technical and organizational change skills. Excessive concentration on keyboarding and transcription encourages intellectual immaturity, loss of initiative, overdependence on others and lack of occupational dignity and self-respect. All of these impede students' abilities to undertake more demanding and responsible administrative tasks (Bennett, 1988).

Responsibility for training present and future office professionals to meet the challenges of today's and future offices rests with office systems educators. Their challenge is to equip students with abilities which will enable them to move from school to work. Holley (1981) stated:

To prepare students effectively for productive, satisfying roles in the offices of today and tomorrow, teachers should examine carefully curricula, individual courses, and methods of instruction appropriate to the changing nature of office jobs, opportunities for advancement, and basic skills and knowledge for employment. (p. 19)

Changes in curriculum occur as a result of leadership provided by faculty who determine program content. An issue that seems appropriate to address is how community college office systems

instructors perceive appropriate competencies to be achieved by students in their associate degree programs. Are their views consistent with the reality of the changing requirements of the workplace? Such information provides a basis for providing faculty development plans/activities.

## Problem Statement and Research Questions

The problem of this study was to determine community college office systems instructors' perceptions of competencies to be included in community college office systems programs and how those instructors gained and update their expertise. Research questions addressed were: (1) How did office systems instructors gain their instructional expertise and how do they continue to update that expertise? (2) What are their perceptions of competencies that should be included in community college office systems programs? and (3) Are there relationships among their perceptions regarding essential program competencies and selected instructor demographic factors?

## Literature Review

Literature sources provide the focus for a comprehensive approach to office systems program curriculum development. Perkins (1989), Vreeland, (1988), McLean and Knapp (1990), and Caissy (1990) affirmed that the foundation of office systems curricula must include basic skills (including working knowledge of applications software), personal applications, behavioral science, human relations, economics, and mathematics.

The need for current technological competency continues high priority in curriculum development as supported by Minnick (1990), Hosler (1988), Renshaw (1990), and Olivo (1990). Main (1989) believed that office education is a "disaster and needs radical transformation." Though goals of reform are similar across the U.S, implementation varies from one institution to another.

According to Askins & Galloy (1993), the quality of instruction provided through postsecondary institutions reflects the capabilities of instructors. Three components comprise instructional quality: (1) instructors must be occupationally adept in their technical areas of expertise; (2) they must have sound foundations in pedagogical practices; and (3) they are expected to be consummate professionals. Ball and Morrissey (1993) supported this notion by stating that "new equipment, supplies, and facilities help an instructional program, but they can never change that program without the direction of a knowledgeable, skilled instructor" (p. 343).

Bronner (1989) provided recommendations and suggestions for office systems instructors to help them cope with the ever-increasing chasm between classrooms and workplaces. Office systems instructors should use advisory boards, reference materials, continuing education, internships and externships, and research to help bridge the gap between technology in workplaces and in schools.

However, office systems instructors should not be solely responsible for their aggrandizement. Programs to upgrade skills should be jointly supported by institutions, by districts, state offices of education, and colleges of education (Smellie, 1989).

### Research Procedure

A descriptive research design using the survey method was used to focus on the status of the defined population regarding selected variables in an attempt to measure what exists without questioning why it exists. The study population consisted of community college office systems instructors in four midwestern states: Illinois, Indiana, Iowa, and Missouri. Two hundred community college office systems instructor names from the four states were acquired through relevant state agencies and state business education instructor directories. All 200 instructors were surveyed.

An instrument developed by Everett and O'Neil (1990) entitled "Competencies for Information Systems Workers" which dealt with competencies that should permit information systems workers to maintain and compete for positions in information occupations was used as the basis for designing the instrument used to gather data for this study. This research was delimited to the 127 technological and 56 communication competencies identified in the Everett and O'Neil (1990) research. Office systems instructors were asked (a) to indicate whether they address the identified competencies in their courses, and (b) to identify the degree of importance for including each competency in a two-

year community college secretarial/office systems degree program. The instrument was reviewed by a panel of university professors and pilot tested using five postsecondary business instructors not included in the study sample. The survey instrument, cover letter, and postage-paid envelope were mailed to the sample with a follow-up mailing three weeks later. This procedure resulted in a 70.2% response rate--no attempt was made to analyze nonrespondents.

Research data were analyzed using the Statistical Analysis Systems (SAS) Version 6.07. For Research Questions 1 and 2, means and standard deviations were determined. For Research Question 3, relationships among the five demographic variables and competencies rated as essential were determined using the General Linear Model. Duncan's Multiple-Range Test was used to compare the means within variable groups. Alpha level was set at  $p = .1$  since this was a nonexperimental study with numerous data variations.

### Selected Findings

#### *Respondent Demographic Data*

The response rate from the 200 community college office systems instructors surveyed was: Illinois--59 (44%); Indiana--10 (7.5%); Iowa--50 (37.3%); and Missouri--15 (11.2%) for a total of 134 (70.2%).

Of the 134 respondents, 114 were female (85.1%) and 20 (14.9%) were male. Respondents between the ages of 51-55 (26.1%) represented the largest group, followed by respondents between ages 41-45 (22.4%) and 46-50 (17.2%).

Educational level of respondents was: 7 (5.2%) held Ph.D. degrees; 102 (76.1%) with master's degrees; and 25 (18.7%) possessed the baccalaureate. Sixty-six (49.2%) had majored in business education. Other majors identified were: business administration--10 (7.5%); education--10 (7.5%); business--9 (6.7%); vocational education--9 (6.7%); higher education--6 (4.5%); various other--24 (17.9%).

Largest categories of respondents with years of business experience were: 29 (21.6%) respondents in each 21-25 and 26-30 years of business teaching experience, while 27 (20.2%) had 11-15 years of teaching experience.

#### *Research Question 1 Findings*

Office systems instructors were asked to identify any of three ways they acquired their content teaching expertise: (1) formal education (courses provided through institutions); (2) informal education (reading, workshops, seminars, and professional meetings); and (3) work experience. Table 1 indicates the essential technical program competencies and Table 2 the essential communications program competencies most frequently taught by respondents and the methods they used to acquire expertise to teach those competencies. An average of 55.7% indicated us-

ing formal education to acquire expertise to teach technical content while an average of 78.8% indicated that method to acquire expertise to teach communications content. Nearly 30% gained technical competency and 11% gained communications competency using informal methods.

Table 3 provides data on how respondents update their expertise. The top three methods identified by these instructors were: conventions, seminar/workshops, and professional meetings.

**Table 1**  
*How Office Systems Instructors Acquired Expertise to Teach Technical Competencies*  
(n=134)

Competencies Ranked As Essential	Respondents Teaching This Competency		Methods of Acquiring Expertise					
	n	%	1		2		3	
			n	%	n	%	n	%
Identify and operate printers	124	92.53	39	31.5	58	46.8	47	21.7
Know the relative importance of word processing	123	91.79	50	40.6	52	42.3	21	17.1
Identify and operate computer keyboards	123	91.79	80	65.0	32	26.4	11	8.9
Touch proficiency of alphabetic keys	122	91.04	114	93.4	4	3.3	4	3.3
Touch proficiency in computer keyboard operation	122	91.04	113	92.7	2	1.6	7	5.7
Identify and use floppy disk	116	86.56	45	38.8	46	39.7	25	21.5
Identify and use hard disk	115	85.82	44	38.3	46	40.0	25	21.5
Analyze methodologies for transmission of text	112	83.58	92	82.1	11	9.8	9	8.1
Touch proficiency of symbolic keys	112	83.58	103	91.9	2	1.8	7	8.1
Know the importance of microcomputer	109	81.34	45	41.3	48	44.0	16	14.7
Demonstrate "hands on" on software packages	108	80.59	41	38.0	44	40.7	23	21.3
Care for and handle computer software	107	79.85	43	40.2	47	43.9	17	15.9
Touch proficiency of 10-key pad	102	76.12	81	79.4	12	11.8	9	8.8
Care for and handle computer hardware	99	73.88	36	36.4	46	46.5	17	17.2
Know how to select storage and retrieval systems	99	73.88	45	45.4	38	38.4	16	16.2
Know the relative importance of spreadsheet	95	70.89	35	36.8	40	42.1	20	21.2

Note: 1=Formal Education 2=Informal Education 3=Work Experience

**Table 2**  
*How Office Systems Instructors Acquired Expertise to Teach Communication Competencies*  
(n=134)

Competencies Ranked As Essential	Respondents Teaching This Competency		Methods of Acquiring Expertise					
	n	%	1		2		3	
			n	%	n	%	n	%
Using computer software keyboard letters	125	93.28	103	82.4	13	10.4	9	7.2
Using computer software keyboard memos	125	93.28	101	80.8	12	9.6	12	9.6
Using computer software keyboard reports	125	93.28	101	80.8	12	9.6	12	9.6
Indicate the importance of questioning	125	93.28	101	80.8	12	9.6	12	9.6
Indicate the importance of punctuation	124	92.53	111	89.5	9	7.3	4	3.2
Using computer software revise letters	123	91.79	94	76.4	14	11.4	15	12.2
Using computer software revise memos	123	91.79	94	76.4	14	11.4	15	12.2

table continued

Table 2, continued

Competencies Ranked As Essential	Respondents Teaching This Competency		Methods of Acquiring Expertise					
	n	%	1		2		3	
	n	%	n	%	n	%	n	%
Using computer software revise reports	123	91.79	94	76.4	14	11.4	15	12.2
Indicate the importance of grammar	122	91.04	113	92.6	6	4.9	3	2.5
Indicate the importance of verbal communication	122	91.04	110	90.1	8	6.6	4	3.3
Using computer software compose letters	121	90.29	90	74.3	14	11.6	17	14.1
Indicate the importance of listening	118	88.05	92	77.9	18	15.3	8	6.8
Using computer software compose reports	116	86.56	89	76.7	13	11.2	14	12.1
Listen actively and asking for clarification when unsure	116	86.56	80	68.9	18	15.5	18	15.5
Using computer software compose memos	115	85.82	86	74.8	13	11.3	16	13.9
Indicate the importance of nonverbal communication	114	85.07	90	78.9	18	15.8	6	5.3
Indicate the importance of telephone techniques	108	80.59	87	80.6	16	14.8	5	4.6
Proofreading	96	71.54	74	77.1	5	5.2	17	17.7
Indicate the importance of knowledge about telephone	95	70.89	60	63.2	22	23.2	13	13.6

Note: 1=Formal Education 2=Informal Education 3=Work Experience

Table 3  
How Office Systems Instructors Update Their Expertise  
(n=134)

Frequency of Use	University Courses		CC Courses		Con		Sm/Wk		TS		PM		PUB		Library	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
0	76	56.7	76	56.7	38	28.3	54	40.3	99	73.9	56	41.8	44	32.8	40	29.9
1 - 2	43	32.1	43	32.1	69	51.5	66	49.3	35	26.1	57	42.5	59	21.6	No	
3 - 4	13	9.7	13	9.7	23	17.2	12	8.9	0	00.0	19	14.2	42	31.4	94	70.1
>4	2	1.5	2	1.5	4	3.0	2	1.5	0	00.0	2	1.5	19	14.2	Yes	

Note: Un = University Courses TS = Trade Shows  
 CC = Community College Courses PM = Professional Meetings  
 Con = Conventions Pub = Professional Publications  
 Sm/Wk = Seminar/Workshops Lib = Library

Research Question 2 Findings

To determine office systems instructors' perceptions of competencies that should be included in community college office systems programs, instructors were asked to rate the 127 technological and 56 communication competencies as 5--essential, 4--very important, 3--somewhat important, 2--nonessential, and 1--don't know.

**Technological Competencies.** Twenty-four technological competencies were rated by respondents as essential (mean score of 4.00 and above). The competencies of demonstrate touch profi-

ciency of alphabetic keys; demonstrate touch proficiency in computer keyboard operation; and specifically know the relative importance of applications software such as word processing, spreadsheet, and database were among the highest ranked essential competencies. Lower rated essential competencies included specifically know the relative importance of accounting; demonstrate touch proficiency of function keys; and demonstrate touch proficiency of 10-key pad.

Sixty-nine technological competencies were rated as very important (mean of 3.97 to 3.00) and 34 competencies were rated as somewhat important (mean of 2.99 to 2.25). Competencies

with lowest means were expert system/A1, define similarities and differences of EBCDIC and DCA.

**Communication Competencies.** Respondents rated 24 communication competencies as essential (mean score or 4.00 or higher). Among the highest rated essential competencies were indicate the importance of grammar, verbal communication, and punctuation; using computer software and peripherals, keyboard/format letters and reports; and indicate the importance of listening. Lower rated essential competencies were indicate the importance of knowledge about facsimile and indicate the importance of knowledge about electronic mail.

Seventeen communication competencies were rated as very important (mean of 3.97 to 3.07) and 15 competencies were rated as somewhat important (mean of 2.99 to 2.34). Competencies receiving the lowest ratings were: indicate the importance of knowledge of channel, lines, baseband, and broadband.

**Research Question 3 Findings**

This question was designed to determine if independent variables such as age, gender, college major, educational level, and years of business teaching experience influenced respondents rating competencies as essential; therefore, only those 24 competencies rated by respondents as "essential" were analyzed for this question.

Fourteen of the 24 technological and 24 communications competencies rated as essential reflected a statistically significant relationship with at least one of the five respondent demographic variables. Table 4 summarizes findings for Research Question 3 and reveals that most of the statistically significant relationships related to respondent age and years of business teaching.

Table 4  
**Summary of Essential Program Competencies**  
**Showing Relationship with Instructor Demographic Variables**

Competencies Showing Relationship	Relationship Variable(s)
Touch proficiency of alphabetic keys	Age; Years of Business Teaching
Touch proficiency of symbolic keys	Gender; Years of Business Teaching
Touch proficiency of 10-key pad	Age; College Major
Identify and operate computer keyboards	Years of Business Teaching
Identify and operate printers	Gender; College Major
Identify and use floppy disks	Age; Years of Business Teaching
Identify and use hard disks	Gender; Ed. Level; Years of Bus. Teach.
Know the relative importance of graphics	Age
Know the importance of electronic mail	Age; College Major
Care for and handle computer software	Age; Years of Business Teaching
Care for and handle computer hardware	Age; Years of Business Teaching
Indicate the importance of questioning	College Major
Indicate the importance of punctuation	Years of Business Teaching
Importance of telephone techniques	Age; Educational Level

**Conclusions and Recommendations**

Study findings support these conclusions regarding community college office systems instructors: (1) They gained their expertise to teach technical competencies through formal plus informal methods and communications competencies primarily through formal methods; (2) They update their expertise by attending conventions and seminar/workshops; (3) They rank highest traditional technological competencies and lowest highly technical competencies for inclusion in community college office systems programs; (4) they rank highest traditional communication competencies and lowest those competencies dealing with newer technologies for inclusion in community college office systems programs; (5) their age and years of business teaching

experience have an influence on their perceptions of competencies that should be included in community college office systems programs.

Research is needed on a continuing basis to provide office systems instructors with knowledge of current and expected trends in office systems. They must be better attuned to needs of office professionals in order to develop curriculum consistent with needs. As new technology emerges, office systems instructors must maintain currency using this technology. These experiences provide a broader understanding of the office systems process which enables instructors to develop learning activities similar to activities students will be expected to perform professionally. Institutions must provide ongoing faculty development

opportunities for office systems instructors to maintain this currency. Office systems instructors must assume responsibility for teaching office systems students to become productive workers using technological and communication competencies--emphasis must be toward increasing productivity in the service industry.

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# Preparing For Employment in the Next Millennium: Analyzing Perceptions of the Temporary Staffing Industry as to the Flexibility of Graduates of Business Education

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## Abstract

Based upon a survey of 138 temporary staffing agencies and 191 business educators, there were significant differences in perceptions regarding the relevancy of the business education curriculum, preparedness for probable career changes, employment in one's own business, and competition in a diverse business society. In general, temp agents appear to be more critical of business education graduates and business education programs than do the classroom business educators. Temp agents do not perceive the reality of 'job insecurity' and the need for 'cross-training' being addressed in business education programs.

## Expanding Role of Temporary Staffing Industry

The temporary staffing industry continues to grow at an annual rate of 15 to 20 percent nationally in spite of layoffs and corporate downsizing (Brooks, 1996). Increasingly, employers are looking to temporary employment agencies for identifying those individuals who have the required skills for performing tasks crucial to the success of a business in a highly competitive international marketplace. In addition, by using temporary employment agencies, employers can readily increase and decrease their labor force on short notice at lower cost without having to undertake time-consuming procedures. Finally, today's employers are also looking to temporary employment agencies as a screening process for identifying skillful permanent workers.

Because of their unique position in the employment sector, temp agencies possess a huge data base concerning the needs of today's businesses. For example, those who utilize temporary agencies for finding employment typically range from age 17 to 70 with educational levels varying from the GED to the Ph.D. Areas where individuals often find employment using temporary agencies are customer services, data entry, telemarketing, and a variety of other office clerical positions. Temporary staffing agencies also work closely with vendors to offer their own training programs in an attempt to augment previously held skills of those seeking employment (Duffy, 1996). Therefore, since temporary employment agencies play a significant role in finding individuals

for positions of employment in office situations, their perspective of those qualities in demand for today's workforce should provide useful information for assessing the merits of business education programs.

## Literature on The Disposable Worker

Considerable public debate is being conducted on the issue of whether corporate downsizing has resulted in the initiation of the era of the disposable worker. Are 'career jobs' vanishing? Will existing perceptions on the part of the public concerning job insecurity change the way business educators prepare their students for future employment opportunities? Economist Robert Samuelson argues that job insecurity is not as much of a factor as the public believes it is. For example, he refers to a U.S. Department of Labor study that found only 4 percent of workers who have been with the same company at least three years were released in a two-year period 1990-1991, which is just about the same rate found in the 1981-82 era (Samuelson, 1996). Samuelson concludes that job insecurity has always been part of the American workplace, but society in general has not focused much attention to this continual process until recent years.

Conversely, economist Louis Jacobson of Westate Consulting argues that in a competitive economy, business must control their costs or they simply cannot survive (1996). He refers to the

U.S. economy as being 'flexible,' that is one in which economic rewards are targeted to those individuals who can increase their productivity each year by adapting to new technologies readily. Those who cannot be flexible with technology must be replaced. In this regard, job insecurity will not be eliminated. To Jane Bryant Quinn (1996), job cuts are now the norm. However, she also argues that while individuals are being "downsized," there have been nearly 20 million new jobs created between 1983 and 1993. In this regard, in 1994-1995, companies hired almost as many people as they released. Therefore, the challenge for business educators is to prepare graduates for employment in an environment whereby individuals can add value to their positions, even when confronting systematic career changes.

### Statement of the Problem

While Benjamin Franklin argued for specific skills training, Thomas Jefferson believed in educating young people with a much broader liberal arts education emphasizing transferable skills. However, this debate continues today. Should graduates of business education programs be prepared for advancing through a "series of careers," rather than just one? Is cross-training going to be a part of today's career-minded individual? In this regard, preparing graduates for one career may not be in the best interests of future entrants into the workplace. The strategy that is appropriate for the next millennium lies somewhere between that of Franklin and Jefferson.

Paul LeMahieu, Director of the Delaware Education Research and Development Center, points out that the critical skills of communicating, computing, and interpreting data remain crucial for continuous employment in today's insecure workplace (Whyche, 1996). How do graduates of business education measure up to these expectations? How do temporary employment agencies perceive the quality of business education graduates in view of the need of having both specific skills plus a general/academic education? Therefore, the null hypothesis tested in this study is:

**There is no significant difference between the perceptions of temp agents in the temporary staffing industry and the classroom business instructor according to preparedness of graduates for employment in an 'insecure workplace.'**

The critical factor that forms the basis of the study is the 'insecure workplace.' This terminology reflects a workplace in which the business cycle will likely dictate the releasing and re-employment of individuals as business conditions require. Therefore, the inclusion of the framework of job insecurity relates to the reality of an individual cross-training as careers change and new technologies and jobs emerge. Since temporary employ-

ment agencies are often involved in recruiting high school graduates and in cross-training those who have been displaced/released from existing jobs, the inclusion of the 'insecure workplace' as a frame of reference extends the scope of this study into an important new dimension of employment.

### Research Methodology

Using a data-base provided by the National Business Education Association and a national directory of temporary agencies, a 10-item survey instrument was distributed to 500 agents in the temporary staffing industry and 500 classroom business educators. A 5-point rating scale was utilized with a score of 5 indicating strongly disagree and a 1, strongly agree. The ten items in the survey instrument were selected upon reviewing the literature published between the 1993-1995 and primarily from the *Forum*, *The Delta Pi Epsilon*, *The Journal of Education for Business*, and *Proceedings of the Office Systems Research Association*. In addition, several governmental reports from the U.S. Department of Labor and the U.S. Department of Education were analyzed. In addition, the NBEA yearbooks for the past three years were also reviewed. The initial 17-item survey instrument was reduced to 10 items after a preliminary trial with 10 business educators.

The Wilcoxon Non-parametric statistical measure was used in the SAS statistical UNIX software package to compare the distribution of the frequencies of the responses by personnel in the temporary staffing industry and the classroom business instructor. In addition, frequency counts with mean scores were calculated using the PROC FREQ and PROC MEANS procedures.

### Findings

Responses to the survey instrument were received from 138 temporary staffing agencies and 191 business educators, representing approximately 27 percent and 38 percent of each group respectively. The data collected indicates that the agents in the temporary staffing industry and the classroom business instructors generally agree (mean scores <3.0) that high school graduates will be expected to work towards an associate degree within five years of employment (Var #1, Table 1) and that they are often sought out for their opinions as to new kinds of jobs expected to emerge in the future (Var #2, Table 1). In addition, the two groups in the sample similarly disagree (mean scores >3.0) that graduates are prepared to manage work from an independent office in the home (Var #6, Table 1), that graduates have appropriate communication skills (Var 5, Table 1), that graduates of business education programs may be considered specialists (Var #3, Table 1), and that graduates have appropriate mathematical skills to perform tasks expected in jobs available today (Var #4, Table 1).



**Table 1**

*Frequency of Distributions of Perceptions of Temporary Employment Agents and Classroom Business Teachers by Variable \**

No.	VAR	Grp	Strongly Agree				Strongly Disagree		Mean
			1	2	3	4	5	=	
#1	Assoc. Degree Req.	1	49	54	9	12	7	=	2.03
		2	76	75	23	22	2	=	1.98
#2	Inquiry/New Jobs	1	23	41	7	46	14	=	1.34
		2	25	82	29	63	9	=	1.16
#3	Graduates/Spclists	1	2	13	17	72	27	=	3.83
		2	2	16	29	120	31	=	3.82
#4	Approp. Math Skills	1	1	16	25	57	32	=	3.79
		2	2	35	20	96	45	=	3.74
#5	Approp. Com. Skills	1	1	5	6	60	59	=	4.31
		2	0	21	17	97	63	=	4.02
#6	Prep. Work/Homes	1	0	14	43	58	16	=	3.58
		2	1	32	62	84	9	=	3.44

Note: No Significant Differences Among Perceptions

1 = Temporary Employment Agents

2 = Classroom Business Teachers

However, there were significant differences in perceptions for four of the ten variables tested. (See Table 2.) Significant differences in perceptions existed concerning relevancy of the busi-

ness education curriculum and preparedness for probable career changes, for employment in one's own business, and for competing in a diverse business society.

**Table 2**

*Significance of Differences in Frequency Distributions of Perceptions of Temporary Employment Agents and Classroom Business Teachers by Variable*

Variable	Z-Score	Probability
Assoc. Degree Req.	0.104593	.9167
Inquiry/New Jobs	0.986283	.3240
Curriculum Outdated	7.280670	.0001*
Prep./Career Changes	4.625050	.0001*
Grads/Specialists	0.060902	.6449
Approp. Math Skills	0.150803	.8801
Approp. Com. Skills	1.937970	.1033
Prep. Entrp. Employ.	4.392360	.0001*
Compt/Diverse Society	7.014520	.0001*
Work Routines/Home	1.237880	.2158

\* Significant at .01 Level of Confidence - Z scores from Wilcoxon Statistical Measures

Relative to perceived changes occurring in the workplace, the agents in the temporary staffing industry agreed that the public school's business education curriculum is generally outdated (M=2.34) whereas the classroom business instructors disagreed (M=3.37) with this perception. (See Table 3.) In noting the frequency of the distributions of responses in Table 3, 77 of the 138

agents in the temp industry (56 percent) agreed with the perception of an outdated business curriculum whereas 120 out of 198 classroom business instructors (60 percent) disagreed with this perception. The frequency distributions are quite different between the two groups in the sample. (See Table 3.)

**Table 3**  
*Frequency Distributions of Perceptions of Temporary Employment Agents and Classroom Business Teachers by Relevancy of Curriculum\**

	Total		SA 1	2	3	4	SD 5	=	Mean
Temps	138	-	32	45	36	14	4	=	2.34
Bus. Tchrs.	191	-	15	49	14	88	32	=	3.37

\*Z Score = 7.28007 - Signf. at .01 Level of Confidence  
Note: SA = Strongly Agree SD = Strongly Disagree

There was also a similar disparity in the perceptions of the two groups in the sample concerning business education graduates being prepared to compete in a diverse business society. (See Table 4.) The agents in the temp industry generally disagreed with the perception (M=3.79) that graduates are prepared to compete in a diverse society whereas the classroom business in-

structors generally agreed with this perception (M=2.93). (See Table 4.) However, in noting the frequency distributions in Table 4, 93 out of 138 of the temp agents (63 percent) disagreed with the perception that graduates are better prepared to compete in a diverse marketplace whereas 90 or 198 of classroom business educators (45 percent) were of the opposite perception.

**Table 4**  
*Frequency Distributions of Perceptions of Temporary Employment Agents and Classroom Business Teachers by Ability to Compete in a Diverse Society \**

	Total		SA 1	2	SD 3	4	5	=	Mean
Temps	138	-	1	17	20	63	30	=	3.79
Bus. Tchrs.	191	-	5	85	39	56	13	=	2.93

\*Z Score = 7.01452 - Signf. at .01 Level of Confidence  
Note: SA = Strongly Agree SD = Strongly Disagree

For the remaining two variables related to preparedness for probable career changes and for entrance into entrepreneurial employment situations, the two groups in the sample disagreed with these perceptions to significantly different degrees. Both the temp agents and the classroom business instructor disagreed with the perception that graduates were prepared to cope with probable career changes (M=3.62 and M=3.06 respectively - Table 5) and that graduates were prepared to enter into entrepreneurial employment (M=3.82 and M=3.35 respectively - Table 6). In addition, the frequency distributions between the temp

agents and classroom business instructors were skewed towards disagreement with these perceptions. However, it is also noted that the frequencies of responses among the classroom business instructors were more evenly distributed, especially among rating categories of 2, 3, and 4. (See Tables 5 & 6.) There appears to be more widely held views among business educators concerning preparedness of graduates for probable career changes and entrance into entrepreneurial ventures than among the personnel in temporary staffing agencies.

**Table 5*****Frequency Distributions of Perceptions of Temporary Employment Agents and Classroom Business Teachers by Preparedness for Career Changes \****

	Total	SA		SD			=	Mean
		1	2	3	4	5		
Temps	138	-	5	23	20	52	31	= 3.62
Bus. Tchrs.	191	-	7	66	48	63	14	= 3.06

\*Z Score = 4.625050 - Signf. at .01 Level of Confidence

Note: SA = Strongly Agree SD = Strongly Disagree

**Table 6*****Frequency Distributions of Perceptions of Temporary Employment Agents and Classroom Business Teachers by Preparedness for Entrepreneurial Employment \****

	Total	SA		SD			=	Mean
		1	2	3	4	5		
Temps	138	-	2	6	39	51	33	= 3.82
Bus. Tchrs.	191	-	1	39	67	72	19	= 3.35

\*Z Score = 4.392360 - Signf. at .01 Level of Confidence

Note: SA = Strongly Agree SD = Strongly Disagree

**Conclusions**

The agents in the temporary staffing industry do not perceive the graduates of business education programs as being prepared for the changing career patterns that are now customary in the evolving telecommunications era. Temp agents appear to be more critical of business education graduates and the business education programs than do the classroom business educators. It may be concluded that the temp agents do not perceive the reality of 'job insecurity' being addressed in business education programs.

Relatedly, two important elements where temp agents are considerably more critical than classroom business educators are the lack of relevancy of the present business education curriculum to changes in the workplace and the inability of graduates to compete successfully in a diverse business society. However, there is a similar degree of agreement on the part of two groups in terms of graduates not having appropriate math and communication skills necessary for handling expected tasks on jobs in the future.

However, it may also be concluded that classroom business educators generally perceive their current programs serving the needs of their students to a greater degree than temp agents. While both temp agents and the classroom business educator continue to note weaknesses relating to communication and math skills among graduates, this perspective appears to have more impact

upon perceptions of temp agents rather than business educators. Whereas temp agents appear to be more focused upon preparing students for probable career changes where cross-training becomes a reality, classroom business educators have less concern for this aspect of future employment. Finally, the issues of entrepreneurship and the possibility of working independently in a home setting are perceived by both groups as not being appropriately addressed in the secondary school setting.

**Recommendations**

Since there are discrepancies among perceptions of temp agents and classroom business educators on important factors associated with employment and corresponding occupationally preparatory programs in business education, additional study should be conducted to determine exactly where are temp agents getting their information about graduates of business programs. Identifying their sources of information may provide business educators with some insight as to why temp agents perceive business education programs as currently inadequate. In addition, related research should be conducted on identifying strategies that would enable classroom business educators to better communicate with the temp constituents. Since temp agencies are becoming a more frequently used strategy for eventually finding permanent employment by high school graduates, identifying appropriate kinds of linkages between business education and these agencies may prove beneficial to both groups.

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# The School-to-Work Initiative: A Research-Based Protocol for Work-Based Mentor Training in Pennsylvania

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## Abstract

Mentoring has been used for many years as an effective tool for human development. Staff development at the workplace has mirrored the perception of the prevailing mentor roles. Today, the complexities of the modern workplace and the work-based system now being institutionalized by the School-to-Work Opportunities Act (1994), essentially, redefine the characteristics typically associated with the mentor's skills. In Pennsylvania the school-to-work initiative seeks to optimize the benefits of mentoring for all parties in the relationship. The means to realize that goal is to define precisely what mentoring in the modern workplace entails, so that appropriate measures could be instituted to enhance its practice.

## Problem Statement

Over the years mentoring has served as an effective tool for human development. However, the complexities of the modern workplace, together with other factors, have created the need to redefine mentoring in the modern workplace (Kram & Hall, 1995; Kaye & Jacobson, 1995; Freedman and Baker, 1995; Walker et al, 1995). Through its school-to-work initiative Pennsylvania seeks to enhance the benefits of mentoring for all participants involved in the relationship. But Ivan Charner (1995), vice president and director of the National Institute for Work and Learning of the Academy for Educational Development, suggested that "without preparation of mentors and youth ... the relationship will not be beneficial for the young person or the mentor" (p. vii). To achieve this goal, there is a need to define precisely modern workplace mentoring, and from the views of Kram and Hall (1995), Kaye and Jacobson (1995), and Freedman and Baker (1995), it appears that such a task can be achieved and mentoring can be defined within the present context.

Recognizing the need to redefine workplace mentoring in order to optimize the benefits of the practice for the participants in the relationship, the Pennsylvania Department of Education (PDE) invited the Centers for Vocational Education Professional Personnel Development at Temple University, Pennsylvania State University and Indiana University of Pennsylvania to collaborate in a research effort for that purpose. Specifically, based on the work-based component of the Commonwealth's school-to-work plan, the three Centers were asked to develop a training protocol for training work-based mentors, that is those "individuals employers designate to guide student learning at the workplace" (Walker et al, 1995, p. 2). This paper seeks to present the research efforts of the three Centers in realizing that goal.

## Related Literature

### *Overview*

A search of the literature on mentoring yielded 22 related studies. The result of the search is presented under two headings, i.e. 1) overview, and 2) modern workplace mentoring. These studies indicated that for several years mentoring has served as a means for human development. However, in order to use it effectively for staff development it is necessary to understand the characteristics of the practice.

Mentoring may vary in relation to several factors, including the composition of the relationship (Kram & Hall, 1995; Ragins, 1995) and the needs of the protege (Freedman & Baker, 1995). It also appears to vary in relation to the ability of the mentor to meet the needs of the protege, as well as the expectations of the context in which mentoring is delivered, i.e. the organization (Chao et al, 1992; Scandura, 1992; Kram, 1985). In the meantime a number of factors, such as the complexities of the modern workplace and the demands imposed by the School-to-Work Opportunities Act (1994), are generating the need to give currency to the meaning of mentoring as it is practiced in the modern workplace (Freedman and Baker, 1995; Kaye and Jacobson, 1995; Kram and Hall, 1995; Walker et al, 1995).

### *Modern Workplace Mentoring*

The view of contemporary scholars on the subject suggests that there are two perceptions of mentoring in the modern workplace. (Kram, 1983; Caruso, 1992; Sullivan, 1992; Kram & Hall, 1995; Freedman & Baker, 1995). These are, 1) the content-centered approach, and 2) the process-centered approach.

## *The Content-Centered View of Mentoring*

The content-centered view of mentoring emphasizes the role of the mentoring relationship, i.e. functions and outcomes. This role represents what mentors do for their proteges during the period of their workplace interaction, i.e. functions, and what proteges get out of the relationship, i.e. outcomes. The specific functions and outcomes of such relationships, including the skills and knowledge, that are transferred from the mentor to the protege in a workplace mentor relationship have been the focus of study for many content-centered scholars (Kram, 1983; Caruso, 1992; Sullivan, 1992). Kram (1983) observed two broad-based mentoring functions, i.e. 1) career functions and 2) psychosocial functions. However, Sullivan (1992) suggested that, among other things, mentoring must involve activities such as determining the goals of the relationship, sharing information and sources of information with the protege, coaching for development, providing appropriate support, and developing the mentor's ability to develop others. On the other hand, Caruso (1992) grouped mentoring roles into three categories, i.e. 1) specific learning functions, 2) general career development functions, and 3) personal help functions. What is apparent is that certain roles, i.e. functions and outcomes, are conceivable in the mentoring relationship, and those roles can be categorized.

## *The Process-Centered View of Mentoring*

The process-centered view of mentoring emphasizes the characteristics, i.e. procedures and attributes, that are necessary for implementing and facilitating the relationship between the mentor and protege (Taylor, 1993; Kram & Hall, 1995; Ragins, 1995). The process-centered approach attempts to define and prescribe the structure of the relationship and the factors that influence the relationship. Whereas the procedures represent functional structures that must be in place to ensure an effective relationship, the attributes represent traits that mentors must possess to succeed in the relationship.

Many of the characteristics necessary for a successful workplace mentoring relationship have been identified in several studies (Zey, 1984; Cunningham & Eberle, 1993; Taylor, 1993). Zey (1984) suggested that personality traits, such as establishing mutual trust, respect, and belief in each other's ability to perform competently, influence the mentor-protege relationship. On the other hand, Cunningham and Eberle (1993) suggested that qualities such as effective communication skills, openness and creativity are necessary for achieving effective mentoring. In another study, Ragins (1995) suggested that in order to have an effective mentoring relationship the structure of the relationship must be dyadic, i.e. bidirectional.

Whatever the view of mentoring may be, Pennsylvania's school-to-work initiative seeks to optimize the benefits of mentoring for all participants in the relationship, i.e. mentor, organization and protege. The means to realize that goal is to define precisely what mentoring in the modern workplace entails, so that appropriate measures could be instituted to enhance its practice.

## **Purpose**

The purpose of the study was to determine the functional role of work-based mentors so that training needs could be identified, and a protocol for training, appropriate for training work-based mentors in the Pennsylvania school-to-work system, could be developed. The objectives were:

1. to identify the specific activities that mentors perform for proteges at the workplace during the period of their work-based interaction;
2. to identify the activities that mentors perform for proteges that are important for proteges to succeed at work;
3. to identify content outlines of competencies which, collectively, would provide a protocol for training work-based mentors.

The expectation was that, once the mentor's role has been defined, it would provide a basis for identifying competencies that would constitute outlines for developing a framework for training work-based mentors. A secondary expectation was that such a framework would provide the tool for identifying mentor training needs and, further, provide a base for developing training materials for training work-based mentors in the Pennsylvania school-to-work system.

## **Methods**

### *Research Question*

In pursuit of the objectives of the study a research question was designed that would provide answers to meet the purpose of the study. Specifically, the research question provided answers to fulfil the following objectives:

1. identify the specific activities that mentors perform for proteges at the workplace;
2. identify the activities that mentors perform for proteges that are deemed important for the proteges to succeed at work;
3. identify the activities that mentors perform for proteges that are relevant competencies for developing a training program for work-based mentors.

### *Instrument*

To achieve the research objectives, an interview response instrument was developed from the related literature. Twenty-two sources of the literature were used to establish the components of work-based mentor activities. Each component had observable elements and specific performance indicators. These components, with their elements and performance indicators, were used as a basis for developing a structured interview response instrument.

A consultant, experienced with mentoring and youth academies reviewed the instrument relative to the components and elements identified in the literature.

**Interview**

The instrument was administered to the participants through a telephone interview. The purpose of the interview was to validate and verify the mentor's role which was developed from the literature and described in the instrument. Four graduate students from the three collaborating institutions, i.e. Temple University, Pennsylvania State University, and Indiana University of Pennsylvania, were trained to administer the response instrument in their respective regions of the state. Each mentor rated the importance of the activities described in the instrument regarding their need for workplace success. In order to facilitate the interview, each mentor received a copy of the instrument for preview prior to the date of the interview.

**Population**

All practicing mentors in the Commonwealth of Pennsylvania were eligible to participate in the study. An electronic mail message was transmitted to all schools and employers in the Commonwealth, soliciting nomination of exemplary incumbent mentors to participate in the study. However, only those mentors who were nominated by their employers as exemplary incumbent mentors were included in the study. In all 82 incumbent work-based mentors from different occupational areas across the state were identified and interviewed. The state was divided into three regions and the subjects were selected along the following regional distribution: North - 22; Central - 30; and South - 30.

**Data Analysis**

The statistical package SAS was used to analyze the data, using descriptive procedures, i.e. frequencies and percentages. The findings were organized into three content outlines that would provide a framework for identifying training needs and developing training materials, useful for training work-based mentors in the Pennsylvania school-to-work system. The outcomes of the data analysis are presented in the following section.

**Results**

The following is a summary of the data analysis.

1. The data analysis indicated that in Pennsylvania mentoring is used extensively for staff development in education, health, manufacturing and trade. (See Table 1.)
2. There was very little variability in the responses of the mentors, and nearly all the mentors rated the components, elements and performance indicators that comprised the present role definition as important. (See Table 2.)

**Table 1**  
*Summary of Demographic Data*

Area of Economic Activity	No. of Respondents*	Percentage of Total	Cumulative Percentage
Agriculture	1	1.2	1.2
Banking	2	2.4	3.6
Business repair	2	2.4	6.0
Construction	8	9.8	15.8
Education	15	18.3	34.1
Government	1	1.2	35.3
Health	13	15.9	51.2
Heavy manufacturing	9	11.0	62.2
Insurance	5	6.1	68.3
Light manufacturing	9	11.0	79.3
Trade	12	14.6	93.9
Other	5	6.1	100.0

\* Total respondents (N) = 82

**Table 2**  
*Summary of the Importance of Mentoring Activities*

Mentoring Activity	Percent of Responses in the Affirmative*
Technical content	98.8
Broad-based occupational content	97.6
Work-based environment	98.8
Training plan for personal growth	97.6
Feedback through assessment and conferences	95.1
Organizational policies	96.3
Organization's culture	93.9
Work-related competencies	95.1
Information and guidance on career advancement	91.5
Opportunity and guidance to reflect critically	90.2
Mentoring framework	96.3

\* Total percentage = 100.00

3. Three components, 11 elements and 62 performance indicators were identified as activities that mentors perform in the workplace. The components are, 1) transfer of technical content, 2) transfer of nontechnical content and, 3) the transfer process. The components and their elements are presented in Table 3.

**Table 3**  
**Mentoring Components with Their Elements**

Content Outline	Mentoring Activity
Component 1:	Transfer of technical content (skills and knowledge)
Element	a: instruction in a specific job
	b: instruction in a broad-based occupation
	c: instruction in a conducive work-based environment
	d: a training plan for personal growth
	e: feedback on technical content
Component 2:	Transfer of nontechnical content (organizational and protege's career)
Element	a: instruction in organization's policies
	b: instruction in organization's culture
	c: instruction in work-related competencies
	d: instruction on career advancement
	e: instruction on critical reflection
Component Element	3: The transfer process, i.e. mentoring mentoring through a structured framework

These findings provided a basis for establishing the validity of certain mentoring activities as essential for success at the workplace and, hence, useful for defining work-based mentor training guidelines.

### Conclusion

The following conclusions were made from the data analysis. First, mentoring on the job is essential for integrating a new worker into the system. This point was demonstrated by the overwhelming majority of mentors in Pennsylvania who believe that the mentoring activities, i.e. components, elements and performance indicators, that were identified in the interview instrument describe the role of mentors, and must be present in a mentor relationship with student proteges in the workplace.

Second, mentoring on the job is crucial for the success of new workers. As was evident in the data analysis, the vast majority of mentors in Pennsylvania perceive the activities, i.e. components, elements and performance indicators, that were described in the instrument as important for proteges to succeed at work.

Third, the content outlines established from the data analysis constitute a general framework for work-based mentoring. The complete outlines, with their elements, criteria, related knowledge and sources of information, represent a training protocol

and provide substantive frameworks for developing training materials.

### Recommendations

The following recommendations are made based on the conclusions noted in the study.

1. Given the high recognition of the activities of work-based mentors in Pennsylvania, mentoring should be viewed as a critical component of work-based education in Pennsylvania's school-to-work system, and must be used to facilitate the transition of student proteges into the workplace.
2. Since mentors in Pennsylvania perceive mentoring activities as integral to the success of the new worker, mentoring activities should serve as a basis for mentor training in the Pennsylvania school-to-work system.
3. The overwhelming importance attributed to mentoring activities suggests that those nominated as mentors must possess these competencies. Therefore, work-based mentors need to be trained. Their training needs should be assessed relative to the expectations identified in the study and formal training should be required of work-based mentors in Pennsylvania's school-to-work system.
4. The content outlines established in the study provide a suitable basis for developing training materials for work-based mentors. Therefore, training materials suitable for training trainers and work-based mentors should be developed for Pennsylvania's school-to-work system.

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# Selected Student Variables and Computer Achievement

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## Abstract

The purpose of this study was to gain information concerning the best method for instructing beginning computer students. A survey of collegiate computer students found that student achievement in a beginning computer class may be affected by a number of variables. Students' prior computer background, using the computer to prepare assignments for other classes, time spent preparing assignments outside of class, and whether students completed assignments individually or cooperatively appeared to affect the achievement level of computer students. Computer instructors and curriculum designers would benefit from integrating research findings into beginning computer classes.

## Introduction

Studies related to the "best" method to teach computer classes appear in journals (Davidson, Savenye, and Orr, 1992; and Houston, 1993), and the results are often disseminated at professional meetings (LaBonty, 1996; Wiggs & Huter, 1994). Probably, every person who has ever taught a computer class has a "sixth sense" of why some students outperform others. Instructors who apply the basic learning theories of practice, understanding, motivation, individual differences and transfer as they design and implement curriculum should recognize higher achievement from their computer students. However, instructors who follow all prescribed guidelines know that some students still fail in their attempts to learn software and apply computer concepts. Variables such as personality type, motivation, and preferred learning style may affect student achievement. Cocco (1995) determined that by carefully evaluating student needs, a class of diverse levels of computer background and knowledge can be successfully managed. LaBonty (1996) concluded that spaced/live instruction produced a higher retention rate among students when measured seven days after instruction. Whether instruction was delivered in an independent learning mode, individualized mode, or lecture mode may affect student achievement (McEwen, 1996).

## Objective

The intent of this study was to gain information concerning the "best" learning situations for student achievement in beginning computer classes. The focus of this study was perceived level of student achievement and relationships with selected variables. Variables examined include: (a) prior computer backgrounds, (b) methods used to prepare assignments, (c) time devoted to completing assignments, and (d) use of computer to complete assignments for other classes.

## Problem Statement and Research Questions

The problem of this study was to identify variables that may enhance achievement in computer classes. Specific research questions were:

1. Is there a relationship between students' prior computer background and achievement in a computer class?
2. Is there a relationship between using the computer to prepare assignments for other classes and achievement in a computer class?
3. Is there a relationship between the amount of time spent on assignments and achievement in a computer class?
4. Is there a relationship between the methods students use to complete assignments and achievement in a computer class?

## Need for Study

Computers continue to be a major focus in all levels of education from elementary school through the university. In an ongoing commitment to understand the learning processes associated with computer technology, instructors need to examine variables that may enhance achievement levels of students. A better understanding of the learning process can provide guidance and a sense of direction for instructors. Results of this study may be useful for those involved in the development and implementation of computer and computer-related curriculum.

## Methodology

A survey questionnaire modeled after a previous study (Wiggs and Huter, 1994) was used to gather data to answer the research

questions. A pilot test was conducted during spring 1995 semester with students who had taken the computer class during the fall 1994 semester. Students were given the questionnaire and asked to indicate any items that were unclear by writing directly on the survey instrument. The instrument was revised based on responses from students in this group.

Part I of the questionnaire contained demographic questions including: major, gender, age, semester hours previously taken, work schedules, and computer access. Part II of the questionnaire consisted of questions concerning student perceptions of achievement in the computer class. Part III included questions concerning respondents' computer experiences.

Subjects for the study were students enrolled in ten sections of computer classes at two higher education institutions during the spring 1995 semester. Computer classes at both institutions covered computer concepts, word processing, spreadsheets, database, and presentation graphics. Five instructors, who taught the computer class sections, administered the questionnaires.

### Findings

Two hundred eighty-one usable responses were analyzed using the Statistical Package for the Social Sciences (SPSS/PC+). Data analysis consisted of descriptive statistics and cross-tabulation analysis to determine relationships. The Chi-square statistic was used to determine statistical significance of relationships and Cramer's V and Contingency Coefficients were calculated to assess strengths of relationships. Relationships significant at an alpha level of ( $p < .05$ ) were further analyzed.

The dependent variable was students' perceived achievement. Respondents were asked to identify their level of achievement in the computer class by checking the questionnaire item that most nearly represented their perceived level of achievement. The response most frequently checked was high achievement, but with some difficulty ( $n=124, 44.1\%$ ). All responses are summarized in Table 1.

**Table 1**  
*Respondents' Perceived Achievement Level*

Achievement Level	Frequency	Percentage
High Achievement	49	17.4
Some Difficulty	124	44.1
Average Achievement	77	27.4
Great Difficulty	31	11.1
Total	281	100.0

The first analysis sought to determine if there was a relationship between students' prior computer background and perceived achievement in the beginning computer class. A majority of respondents ( $n=166, 59.1\%$ ) indicated they had previously used computers at the secondary level. More than 200 respondents (73.0%) reported they had from part of a semester to one year or more experience using word processing software. Forty-five respondents (16.2%) reported they had never used word processing software. While 114 (41.0%) respondents had used spreadsheet software for part of a semester to one year, 129 (46.5%) respondents had no experience with spreadsheet software. Ninety-three (33.1%) respondents had used database software from part of a semester to one year, and 148 (54.0%) respondents had never used database software. A statistically significant relationship was determined between prior computer background and perceived level of achievement,  $\chi^2(15, 281) = 30.93782, p < .05$ , as shown in Table 2.

**Table 2**  
*Students' Perceived Achievement Level by Computer Background*

Statistic	DF	Value	Significance
Chi-square	15	30.93782	.00895
Cramer's V		.19191	.00895
Coefficient		.31543	.00895

Research question two asked if there was a relationship between using the computer to prepare assignments for other classes and achievement in a computer class. Respondents indicated that they either often ( $n=132, 47.2\%$ ) or occasionally ( $n=128, 45.7\%$ ) used the computer to prepare assignments for other classes. A statistically significant relationship was determined between using the computer to prepare assignments for other classes and achievement level,  $\chi^2(10, 281) = 20.31188, p < .05$ , as illustrated in Table 3.

**Table 3**  
*Students' Perceived Achievement Level by Preparing Assignments for Other Classes*

Statistic	DF	Value	Significance
Chi-square	10	20.31188	.02644
Cramer's V		.19045	.02644
Coefficient		.26007	.02644

Analysis for the third research question sought to determine if there was a relationship between the amount of time spent on assignments and achievement in a computer class. A majority

of respondents (n=227, 80.8%) spent five hours or less per week outside of class on assignments. A statistically significant relationship was determined between the amount of time spent on computer assignments and achievement level,  $X^2(15, 281) = 27.49798$ ,  $p < .05$ , as shown in Table 4.

**Table 4**  
*Students' Perceived Achievement Level by Time Spent Preparing Computer Assignments*

Statistic	DF	Value	Significance
Chi-square	15	27.49798	.02493
Cramer's V		.18061	.02493
Coefficient		.29855	.02493

Research question four asked if there was a relationship between the methods students use to complete assignments and achievement in a computer class. A majority of respondents (n=201, 72.0%) indicated they worked through assignments by themselves. A statistically significant relationship was determined between methods used to complete assignments and achievement level,  $X^2(15, 281) = 25.37928$ ,  $p < .05$ , as illustrated in Table 5.

**Table 5**  
*Students' Perceived Achievement Level by Methods Used to Prepare Computer Assignments*

Statistic	DF	Value	Significance
Chi-square	15	25.37928	.04508
Cramer's V		.17413	.04508
Coefficient		.28876	.04508

### Conclusions and Discussion

To determine the variable that produced the statistically significant relationship, the standardized residual from the Chi-square table was examined. If the standardized residual is greater than 2.0, it is a major contributor to the significant Chi-square value.

Research question one analyzed previous computer background and achievement. The majority of respondents (n=166, 59.1%) indicated that they had gained computer experience at the secondary level. While the Chi-square statistic did not prove a positive relationship, it did support the fact that students with no prior computer background experienced mediocre achievement in the computer class. This was determined by examining the standardized residual in the Chi-square table.

Research question two examined using the computer to prepare assignments for other classes and achievement in the computer class. The majority of respondents (n=260, 92.9%) indicated they often or occasionally used the computer for other class assignments. The Chi-square statistic did not prove a positive relationship but did determine that students who never used the computer for other class assignments reported average achievement in the computer class. This was determined by examining the standardized residual in the Chi-square table.

Research question three attempted to ascertain if the time spent on assignments affected achievement in the computer class. The Chi-square statistic determined that students who spent between 6 and 7 hours per week on assignments perceived high achievement in the computer class. This was determined by examining the standardized residual in the Chi-square table.

Research question four investigated the methods students use to complete assignments and the relationship with perceived achievement in the computer class. The Chi-square statistic revealed that students who worked with others experienced average achievement in the computer class. This was determined by examining the standardized residual in the Chi-square table.

### Implications for the Profession

Since a majority of students now enter the beginning collegiate computer class with some level of experience with computer applications, instructors may need to develop assessment tools to determine mastery level of concepts and applications. Mastery level rather than amount of time devoted to computer study can provide instructors with information needed to develop learning activities. Instructors should realize that student backgrounds vary widely because of prior experience in high school, community college, on the job, or because of self-learning on the part of some students (Born & Cummings, 1994).

Integration of computer technology into all classes has become paramount in most colleges and universities. This phenomenon provides an opportunity for computer instructors to work with faculty members in other disciplines to encourage the development of authentic assignments that utilize the computer. Students who never used the computer for other class assignments reported only average achievement in the computer class.

Since a majority of students have worked with computers before the first collegiate computer class, students who have no computer experience may be at a disadvantage. Instructors need to carefully monitor these students to prevent their frustration from interfering with the learning process. This is supported by studies that show students who own their own computers tend to have a more positive attitude towards computers (Smith & Necessary, 1996).

Instructors who can help students see the relationship and potential benefits of spending time outside class to complete assignments may provide the catalyst for improved student learning in the beginning computer classes. Long-term results could be a "carry over" to other classes. Computer use per week affects computer attitudes positively (Smith & Necessary, 1996).

### Recommendations

1. A pretest and/or survey should be administered to determine prior computer knowledge and experience of students in the beginning computer class.
2. Assignments that require use of computers should be developed for all disciplines. This is an excellent opportunity for computer applications to become the catalyst for curriculum integration.
3. Instructors should help students understand the relationship between time spent on assignments and success in learning computer applications. When computer applications can be integrated with other disciplines, preparation time could be divided among assignments in all disciplines.
4. Students should be given opportunities to complete assignments alone and in groups. Instructors need to vary assignments so all learning styles can be utilized.
5. Additional study should be conducted that includes affective variables that might impact achievement in beginning computer classes.

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# Student Attachment/Internship in Entrepreneurship Education: A Kenyan Case Study

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## Abstract

Attachment/internships are viewed as a means of offering students the opportunity to experience 'real life' situations that would crystallize their theoretical learning. The purpose of this research was to determine how students enrolled in a Higher Diploma Entrepreneurship Education programme view their attachment/internship placement. The findings reveal that the students have a positive attitude towards attachment/internship but are concerned about such issues as supervision and the financial outlay involved. Mention is also made of the changes students thought would improve the attachment experience, and the programme in general. From these findings recommendations were generated.

## Introduction

An internship program brings together students and mentors in an on-the-job learning situation, which provides invaluable opportunities to experience the world of work in a safe environment—one in which students do not stand to lose actual jobs and mentors are not asked to commit to employees, while otherwise both function in an employer/employee situation (Murphy, 1990:243).

Many disciplines currently recognize the importance of internships and have formally established them as part of the curriculum. A properly run internship programme can provide students with unique opportunities to gain practical work experiences concurrently with pursuing degrees (Spinks, 1989). In other words, internships give the student a chance to integrate classroom work with hands-on knowledge gained within a professional environment. Internships also accord students a "trial-run" of potential employment enabling them to make informed career decisions prior graduation.

The potential rewards to the participating organizations are many. The students on internship act as additional manpower as well as providing a pool of potential employees. To many organizations students on attachment/internship also serve as "energy-boosters" in addition to introducing new ideas which can lead to changes in the work practice (Reis, 1990). In addition, they offer the organizations an opportunity to enhance their public relations status especially with the students and the sponsoring institutions. Students on attachment/internship provide an important link between the academic and the professional community. Lastly, a long-term benefit that organizations derive from attachment is embodied in the production of skilled and experienced graduates who are easy to integrate once hired.

Internships accord colleges an opportunity to offer "students greater diversity in their academic growth . . ." Hite & Bellizzi, 1986). In addition, attachment/internships act as test markets to establish the extent to which college programmes match the needs of the world of work. In other word, the feedback obtained from participating students become a major source of information for evaluating the effectiveness of the academic programme.

In view of these potential rewards to students, colleges and participating organizations, attachment/ internship has become an integrated aspect of the Higher Diploma Entrepreneurship Education programme in Kenya. Students enrolled in this programme serve a six-months attachment as interns in a business enterprise (BA) and in a small enterprise development agency (SEDA). Through this attachment the students are expected to get a feel of the dynamics of being an entrepreneur and/or participating in activities focusing in the development of entrepreneurship in the country.

The purpose of this research was to determine how the students enrolled in the Higher Diploma Entrepreneurship Education (HDEE) Programme at the Kenya Technical Teachers' College view the attachment/internship placement that constitutes a significant aspect in their programme.

## Research Questions

The major research questions are:

1. What are the profiles of the typical student in the entrepreneurship education program?
2. What benefits do students perceive as accruing from the attachment/internship?

3. What weaknesses do students associate with the attachment/internship?
4. What problems do students encounter during attachment/internship?
5. Do students perceive attachment/internship as relevant to their future careers?

### Methodology

#### Subjects

The target population for this research comprised all second-year students enrolled in the HDEE programme at the Kenya Technical Teachers College (KTTC).

#### Instrument

After a thorough literature review, a three-part questionnaire was developed. Part one of the questionnaire was used to obtain demographic and background information such as gender, level of education, experience, reasons for enrolling and plans upon graduation. Part two comprised open-ended questions which sought information on the students' experiences during their attachment/internship. Part three, designed after the Likert-type scale, contained opinion items that sought to establish the students' perception towards attachment/internship and the HDEE programme.

A cover letter accompanied each questionnaire explaining who the researcher was and the reason for undertaking the research.

#### Procedure

The administration of the questionnaire was carried out by the attachment/internship coordinator, who also served as a lecturer in the Entrepreneurship Education Department at KTTC. The coordinator was provided with a large envelope in which to keep the completed questionnaires awaiting collection by a research assistant.

#### Data Analysis

The data collected was analyzed mainly using descriptive statistics. Qualitative data was subjected to content analysis producing categories which were then analyzed using the descriptive statistics. Sample of qualitative responses are presented in the appendix to give the reader a deeper understanding of the meanings embodied in the categories.

### Findings

The findings of this study are based on the responses of 16 of the 30 (53.3%) second-year students enrolled in the HDEE Programme.

### Demographic Profile

The first aspect examined was the demographic characteristics of the students in an attempt to provide a profile of the typical student enrolled in the HDEE Programme. Table 1 shows the distribution of the responding students in terms of gender, marital status, age, highest education level, employer, and sponsor.

Demographically, 87.5% of the respondents were male while 12.5% were female. All the respondents indicated that they were married. The largest number of respondents, 93.8%, were in the 31 - 40 age group. Only one respondent fell in the 40+ age category. The majority of the students, 62.5%, had an ordinary diploma as their highest level of education prior to joining the HDEE programme while 12.5% had an Advanced Level School Certificate. The remaining 25% did not indicate their level of education. The Teachers Service Commission employed 87.5% of all the respondents while the Public Service Commission and the Ministry of Research and Technical Training each employed 6.3%. All the respondents indicated that they are self-sponsored.

When asked their reasons for enrolling in the HDEE programme, a large proportion of the students (56.2%) indicated the need to be self-employed. 50% indicated further education as one of their reasons for joining the programme. All but two students indicated that after graduating from the programme, they planned to be engaged in business activities either on a full-time or a part-time basis. Of the remaining two, one planned to pursue a masters degree in entrepreneurship education while the other hoped to teach entrepreneurship in a technical school.

Table 1  
*Demographic Characteristics of the Students*

Demographic Characteristic	Frequency n=16	Percent
Gender		
Male	14	87.5
Female	2	12.5
Marital Status		
Married	16	100.0
Age		
31-40	15	93.8
40+	1	6.3
Highest Level of Education on entering the HDEE programme.		
Diploma	10	62.5
Advanced Level School Certificate	2	12.5
Missing data	4	25.0
Employer		
Teachers Service Commission	14	87.5
Public Service Commission	1	6.3
Ministry of Research, Technical Training & Technology	1	6.3
Sponsorship		
Self	16	100.0

### *Benefits of Attachment*

A number of benefits were cited by the students as accruing from the attachment experience. Gaining experience is the most common with for 87.7% of the students citing it as one of the benefits of attachment. A number of students, 18.7%, felt that attachment accorded them an opportunity for networking. A similar percentage 18.7% indicated that attachment gave them a chance to relate theory into practice. Report writing skills, self-marketing skills and identification of ideas were each cited as a benefit by 6.3% of the students. The appendix shows a sample of responses from the students.

### *Weaknesses/Problems of Attachment*

The findings indicated that students on attachment do encounter a number of problems. The most frequently mentioned problem was lack of finances. A large proportion of the students, 93.8% indicated that attachment was too expensive. Another problem that was cited by 68.7% of the students was exploitation since they were not accorded any compensation for work done. Lack of cooperation of employers and other employees within the attachment organization was cited as a problem by 25% of the students. About 18.7% of the students felt that the attachment period was too long. Some of the students indicated that they wasted a lot of time seeking for attachment placement. One of the students, however, has no problems at all with attachment.

### *Student's Recommendations*

The question, "What changes would you recommend with respect to attachment?", generated data that revealed the kind of changes that students should felt be made with regards to attachment. A large proportion of the students, 56%, called for the need to extend some financial assistance to the students while on attachment. An equally popular recommendation that was proposed by 56% of the students is the need to enhance faculty supervision of students while on attachment. Shortening the attachment period was recommended by 37.5% of the students. The need for KTTC faculty to locate student attachment placement and the need to teach specific curriculum areas prior attachment placement were each recommended by 25% of the students. A recommendation that 12.5% made related to sensitizing placement organizations on the purpose of attachment. The least cited recommendation, made by 6.3%, was the need to specify the goals of attachment.

### *Perceptions*

Table 2 shows the views of the respondents regarding various aspects of the attachment as embodied in their agreement, disagreement or neutrality with the opinion items.

An analysis of the data generated from the students' responses to the opinion statements indicates that the students have a positive attitude towards attachment. All students are in agreement

with statements that characterize the 'learning value' embodied in the attachment experience. For example, all the students agreed that "Attachment is a valuable learning experience". A unanimous agreement is also accorded to the statement that "Attachment provided me opportunities to learn new skills". This general agreement can be contrasted with the high disagreement ratings the students gave to statements that negate this learning element. For example, 93.8% disagree with the statement that "Attachment is a waste of time". All the student disagree with the statement that "Work activities assigned me during attachment were on the whole boring". The majority, 68.8% would still enrol for attachment even if it were made optional. Only 18.8% disagreed with this statement while 12.5% were undecided. These findings support the contention that attachment can provide valuable learning experiences that cannot duplicated in a classroom situation.

However, even with this positive attitude towards attachment most of the students, 68.8%, agreed with the statement that "The attachment period is too long. Only 25% disagreed with it. Inadequacy of supervision by faculty is depicted by the 75% of the students who disagreed with the statement that "KTTC adequately supervised my attachment experience". It is only 18.8% of the students whose agreement with this statement imply that they received adequate supervision.

There is a general indecision among the students on issue of seeking employment in organizations where they had served as interns. Most of the students, 50%, gave a neutral response to the statement that "I would try to get a job in my attachment organization". Only 37.5% of the students agreed with the statement while 12.5% disagreed with it.

### **Discussion**

The demographic profile indicates that students enrolled in the higher diploma programme in entrepreneurship are married and are between 31 and 40 years of age. Most of them have a diploma-level certificate and are employed by the Teachers Service Commission. This means that the majority have been employed as teachers. This is not surprising given that one of the major aims of the HDEE programme is to produce trainers in the area of entrepreneurship education to alleviate the current shortage of teachers in this field. The self-sponsorship characteristic of the students appears as a prerequisite for enrolling in this programme.

Various reasons motivated the students to enrol in the HDEE programme. Most of the students, 56.2%, indicated that the desire to be self-employed sometimes in the future was one of the reasons that led them to enrol in the programme. This is not surprising given the current downsizing of employees by the government which threatens a type of employment that was once viewed as stable. Again, deterioration of the economic situation in Kenya has eroded the purchasing power of the waged person, teachers included. The dominance of the self-employment theme



**Table 2**  
*Perceptions of Students Toward Attachment*

Statements	Agree %	Neutral %	Disagree %
Attachment is a valuable learning experience	100.0	0.0	0.0
Attachment gave me a chance to integrate theory with practice	100.0	0.0	0.0
Attachment provided me opportunities to learn new skills.	100.0	0.0	0.0
I have learnt a great deal from the attachment experience.	93.8	6.3	0.0
Attachment and classroom work complement each other.	93.8	6.3	0.0
Students should give an evaluation report on attachment.	93.8	6.3	0.0
Attachment widened my perception of career opportunities available after graduation.	93.3	0.0	6.7
The attachment organization/business accorded me suitable learning environment.	93.3	6.7	0.0
Attachment effectively prepares students for entrepreneurship development professions.	93.3	6.7	0.0
Attachment is just as beneficial to me as the course work.	87.5	6.3	6.3
Other employees were ready to help me learn on the job.	87.5	0.0	12.5
My attachment met the objectives of the HDEE programme.	81.3	12.5	6.3
My course work adequately prepared me for my attachment experience.	73.3	6.7	20.0
The attachment period is too long.	68.8	6.3	25.0
I would enrol in attachment if it was an optional course.	68.8	12.5	18.8
I was placed in positions often held by regular employees.	68.8	6.3	25.0
Students attachment placement should be a responsibility of KTTC.	62.5	0.0	37.5
I was assigned trivial work activities during my attachment.	50.0	12.5	37.5
I would try to get a job in my attachment organization.	37.5	50.0	12.5
My attachment supervisor adequately supervised my work activities.	31.3	25.0	43.8
Classroom work is out of touch with the real world of attachment.	25.0	18.8	56.3
KTTC adequately supervised my attachment.	18.8	6.3	75.0
I would prefer an oral presentation rather than a written report for my attachment evaluation.	13.3	20.0	66.7
Attachment is a waste of time.	6.3	0.0	93.8
My attachment experience had no relationship to my intended career.	6.3	6.3	87.5
Work activities assigned me during attachment were on the whole boring	0.0	0.0	100.0

is confirmed in that most of the students, 87.7%, indicated that they ownership of a business is one of their plans after graduation. Embodied in this favourable perception toward self-employment is an implication that the programme is achieving one of its objectives; the creation of a positive attitude towards self-employment in general, and business creation, in particular. However, a considerable proportion of the students, 50%, cited the need for further education as one of the reasons for enrolling in the HDEE programme. This was echoed in their plans after graduation which included doing a masters degree in entrepreneurship education. The students' desire to further education is not surprising in view of the exchange value accorded education in Kenya. Most Kenyans associate high levels of education with more remunerated employment.

Attachment plays a central role in entrepreneurship programme. The students place a high value on the attachment experience and view it as a means of getting a hands-on experience. Attachment, according to the students provide them with a chance to relate classroom theory to the practical life of the business world. To some students, attachment serves as a networking path. Networking is especially crucial to those who intend to venture into the business world.

The most serious attachment-related problem as cited by the students was the finance. Most of them felt that attachment was quite expensive as they were expected to finance all attachment-related costs. This is understandable given that the students serves a six-months attachment without any compensation. Yet these student are self-sponsored. Again, as table 1 shows, most of these students are married and therefore have to take care of the financial needs of their families. This is not withstanding the current degeneration of the economy that has made transport and other day to day transactions very expensive.

The students strongly feel that this financial burden can be reduced if they were to be granted some form of compensation by the employer or subsidy from the ministry through their institution. The introduction employer compensation would not only serve to motivate the students, but it would also increase the level of commitment by both the student and the employer. For as Miller (1985) points out that earning an income will result into the student feeling like a member of the workforce rather than a visitor in the organization. While such a recommendation is desirable, its implementation might take a long time given the current downsizing as organizations strive to reduce the salary budget.

The findings also exposed the issue of supervision by the faculty. Supervision constitutes an important prerequisite in the realization of the goals of attachment (Nwoke, 1994). It serves as a monitoring device of the attachment exercise ensuring the initiation of corrective measures whenever the people involved seem to deviate from the intended goals. Unfortunately, the students indicated that they received inadequate supervision from their lecturers. This implies that supervision of the students is left to the staff of the attachment organization. Yet the majority of the staff in the attachment organization may lack the skills needed to adequately supervise the students. This lack of supervision may affect the commitment of both the student and the attachment organization.

### Recommendations

In the light of the issues exposed by the findings in this research, the following recommendations are made relative to the attachment in the HDEE programme.

#### *Enrollment of Women*

The demographic profile indicates that women constitutes only 12.5% of the students enrolled in the HDEE programme. Although this finding may be attributed to the non-response of all the target population, it calls for the need to encourage more women to enrol in this programme. This small number of women can be attributed to the self-sponsorship characteristic of the HDEE programme for the decision on how family income is to be used is in most cases made by men.

#### *Briefing*

One of the prerequisites to a successful attachment is for each party involved to understand his or her own role in the exercise. While the students may be briefed on the objectives of attachment in their preparation for the exercise, it is as important that the staff in the attachment organization also know and understand these objectives. There is need then to set up a contract between the student, the attachment organization and the faculty to ensure that the parties involved understand and observe the embedded requirements. Where such exists, the problem of lack of cooperation on the side of the organization staff cited by the students would be minimized.

#### *Supervision*

Faculty supervision of the attachment needs to be enhanced as supervision is crucial to the achievement of the goals of attachment. The institution should set aside financial resources towards this end. Students need to be monitored regularly particularly in the initial stages of attachment to ensure that attachment is progressing according to plan. KTTC should consider securing attachment placements within a geographical span that would allow the lecturers easy access to the students, while also allowing them to easily reach the lecturers. Students should

be encouraged to voice their grievances and fears through informal friendly discussions. Faculty should be sensitive to any issue raised by the parties and find the best way to resolve the situation.

#### *Technical Institutions*

One of the objectives of the HDEE programme is to produce trainers. While not repeating the importance of exposing students to both the BA and SEDA experience, teaching entrepreneurship education in technical institution should also be viewed as an alternative. Such a move would alleviate the current shortage of entrepreneurship education teachers in these institutions.

#### *Attachment Time Span*

A large proportion of the students, 68.8%, felt that the time span for attachment is too long. Students are expected to serve a three-month attachment in BA and SEDA, respectively. It is important that KTTC finds out if the objectives of attachment can be achieved within a shorter time period than the time currently allowed.

#### *Financing*

Although the findings suggest that students appreciate the value of attachment as a learning experience, most of them indicate that attachment is too expensive. There is need to find a way to ease this financial burden. KTTC should explore the possibility of having the attachment organizations give students some token compensation which could be as simple as providing transport to the students. The ministry in cooperation with the institution can also look at the possibility of giving subsidy. The other option is to evaluate whether it is really necessary for the students to spend a whole six-months on attachment given the limited resources available to them.

#### *Further Study*

Similar research should be carried out in the future to allow comparisons with the current findings. Data generated by such research would be invaluable in evaluating the role played by attachment in the HDEE programme.

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## Appendix

### Sample of Students' Responses to Open-ended Questions

#### Benefits of Attachment

- "It is the gaining of experience and building of confidence to venture into one's own business."
- "One gathers practical experience which he can use in starting and managing a business."
- "Chance to test and experiment on theoretical concepts learnt during the first two terms of the programme."
- "The trainee is able to market herself/himself into securing attachment."
- "Acquisition of report writing skills."
- "Networking worked very well for me."
- "Work directly with clients and get to know their ideas and experience."

#### Weaknesses/Problems of Attachment

- "The owners not willing easily for change given the advice."
- "The persons whom appointed to work with not very cooperative because of the feat that he might lose his job for you."
- "The organizations don't want to open up to trainees. One ends up learning very little."
- "Students left alone to struggle looking for attachment."
- "It is tedious to secure a place for attachment."
- "Lack of funds to finance the attachment make it difficult to realize the full potential of attachment."
- "It is very expensive for the trainee."
- "We use a lot of money from our pockets."
- "Prolongs the course unnecessarily."
- The attaching organization frustrates the trainees because they lack proper understanding of the importance of attachment."
- "The organizations view the intern as inexperienced and therefore inefficient which hinders the full participation of the intern."

#### Students' Recommendations

- "Close supervision of students on attachment."
- "The college should follow up students in the field to advise, assist and generally give direction to the students."
- "All the students should be seen at their places of work."
- "To take attachment as seriously as they do the teaching practice."
- "The 3 month period should be reduced to a least 11/2 months."
- "It should be made shorter than it is now."
- "The college should undertake to hunt for the SEDA attachment for the trainees."
- "The college should play a greater role in placement of students during the attachment."
- "Consider sensitizing the SEDAs on the importance of attachment in national development."
- "Pay visits to trainees on attachment for it to look a serious exercise."
- "The subject 'project implementation and monitoring' should be taught before attachment."
- "That the interns be allowed a token of appreciation in order to realize their full potential motivation."
- "To liaise with the ministry to emphasis the companies and enterprises to accept the intern to be undertaken for attachment with an incentive as they render service."

# **A Study to Identify the International Business Competencies Being Taught in Middle, Junior High, and Senior High Vocational-Technical and Comprehensive Schools in Western Pennsylvania**

**A Research Report Presented by**

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**for**

**Gamma Upsilon Chapter**

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## **Abstract**

This study identified the international business competencies being taught in middle, junior high, and senior high comprehensive and vocational-technical schools in Western Pennsylvania. It also determined if schools are teaching international business competencies in separate courses or if they are integrated across courses or discipline areas.

The results of the study showed that of the 48 international business competencies examined, only 7 competencies are included in the curriculum by 80% or more of the school districts. The study also showed that 79% of the school districts reported that international business competencies are integrated throughout the various courses and are not taught in separate courses. Ultimately, the results of this study should serve as a benchmark for assessing progress made over time toward the teaching of international business competencies.

## **Introduction**

"Business education has long provided education for and about business to secondary students. Certainly with today's technological advances, transportation modes and expanding communication media, the importance of business education has not diminished but a new importance for international business education has evolved" (Zeliff & Behymer, 1994). Because 50% of high school graduates will not go on to college (Yopp, 1994), it is crucial for secondary institutions to provide international business education to all students. Those students not receiving this education will not be competitive in today's rapidly expanding world market, and secondary institutions will have failed to produce productive citizens.

Therefore, it is essential for researchers to discover the extent to which secondary institutions are teaching international business competencies to students and report the findings of the study. Then, secondary schools that are lagging behind our rapidly changing society can be provided with the information needed to make the necessary curriculum changes. Otherwise, our future workforce may not be equipped with the skills necessary to keep America competitive in the international market.

## **Statement of the Problem**

According to the SCANS Report for America 2000 (United States Department of Labor, 1991, 12), all students (vocational-technical

and academic) will need to demonstrate competency in working with men and women of different ethnic backgrounds. Consequently, they will need to understand the concerns involved with cultural diversity upon graduation from high school. In response to this report and other identified needs, Pennsylvania's State Board of Education included student learning outcomes dealing with international concerns and cultural diversity in the revised Chapter 5 that outlines curriculum requirements for the Commonwealth's schools (Pennsylvania Bulletin, 1993, 3554-3555). As a result, public schools are required to graduate students who have the knowledge, skills, and experiences necessary to live and work in a society that has international dimensions.

The development of international competencies for students studying vocational-technical education is extremely important. It is the vocational-technical students who are apt to be employed and become leaders in businesses and industries that conduct business on an international basis. Without international knowledge, skills, and experiences, the Commonwealth's workforce will not be competitive in the international market; the full potential of workers will not be realized; and the economy will not grow at the needed pace.

## **Purposes of the Study**

The primary purpose of this study is to identify international business competencies being taught in middle, junior high, and senior high vocational-technical and comprehensive schools in

Western Pennsylvania. A secondary purpose is to determine if schools are teaching international business competencies in separate courses or if the competencies are being integrated across various courses or discipline areas. Ultimately, the results of this study should serve as a benchmark for assessing progress made over time toward the teaching of international business competencies in Western Pennsylvania. The following research questions were addressed:

1. To what extent are international business competencies being taught in middle, junior high, and senior vocational-technical and comprehensive high schools in Western Pennsylvania?
2. To what extent are school districts teaching international business competencies in separate courses?
3. If international business competencies are being taught in separate courses, what are the titles of these courses?

### Definition of Terms

**Chapter 5 Curriculum regulations:** Commonwealth of Pennsylvania Department of Education regulations that govern the curriculum and graduation requirements for students attending the public schools in the Commonwealth.

**Secondary institutions:** Schools which are either middle schools, junior high schools, senior vocational-technical high schools, or comprehensive high schools.

**Vocational-technical high school:** A school entity that is to provide learning experiences designed to develop integrated academic and occupational skills, knowledge, attitudes, work habits, and leadership ability for entry into and advancement within various levels of employment and occupational areas of agriculture, business, marketing and distribution, health, home economics, trade and industry, and for preparation in higher education.

**Comprehensive high school:** A secondary school that includes general education courses and specialized areas of study to students. Study areas, or parallel curricula, in such disciplines as English, math, science, language arts, foreign languages, physical education and health, fine arts and music, business, technology education, and home economics are usually offered.

### Related Research

The globalization of our world has created an international society that requires students to leave high school with global perspectives. Students can no longer view the United States as an isolated country independent from the rest of the world; rather, they must understand the interdependency of our increasingly

global economy and develop an understanding of international competencies ranging from business laws to cultural values (Hosler, 1992). Previously, these skills were considered important only for those who chose to deal with international business; however, today international business is no longer a choice. Sooner or later, all workers will deal with international affairs, whether it be through suppliers, buyers, or fellow employees (Scott, 1992). Therefore, all individuals entering the workforce will need skills in international business.

As of 1991, one-third of all United States' profits are generated through international corporate business, at least one-half of the leading corporations on the Fortune 500 list are foreign based and owned, and one in six Americans owes his or her employment to foreign trade (Carlock, 1991). In addition, The North American Free Trade Agreement has substantially increased American investment opportunities in Mexico and Canada, and vice versa. Also, trade barriers between and among the three countries have been eliminated, thus, facilitating the trading of goods and services across the borders (Falemi, 1993). There are also predictions that this agreement will be extended to other countries, possibly creating free trade in the entire Western hemisphere (Falemi, 1993).

Are Americans prepared to compete in an international society of this magnitude? According to a Gallup Poll on international knowledge and studies conducted by UNESCO, American students placed next to last in their comprehension of foreign cultures, and over one-half of the American public believe foreign trade is either irrelevant or harmful. It is also interesting to note that only seven percent of the people of the world speak English as a primary language, but nine out of ten Americans cannot speak, read, or understand any language but English (Carlock, 1991).

This information raises some important global issues for curriculum developers. Because 50% of high school graduates will not go on to college, it is not sufficient to depend on postsecondary institutions to deliver international business competencies to the future workforce (Yopp, 1994). Therefore, if the public school's mission is to create individuals capable of being productive citizens, then it must offer curricula that reflects the global society in which we live.

A company's most valuable asset is its employees, and as providers of that asset, educators must graduate students with international skills in order for America to remain competitive in the global market (Moore, 1992). American public schools can no longer afford to produce individuals with ethnocentric attitudes; instead, they must produce individuals who have broad global perspectives and an appreciation for other cultural values and practices. The economic well being of our country is at stake. This background on the importance of international business competencies helps substantiate the value of the current research project.

## Procedures

The 48 international business competencies that Zelif and Behymer (1994) identified in their research as being important for secondary students studying international business were used in this study. A survey focusing on these 48 competencies, arranged within the 8 groups used by Zelif and Behymer, was sent to educators in 109 Western Pennsylvania school districts to answer Research Question 1--To what extent are international business competencies being taught in middle, junior high, and senior high vocational-technical and comprehensive schools in Western Pennsylvania?

Zelif and Behymer involved a panel comprised of 25 experts from international firms listed in *Fortune's* Global 500 U.S. based firms in a Delphi study to identify the important international business competencies. The competencies they used in the first round with the panel of experts were developed by the Virginia Department of Education. The panel reached a consensus and rated as important each of the 48 international business competencies that were used in this research project.

A response scale of "Included", "Not Included", and "Don't Know", was used with each of the 48 competencies. Additionally the survey included item 49 to answer Research Question 2--To what extent are school districts teaching international business competencies in separate courses? Responses to item 50 answered Research Question 3--If international business competencies are being taught in separate courses, what are the titles of these courses?

On September 8, 1995, the survey was mailed to economics teachers, business/office education teachers, social studies department heads, and curriculum supervisors in 157 Western Pennsylvania school districts using mailing labels purchased from Market Data Retrieval, Shelton, CT. Educators in middle, junior high, and senior high schools (vocational-technical as well as comprehensive) in the following ZIP Codes areas were included in the study: 15000-15499, 15600-15699, 16000-16599. Geographically, this includes school districts from Pennsylvania's northern border to its southern border west of Indiana County. A letter of transmittal was included as the first page of the survey. Seventy-seven school districts (49%) responded to the first mailing by October 5. On October 12, a second mailing with a revised letter of transmittal was sent to the economics teachers, business/office education teachers, social studies department heads, and curriculum supervisors in the 80 districts that failed to respond to the first mailing. Thirty-two school districts (40%) responded to the second mailing. Therefore, the combined response to first and second mailings was 109 out of 157 (69%).

Surveys were coded to identify multiple returns from a school district and nonrespondents. Multiple returns from one district were treated as one response. If one or more of the returned surveys revealed that a competency was "Included," the school district received credit for teaching that competency. If no sur-

vey from a district revealed that a competency was "Included" and at least one revealed a competency was "Not Included," the district's response was recorded as "Not Included". For a district's response to be included as "Don't Know," all responses from that district must have specified "Don't Know." Survey results were entered into Robert Morris College's computer system in late November and then analyzed to answer the research questions.

## Findings and Conclusions

The research findings that answer the first research question -- To what extent is each competency being taught in school districts in Western Pennsylvania--are reported in the following five charts.

Chart 1 which begins on the next page reports the number and percent of the school districts that (1) include the competency in the curriculum, (2) do not include the competency in the curriculum, and (3) do not know if the competency is included. The competencies are arranged in the order they appeared on the survey and within the competency groups identified by Zelif and Behymer. This chart reveals that each of the 48 competencies is taught in many schools (from a low of 23% that include Competency 15 to a high of 92% of school districts that include Competency 11). Chart 1 also reveals that all competencies are not taught in all school districts. Responses range from a high of 56% of the school districts that do not include Competency 15 in the curriculum to a low of only 5% that do not include Competencies 9 and 11 in the curriculum. In addition, Chart 1 reveals that there is a degree of uncertainty as to whether each competency is or is not included in the curriculum. The results indicate that this uncertainty ranges from a high of 22% for Competency 18 to a low of 4% for Competencies 4 and 11.

Chart 2 reports the number and percent of the school districts that include each of the 48 competencies in the curriculum. In this chart, the competencies are arranged from the highest percent of inclusion to the lowest percent of inclusion. The group to which each competency has been assigned is also reported in the first column.

Like Chart 1, Chart 2 reveals that Competency 11 is included in the curriculum most often (92% of the school districts report that Competency 11 is included) and Competency 15 is included least often (23% report it is included). The chart reveals that seven of the 48 competencies are included in at least 80% of the school districts' curriculums and all but one of these seven belong to the "Introduction" and "Economics Concepts" categories as identified in Column I. These seven competencies are also listed in Chart 3 on page 18.

At the low end, Chart 2 reveals that there are six competencies that are included in the curriculums of fewer than 40% of the school districts. These competencies are reported in Chart 4.

**Chart 1**

**NUMBER AND PERCENT OF SCHOOL DISTRICTS RESPONDING *INCLUDED, NOT INCLUDED, AND DO NOT KNOW* FOR EACH COMPETENCY  
(Competencies are Arranged by Competency Group)**

Com- petency Group and Number	Competency Description	Number and percent* that include the competency		Number and percent* that do not include the competency		Number and percent* that do not know if competency is included	
		No.	%	No.	%	No.	%
<b>Introduction (n=8)</b>							
1	Provide a brief outline of major events in the history of international trade.	56	51%	40	37%	13	12%
2	Identify the major characteristics of international trade.	76	70%	24	22%	9	8%
3	Identify the geographical location of leading countries in international trade.	91	83%	11	10%	7	6%
4	Classify countries as industrial, developing, or centrally planned.	90	83%	15	14%	4	4%
5	Label major international trade routes.	43	39%	48	44%	18	17%
6	Describe activities of major organizations that facilitate world trade.	55	50%	35	32%	19	17%
7	Describe the benefits of international trade.	96	88%	7	6%	6	6%
8	Discuss the purpose of countertrade in world trade.	52	48%	34	31%	23	21%
<b>Economic Concepts (n=5)</b>							
9	Describe the ways in which supply and demand affect prices in the global market.	99	91%	5	5%	5	5%
10	Differentiate between absolute and comparative advantages in trade.	66	61%	32	29%	11	10%
11	Describe the resources a country must use to produce goods and services.	100	92%	5	5%	4	4%
12	Identify advantages and disadvantages of free trade and protectionism.	94	86%	9	8%	6	6%
13	Discuss the impacts of a reduction in protectionism to consumers rather than to special interest groups.	70	64%	27	25%	12	11%

**NUMBER AND PERCENT OF SCHOOL DISTRICTS RESPONDING INCLUDED,  
NOT INCLUDED, AND DO NOT KNOW FOR EACH COMPETENCY  
(Competencies are Arranged by Competency Group)**

Com- petency Group and Number	Competency Description	Number and percent* that include the competency		Number and percent* that do not include the competency		Number and percent* that do not know if competency is included	
		No.	%	No.	%	No.	%
<b>Influential Global Organizations (n=6)</b>							
14	Describe the influence of the International Monetary Fund (IMF) on worldwide business.	39	36%	51	47%	19	17%
15	Identify organizations that assist businesses in raising foreign capital.	25	23%	61	56%	23	21%
16	Identify the various vehicles of international cooperation in trade, such as common markets, trade agreements, treaties, and international banks and lending institutions.	72	66%	23	21%	14	13%
17	Describe the benefits and risks associated with involvement with global organizations.	53	49%	36	33%	20	18%
18	Explain the various relationships or agreements among selected participants in international trade cooperatives, such as those of the European Economic Community (EEC).	58	53%	27	25%	24	22%
19	Explain the advantages and disadvantages of trade agreements among nations (NAFTA, ASEAN, etc).	85	78%	13	12%	11	10%
<b>International Finance (n=8)</b>							
20	Identify currencies of selected foreign countries.	76	70%	23	21%	10	9%
21	Explain how foreign exchange values are influenced by changes in the supply and demand for currency.	69	63%	28	26%	12	11%
22	Calculate the value of the dollar against selected foreign currencies.	71	65%	25	23%	13	12%
23	Explain how currency fluctuations affect the ability of U.S. businesses to import or export profitably.	72	66%	23	21%	14	13%



**NUMBER AND PERCENT OF SCHOOL DISTRICTS RESPONDING INCLUDED,  
NOT INCLUDED, AND DO NOT KNOW FOR EACH COMPETENCY  
(Competencies are Arranged by Competency Group)**

Com- petency Group and Number	Competency Description	Number and percent* that include the competency		Number and percent* that do not include the competency		Number and percent* that do not know if competency is included	
		No.	%	No.	%	No.	%
24	Identify the components of the U.S. balance of payments account and their relationship to each other.	57	52%	36	33%	16	15%
25	Explain <u>deficit</u> and <u>surplus</u> in balance of payment accounts and the effects on the U.S. economy.	84	77%	20	18%	5	5%
26	Identify reasons that businesses need the currency of other countries.	59	54%	37	34%	13	12%
27	Describe financial incentives used to attract financing.	48	44%	45	41%	16	15%
<b>International Marketing (n=4)</b>							
28	Explain the role of marketing in international trade.	55	50%	37	34%	17	16%
29	List strategies suitable for identifying foreign markets.	32	29%	56	51%	21	19%
30	Distinguish between the concepts of product or service adaptation vs. Standardization.	31	28%	57	52%	22	20%
31	Analyze the factors involved in advertising domestically and in advertising internationally (including availability of media, social and cultural factors, consumer behavior, legal constraints, and language).	44	40%	45	41%	20	18%
<b>International Trade Environment (n=5)</b>							
32	Explain reasons for governmental attempts to regulate international trade.	79	72%	22	20%	8	7%
33	Identify principal obstacles to international trade.	78	72%	22	20%	9	8%
34	Identify the characteristics of the three basic economic systems (traditional, command, and market).	93	85%	10	9%	6	6%

**NUMBER AND PERCENT OF SCHOOL DISTRICTS RESPONDING INCLUDED,  
NOT INCLUDED, AND DO NOT KNOW FOR EACH COMPETENCY  
(Competencies are Arranged by Competency Group)**

Com- petency Group and Number	Competency Description	Number and percent* that include the competency		Number and percent* that do not include the competency		Number and percent* that do not know if competency is included	
		No.	%	No.	%	No.	%
35	Cite examples of government interaction with business in the international marketplace.	66	61%	31	28%	12	11%
36	Identify ways in which political circumstances affect a country's participation in the global marketplace.	75	69%	21	19%	13	12%
<b>Social and Cultural Factors (n=4)</b>							
37	Identify distinctive social and cultural factors that can affect the conduct of international business.	65	60%	34	31%	10	9%
38	Explain how cultural and social factors in the target country affect advertising in foreign markets.	42	39%	50	46%	17	16%
39	Explain U.S. cultural and social attitudes and practices that could inhibit successful business operations in a foreign country.	64	59%	31	28%	14	13%
40	Explain how oral and written communications and nonverbal and body language can positively and negatively affect international business.	51	47%	45	41%	13	12%
<b>U.S. Involvement in International Trade (n=8)</b>							
41	Identify major U.S. trading partners and major goods traded.	85	78%	12	11%	12	11%
42	Evaluate the effects of multinational corporations on domestic and international business.	63	58%	27	25%	19	17%
43	Determine reasons for U.S. business investment in foreign countries and foreign investments in the U.S.	77	71%	22	20%	10	9%
44	Identify major foreign investors in the United States.	77	71%	19	17%	13	12%

**NUMBER AND PERCENT OF SCHOOL DISTRICTS RESPONDING *INCLUDED*,  
*NOT INCLUDED*, AND *DO NOT KNOW* FOR EACH COMPETENCY  
 (Competencies are Arranged by Competency Group)**

Com- petency Group and Number	Competency Description	Number and percent* that include the competency		Number and percent* that do not include the competency		Number and percent* that do not know if competency is included	
		No.	%	No.	%	No.	%
45	Identify the major countries that export goods and services to the U.S. and their chief export.	84	77%	16	15%	9	8%
46	Identify the major U.S. exports and their primary markets.	79	72%	19	17%	11	10%
47	List U.S. and foreign government regulations affecting international trade, including major laws, tariffs, quotas on imports and exports, and nontariff barriers.	55	50%	40	37%	14	13%
48	Determine the effects of trade restrictions on domestic jobs, production costs, and exports.	74	68%	22	20%	13	12%

\*Percents may not add up to 100% because of rounding.

Chart 5 gives the number of competencies within each of the eight competency groups that are included by school districts according to selected frequency intervals. For example, of the eight competencies in the Introduction group, three are included by more than 80% of the school districts; one by 60-79% of the districts, three by 40-59% of the districts, and one by fewer than 40%.

More specifically, Chart 5 reveals that 37.5% (3 of 8) and 60% (3 of 5) competencies from the Introduction and Economic Concepts groups, respectively, are included in the curricula of 80% or more of the school districts. One hundred percent of the competencies in the Economics Concepts International Trade Environment groups are taught by 60% or more of the school districts. Other groups with a high percentage of competencies that are included are International Finance (62.5% included by 60% or more districts) and U.S. Involvement in International Trade (75% included by 60% or more districts).

Chart 5 reveals that the competency groups with a relatively low number of competencies being included are International Marketing (100% of the competencies are included by fewer than 60% of the districts), Social and Cultural Factors (75% of the competencies included by fewer than 60%), Influential Global Organizations (67% are included by fewer than 60%), and Introduction (50% are included by fewer than 60%).

The analysis of the responses used to answer the second and third research questions indicated that the vast majority (79%) of school districts reported that the international business competencies are integrated in various courses and are not taught in separate courses. Sixteen percent of the school districts reported that the competencies they included in the curriculum are taught in a separate course, and 5% responded that they were not sure whether the competencies taught are included in one or more courses. Of those reporting separate courses, the following course titles were given: International Management, Global Insights, Global Studies, International Marketing, International Business, and International Business and Law.

**Chart 2**

**NUMBER AND PERCENT OF SCHOOL DISTRICTS  
THAT INCLUDE EACH COMPETENCY  
(Arranged from Highest Percent to Lowest Percent)**

Competency Group	Competency Number	Competency Description	Number that includes the competency	Percent that includes the competency
Economic Concepts	11	Describe the resources a country must use to produce goods and services.	100	92%
Economic Concepts	9	Describe the ways in which supply and demand affect prices in the global market.	99	91%
Introduction	7	Describe the benefits of international trade.	96	88%
Economic Concepts	12	Identify advantages and disadvantages of free trade and protectionism.	94	86%
International Trade Environment	34	Identify the characteristics of the three basic economic systems (traditional, command, and market).	93	85%
Introduction	3	Identify the geographical location of leading countries in international trade.	91	83%
Introduction	4	Classify countries as industrial, developing, or centrally planned.	90	83%
U.S. Involvement in International Trade	41	Identify major U.S. trading partners and major goods traded.	85	78%
Influential Global Organizations	19	Explain the advantages and disadvantages of trade agreements among nations (NAFTA, ASEAN, etc).	85	78%
International Finance	25	Explain <u>deficit</u> and <u>surplus</u> in balance of payment accounts and the effects on the U.S. economy.	84	77%
U.S. Involvement in International Trade	45	Identify the major countries that export goods and services to the U.S. and their chief export.	84	77%
International Trade Environment	32	Explain reasons for governmental attempts to regulate international trade.	79	72%

**NUMBER AND PERCENT OF SCHOOL DISTRICTS  
THAT INCLUDE EACH COMPETENCY  
(Arranged from Highest Percent to Lowest Percent)**

Competency Group	Competency Number	Competency Description	Number that includes the competency	Percent that includes the competency
U.S. Involvement in International Trade	46	Identify the major U.S. exports and their primary markets.	79	72%
International Trade Environment	33	Identify principal obstacles to international trade.	78	72%
U.S. Involvement in International Trade	44	Identify major foreign investors in the United States.	77	71%
U.S. Involvement in International Trade	43	Determine reasons for U.S. business investment in foreign countries and foreign investments in the U.S.	77	71%
International Finance	20	Identify currencies of selected foreign countries.	76	70%
Introduction	2	Identify the major characteristics of international trade.	76	70%
International Trade Environment	36	Identify ways in which political circumstances affect a country's participation in the global marketplace.	75	69%
U.S. Involvement in International Trade	48	Determine the effects of trade restrictions on domestic jobs, production costs, and exports.	74	68%
International Finance	23	Explain how currency fluctuations affect the ability of U.S. businesses to import or export profitably.	72	66%
Influential Global Organizations	16	Identify the various vehicles of international cooperation in trade, such as common markets, trade agreements, treaties, and international banks and lending institutions.	72	66%
International Finance	22	Calculate the value of the dollar against selected foreign currencies.	71	65%

**NUMBER AND PERCENT OF SCHOOL DISTRICTS  
THAT INCLUDE EACH COMPETENCY  
(Arranged from Highest Percent to Lowest Percent)**

Competency Group	Competency Number	Competency Description	Number that includes the competency	Percent that includes the competency
Economic Concepts	13	Discuss the impacts of a reduction in protectionism to consumers rather than to special interest groups.	70	64%
International Finance	21	Explain how foreign exchange values are influenced by changes in the supply and demand for currency.	69	63%
Economic Concepts	10	Differentiate between absolute and comparative advantages in trade.	66	61%
International Trade Environment	35	Cite examples of government interaction with business in the international marketplace.	66	61%
Social and Cultural Factors	37	Identify distinctive social and cultural factors that can affect the conduct of international business.	65	60%
Social and Cultural Factors	39	Explain U.S. cultural and social attitudes and practices that could inhibit successful business operations in a foreign country.	64	59%
U.S. Involvement in International Trade	42	Evaluate the effects of multinational corporations on domestic and international business.	63	58%
International Finance	26	Identify reasons that businesses need the currency of other countries.	59	54%
Influential Global Organizations	18	Explain the various relationships or agreements among selected participants in international trade cooperatives, such as those of the European Economic Community (EEC).	58	53%
International Finance	24	Identify the components of the U.S. balance of payments account and their relationship to each other.	57	52%
Introduction	1	Provide a brief outline of major events in the history of international trade.	56	51%
International Marketing	28	Explain the role of marketing in international trade.	55	50%

**NUMBER AND PERCENT OF SCHOOL DISTRICTS  
THAT *INCLUDE* EACH COMPETENCY  
(Arranged from Highest Percent to Lowest Percent)**

Competency Group	Competency Number	Competency Description	Number that includes the competency	Percent that includes the competency
Introduction	6	Describe activities of major organizations that facilitate world trade.	55	50%
U.S. Involvement in International Trade	47	List U.S. and foreign government regulations affecting international trade, including major laws, tariffs, quotas on imports and exports, and nontariff barriers.	55	50%
Influential Global Organizations	17	Describe the benefits and risks associated with involvement with global organizations.	53	49%
Introduction	8	Discuss the purpose of countertrade in world trade.	52	48%
Social and Cultural Factors	40	Explain how oral and written communications and nonverbal and body language can positively and negatively affect international business.	51	47%
International Finance	27	Describe financial incentives used to attract financing.	48	44%
International Marketing	31	Analyze the factors involved in advertising domestically and in advertising internationally (including availability of media, social and cultural factors, consumer behavior, legal constraints, and language).	44	40%
Introduction	5	Label major international trade routes.	43	39%
Social and Cultural Factors	38	Explain how cultural and social factors in the target country affect advertising in foreign markets.	42	39%
Influential Global Organizations	14	Describe the influence of the International Monetary Fund (IMF) on worldwide business.	39	36%
International Marketing	29	List strategies suitable for identifying foreign markets.	32	29%
International Marketing	30	Distinguish between the concepts of product or service adaptation vs. Standardization.	31	28%
Influential Global Organizations	15	Identify organizations that assist businesses in raising foreign capital.	25	23%

<b>Chart 3</b>		
<b>THE SEVEN COMPETENCIES THAT SCHOOL DISTRICTS INCLUDE MOST FREQUENTLY IN THE CURRICULUM</b>		
<b>Competency Number</b>	<b>Competency</b>	<b>Percent of Inclusion</b>
11	Describe the resources a country must use to produce goods and services.	92%
9	Describe the ways in which supply and demand affect prices in the global market.	91%
7	Describe the benefits of international trade.	88%
12	Identify advantages and disadvantages of free trade and protectionism.	86%
34	Identify the characteristics of the three basic economic systems (traditional, command, and market).	85%
3	Identify the geographical location of leading countries in international trade.	83%
4	Classify countries as industrial, developing, or centrally planned.	83%

<b>Chart 4</b>		
<b>THE SIX COMPETENCIES THAT SCHOOL DISTRICTS INCLUDE LEAST FREQUENTLY IN THE CURRICULUM</b>		
<b>Competency Number</b>	<b>Competency</b>	<b>Percent of Inclusion</b>
5	Label major international trade routes.	??
38	Explain how cultural and social factors in the target country affect advertising in foreign markets.	??
14	Describe the influence of the International Monetary Fund (IMF) on worldwide business.	??
29	List strategies suitable for identifying foreign markets.	??
30	Distinguish between the concepts of product or service adaptation vs. Standardization.	??
15	Identify organizations that assist businesses in raising foreign capital.	23%



**Chart 5**

**NUMBER OF COMPETENCIES IN EACH COMPETENCY GROUP THAT SCHOOL DISTRICTS INCLUDE IN THE CURRICULUM  
(Arranged by Selected Intervals)**

Competency Group	n=	Included by...			
		Fewer than 40% of school districts	40%-59% of the school districts	60%-79% of the school districts	80+ % of the school districts
Introduction	8	1	3	1	3
Economic Concepts	5	0	0	2	3
Influential Global Organizations	6	2	2	2	0
International Finance	8	0	3	5	0
International Marketing	4	2	2	0	0
International Trade Environment	5	0	0	4	1
Social and Cultural Factors	4	1	2	1	0
U.S. Involvement in International Trade	8	0	2	6	0
Combined	48	6	14	21	7

**Recommendations**

1. School districts should use these findings as a benchmark to compare the international business competencies they include in their curriculum to the international business competencies that other districts teach. If needed, Questions 1-48 of the survey can be administered to school district personnel to determine the district's current practice. If a district finds that it is not teaching competencies that are frequently taught by most other school districts, that district should begin by assessing the importance of these competencies in meeting the international literacy requirements of students within the school district. Afterwards, for those that are taught less frequently by most districts, consideration could be given for gradually phasing them into the curriculum for all students.
2. If a school district finds that some of its personnel are uncertain about whether or not specific competencies are included in the curriculum, it should provide a time for faculty to meet and discuss the reasons for the uncertainty. This type of collaboration could increase the chances that desirable international competencies are included in this curriculum.

3. Teachers from specific content areas or departments should discuss how they can include international business competencies that are not taught in existing courses. For example, business and distributive education teachers should discuss how competencies from International Marketing can be integrated into existing business and marketing courses. Social studies teachers should discuss how competencies from Social and Cultural Factors can be integrated into existing social studies courses, especially world cultures.
4. School districts should administer this survey to its staff periodically to determine what progress the district is making to include most, if not all, of the international business competencies in the curriculum and to formulate strategies for improving whatever deficiencies may be revealed.
5. School districts should examine their entire K-12 curriculum in order to determine where these international business competencies might be integrated into the curriculum. This process could show that international business competencies are being or could be taught in content areas other than those mentioned in this study.

6. Colleges and universities and professional education associations should provide in-service education that will enhance classroom teachers' ability to integrate into their instruction the international business competencies that are not frequently taught. This recommendation applies especially to all competencies in the International Marketing group and most of the competencies in the Social and Cultural Factors and Influential Global Organizations groups.

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# Utilizing Action Research to Assess a Teaching Philosophy

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## Abstract

The purpose of this study was to involve students and the instructor in research of a teacher's philosophy of teaching. A survey, e-mail questions, and a teacher's log were used to collect data. Weekly e-mail assignments received at least a 99% response from students; the survey was completed by all students; and the teacher's log was completed on a daily and weekly basis (whichever is appropriate to record significant events). The overall results have given important reactions for insight into this teacher's teaching philosophy. This is an ongoing study, however.

## Introduction to the Study

Undergraduates who are preparing to be teachers are encouraged and, in some cases, required to reflect on and analyze their teaching philosophy and its impact on how and what their students learn. A teaching philosophy is the organized theory or belief system held by each teacher based on personal experiences derived from non-teaching activities (such as being a parent or a student) and preparatory practical experiences that occur as a result of designing and implementing the curriculum through instruction (Cornett, 1987; 1990; Willis, 1995). It differs from an education philosophy in its specificity: i.e., a teaching philosophy is classroom- and student-centered rather than being broad-based. The purpose of this study was to reveal my teaching philosophy, to assess its effectiveness through a series of interactions with undergraduate students, and to suggest that including action research in a pre-service coursework class may have far-reaching implications for more thoughtful teaching.

## My Personal Philosophy of Teaching

My philosophy of teaching has been influenced by countless personal experiences as a student in public and private schools; 20+ years of work experience, many as a trainer in business and industry; as a graduate student-instructor; and, later, as a practicing classroom teacher. There also have been people along the way who have had a significant impact on me: two important professors who served as mentors, a high school teacher who believed in me, positive feedback from trainees, and, above all, the students in my classroom. Each in his or her own way has helped me to organize my thoughts, conceptualize and articulate my beliefs, refine and test my practices, and learn how to model them.

Significant emotional events play a key role in changing one's life. A significant event occurred for me after reading the book by Marva Collins and Civia Tamarkin entitled, *Marva Collins' Way*. This book tells the story of a teacher who, against all odds, took children who had been given up on by society and offered them the chance to prove that they could learn and succeed. Her

story truly excited me about teaching. I found support for my methods of teaching in John Dewey's (1926) theory of learning by doing, as demonstrated and practiced in his laboratory school. I also developed beliefs from interacting with fellow students and teachers and discussing what was worth knowing, which teachers were "good," and which classes were the most beneficial. The connections with people in addition to the readings helped my reflective powers and served to fuel my excitement about the education process.

When I finally had to put down in writing what I believed about students, teaching, and learning, I found my philosophy was grounded in eight separate (but equal) components filtered through the lens of a student-centered classroom that encompasses curricula dynamics, lifelong learning, andragogical theories and practices (Knowles, Darkenwald and Merriam, Cross, and Freire), mastery learning (Bloom), teacher as professional, learning by doing (Dewey), commitment, experience, and competency-based strategies. Figure 1 graphically depicts my philosophy. Each of these elements is discussed briefly below. Of course, what I believe about teaching will continue to evolve.

## *Curricula Dynamics*

The importance of subject matter constructs guides my decision making as I arrange my instruction to make sure that these constructs are emphasized. The selection is the result of practical experience, change theory (e.g., Fullan, 1982; and Zaltman, Florio, & Sikorski, 1977), the dynamic curriculum, and professional development. Forces outside of the classroom (new and emerging technology, corporate downsizing, global economics, systems thinking, robust competencies and skills, etc.) are weaning business education teachers away from traditional sources of information for curriculum development and toward less structured resources.

## *Lifelong Learning*

Lifelong learning for both students and teachers goes hand in glove with the dynamic curricula: the end of learning is just the

beginning. It is my responsibility to model behavior that will influence students to continue learning beyond their undergraduate years.

### *Strategies*

I believe that instruction is a planned process aimed at change in behavior in one or more of the four domains of learning—knowledge, attitudes, perceptions, and skills. I believe every student can master the content of the course with the right instruction and the appropriate amount of time; I believe in competency-based education for students who will be teaching or working in the vibrant field of information systems and business education. These key components are presented through a variety of strategies, including lecture, class discussion, group work (e.g., role playing, simulation, etc.), and readings.

### *Professionalism*

The classroom is the laboratory from which the professional educator emerges. The classroom environment is the proper setting to learn the skills, attitudes, and perceptions about teaching—and living. The importance of students' personal and practical experiences is central to my curricular and instructional decision making in the pre-service course. Students in the pre-service class are required to develop and test their own teaching philosophy, as well as provide concrete evidence of their teaching in a portfolio.

### *Commitment*

Teaching demands one's whole being; it is of great social and personal importance; and it requires time and energy on a continual basis. I may not be the best teacher, but I am committed to the students in that class for the duration. I view my teaching role as one that requires a variety of responses, from center stage to "guide on the side." Circumstances in the classroom with regard to the subject matter or students' interaction require continuous monitoring if I am to help learners achieve their potential.

### *Experience*

A central part of the learning that occurs in the classroom rests on the teacher's and students' personal and practical experiences in living and working. The student-to-student exchange and the student-to-teacher exchange compel students to reflect on and formulate their own philosophies of teaching and/or behaviors they will carry into their classrooms. These practical experiences vary from life as a student in American schools or in schools in a foreign country to years of experience in business. Students are encouraged to reflect on and discuss their experiences in light of the subject matter.

### *Time*

The importance of time on student learning requires that I give attention during the preparation and execution of instruction to facilitate learning of concepts and sharing of student experiences. Time becomes a constraint when instruction must be dispensed in 45-, 50-, or 75-minute blocks. In this case, the pre-service course is the preparatory course for student teaching and meets four days a week, two hours each day, for six weeks. The process of selecting the most important subject matter, emphasizing the most significant strategies, and providing time for students to practice is crucial.

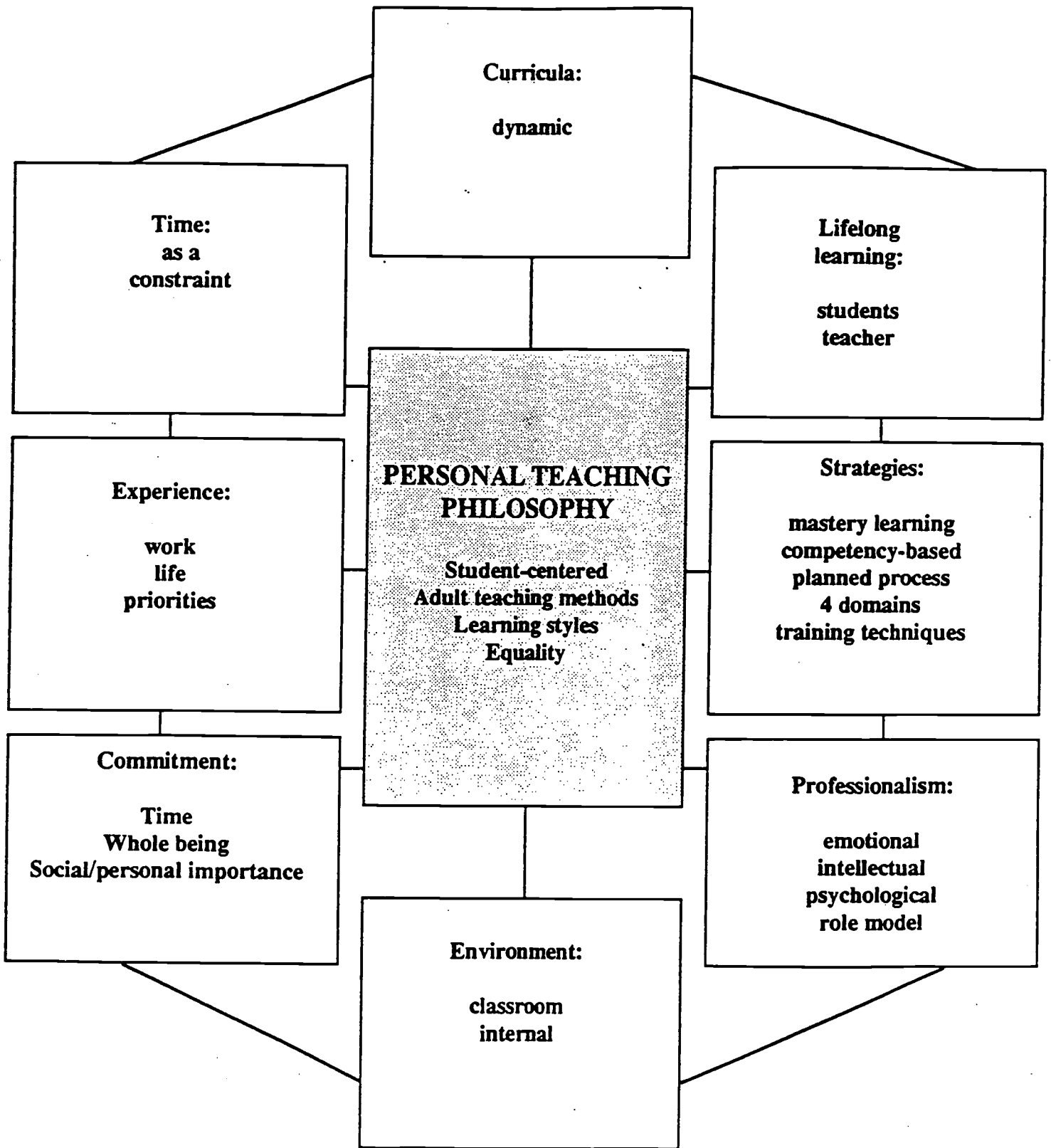
In summary, Figure 1 portrays my philosophy of teaching as student centered, the lens through which the other elements are screened and through which my curricular and instructional decision making are determined. I may perceive a need for more student examples and adjust my instruction to facilitate this; I may perceive a need to more strongly emphasize subject matter that is not included in textbook resources; and I may adjust time, strategies, and the environment to facilitate learning. Learning is a two-street; I learn from the pre-service students, also. The action research study was devised to serve as feedback on the elements in my personal philosophy of teaching.

### **Theoretical Framework for the Study**

Action research is the "inquiry teachers undertake to understand and improve their own practice" (McCutcheon and Jung, 1990). Teachers develop, through actions and experience, an interrelated set of beliefs and practices, a teaching philosophy, about how students learn, what they should learn, how motivation for learning occurs, and how their presence in the classroom enhances or detracts from student learning. Although a complete philosophy of teaching may never be articulated to serve as a guide, most teachers are aware that they are driven by something within themselves which seeks to "reach out and touch" the students in the classroom. Action research is different from other methodologies in that all the questions may be hard to formulate, non-quantitative methods are more appropriate for accumulating data, and the presentation of the findings may resemble a story rather than a traditional research paper.

Theoretically, action research is a method that offers a different way of looking at a classroom and the goings on within it (Patterson, Stansell, and Lee, 1990). The authentic quest of the action researcher is a search for those questions and methods that lead to new personal insights and deeper understanding. In a very real sense, action research focuses on re-examining, re-searching, re-focusing, and re-vising, and re-flecting, not on what can be easily explained, but also on what defies explanation and what more can be learned. Action research requires a commitment on the part of the classroom teacher to be open, honest,

**Figure 1**  
*A Model of the Interactions of my Personal Philosophy of Teaching*



and willing to change or adapt one's methods, practices, and beliefs. Additionally, action research does not rely on traditional research concerns, such as high rates of return on surveys or randomness of treatment. Good, solid results can be obtained, though.

### Assumptions and Research Questions in the Study

Action research was introduced in the pre-service course as a systematic means for the critical examination by teachers of their own practice and as a method for enhancing a spirit of "teacher-as-reflective practitioner" in each individual. While the major focus of the pre-service course is to prepare students to enter the student-teaching experience, the action research project serves as a link between course content and the classroom. It enables pre-service teachers to analyze their own philosophies, experiences, and feelings about teaching and their future role as teachers prior to entering their own classrooms. The study is predicated on the following basic assumptions: (a) Students have a vested interest in the instruction which they receive; (b) students want to be asked to evaluate the instructor; (c) students can think and reflect on the value of the content of the instruction, as well as the presentation of the instruction; (d) students know "what works for them"; (e) teachers are and should be reflective learners (Zumwalt, 1986); (f) teachers are morally committed and responsible individuals who want to provide the best curriculum [and instruction] for their students (McCutcheon, 1988); (g) teachers are subject-matter experts; (h) teachers are members of learning communities; and (i) action research can serve as a basis for ongoing reflection and provide data for effective teacher judgments [and change] (Sanders & McCutcheon, 1986). Cornett (1990) states best the value of action research related to the analysis of personal teaching practices and philosophy when he says:

I believe this opportunity to analyze practice through action research methods enables teachers to gain increased insights into the complex and practical nature of teaching; the degree to which they are and should be reflective about practice; the role of the teacher in determining the curriculum; and the impact of a systematic analysis of teaching on teachers' view of themselves as professionals. As a result of these insights, their practice may be altered. I feel the nature of that alteration should be left to the control of the individual teacher as much as possible (p. 188).

Action research is a tool that the classroom teacher can readily use, because the data and tools are close at hand. It can be used to inform practice and knowledge of professional teaching and can offer answers to questions that arise out of daily interaction with students. The objectives of this research were to answer the following questions:

1. Are the philosophy, theories, beliefs, and practices that I hold and utilize relevant and student-centered?

2. What impact would my teaching philosophy have on students' learning and on pre-service teachers' philosophies, theories, beliefs, and practices about teaching?
3. Is there any value to comparing the results of a prior action research study with the results from this study?

### Research Methods Used in the Study

To answer the research questions in this study, the following steps were taken:

1. Students in the pre-service course, Methods of Teaching Business Subjects, were given a copy of my philosophy of teaching. One requirement of this course was that students had to develop their own philosophy of teaching.
2. For each of the six weeks of the course, students were asked to respond to a question(s) (via e-mail for anonymity) relating to an element of my philosophy. The questions transmitted via e-mail to the students were:

Week 1: What specific occurrences did you observe of this teacher's philosophy of teaching? Evaluate the effectiveness of the occurrences.

Week 2: When did elements of this teacher's philosophy of teaching detract from, hinder, interfere with, or keep you from learning? What suggestions do you have for this teacher to increase effectiveness?

Week 3: Some of you had excellent suggestions for improving my performance in the classroom. Were your suggestions implemented? Is there enough content being covered in the course? Or do you see too much emphasis on this teacher's philosophy? What aspects of this teacher's philosophy have hindered your learning? What aspects of this teacher's philosophy have enhanced your learning?

Week 4: Please complete the following statement: This week I observed that your philosophy of teaching...

Week 5: Please complete the following statement: While evaluating your philosophy of teaching, I have become skillful... What have you discovered about teaching? What assumptions have you re-evaluated about the teaching profession?

Week 6: Students were asked to rank the seven elements of my teaching philosophy according to their significance for them. The seven elements are: commitment, curricula, experience, lifelong learning, professionalism, strategies, and time.

3. A quantitative evaluation instrument entitled, CUES PROTOCOL FOR ESSENTIAL KNOWLEDGE ELEMENTS,

was mailed to the students after the last week of the course. A CUES (Coalition for Upgrading Educational Strategies) Protocol was developed from epistecybernetics (defined as a science that explains the evolution of knowledge within disciplines and that seeks to improve the efficiency of knowledge creation, organization, storage, dissemination, and utilization) to assess curriculum and instructional effectiveness (Henley and Fedler, 1991). The CUES Protocol is a convenient tool for including all of the elements of learning in a particular discipline. Where appropriate, results from the use of the protocol technique in this study are compared to the results of its use in a previous study.

4. I kept a log during the semester to reflect my perceptions, as well as questions and attitudes of the students as the project progressed.
5. A traditional evaluation instrument was administered at the appropriate time in the semester.

Data from the e-mail questions, the CUES Protocol, the log, and the traditional evaluation instrument are presented in the form of tables and written commentary. From the students' and teacher's input, it will be possible to tell the "story" of the assessment of my teaching philosophy.

#### Limitations of the Study

One has to be aware when involving students in action research that the "halo effect" may prevail. That is, students will want to

give the teacher what he or she wants to hear. After all, grades are very important to students and especially at this point in their academic and professional careers. The questions were not shared with students prior to their reading them on their e-mail. Students were not given extra credit for participating in the research.

On the whole, the philosophy of teaching statements from this class were more reflective and well thought out than from students in past semesters. Perhaps awareness was created on both the students' and the teacher's part of how important it is to "walk the talk."

#### Results and Findings of the Study

##### *Weekly E-mail Assignments*

The results (eliminating redundancies) from each of the questions that were submitted to the students by e-mail are presented in table format in the students' own words, including errors in spelling and grammar usage. Table 1 presents the comments to the questions in Week 1 from 12 students; one student dropped the class after the second week of classes. It is important to present the results so that the reader will get the "feel" for the interaction. I have presented comments from my log to round out the picture. The comments to the questions in Week 1 turned out to be the most detailed.

*Table 1*  
*Week 1*  
*n=12*

**What specific occurrences did you observe of this teacher's philosophy of teaching?  
Evaluate the effectiveness of the occurrences?**

- I have observed all of this teacher's philosophy statements except for competency based ed. and the "teachable moment" (although she did mention it). This teacher is a very effective teacher. I think the main reasons this is so is because she believes that the students are the most important, the idea of equal ed., and that everything she does is student aimed. I think these three beliefs help the student feel important also the fact that she always lets every person state his or her opinion. I have observed that she is professional in every way and also that teaching is of great social and intelectual importance. These two things help us respect and look up to her. I have also observed that the teacher has her own opions but I think that she does use them to enhance the lesson. She does not force her opions on us though. She is also definatly the teacher at that time and we all know she has her own requirements for her class. In class we also use all three domains and I think this is an effective method. Along this line I have also observed that the teacher trys to accomodate all learning styles with different strategies.
- Answer: It is always clear in your classroom that the students are most important. You make that very clear by the respect you give each of us. For example, when you sit when we stand. It also clear that everything is aimed at student learning. Even with your tangents they always have relevance to our learning. You have made it very clear with numerous examples how important lifelong learning is. You are without a doubt one of the most professional teachers I have ever had in every way--emotionally, intellectually, and psychologically and even more importantly as a fantastic role model.

*table continued*

Table 1, continued

**What specific occurrences did you observe of this teacher's philosophy of teaching?  
Evaluate the effectiveness of the occurrences?**

- \* You always show a strong concern for student learning according to your belief that the student is the most important person in the classroom. Everything you do in the classroom is aimed at student learning. You present different types of activities which are evidences for your concern of students' different learning styles. Furthermore, you present yourself as a professional which creates a good image. I view you as a professional who cares for students, is knowledgeable, and is very credible. Finally, you show enthusiasm in teaching which as a result I feel very enthusiastic to learn. Overall, I think the occurrences of your teaching philosophy are very effective.
- I have seen your philosophy as follows: I believe that learning is a lifelong process because you always find a lot of information for us and many sources of knowledges that we can learn. You always respect students when a student stand up to present his/her jobs you will sit down. This will help improve student strength because he/she will feel that he/she is taking over class.
- I thought you were extremely professional in every aspect of your teaching this week. You are an ideal role model of excellence. You treated each student with respect and courtesy. You valued the opinions of others. Listening to the each presentation with interest was exceptionally pleasing. I liked the way you applauded after each presentation - praise makes an individual work harder. Your style of teaching is highly effective because it involved the entire class.
- This week in class, I observed several occurances of your teaching philosophy. The first element that was clear was that "teaching is of great social and personal importance and each hour in the classroom deserves the best in preparation and presentation." This element was clearly evident in your organization of the material to be covered for the day. You put the agenda on the board and followed it in sequential order. I like the fact that even though we have an agenda, there are no time limited placed on how long we discuss an item. Thus, I like your flexibility. Also evident was the equality of educational opportunity, because you offer additional explanation for those who do not understand. Moreover, you openly welcome each student, his/her questions and concerns. You are fair and hold no stereotypes on your students. I'm sure there are others. See you next week!
- I have observed many of your philosophies in class: I've noticed that everything you say is meant to make us better teachers. You use handouts, the overhead, and lecture. You are more up-to-date than a lot of teachers in your position. You seem to know more about current technology than most of the students. At least more than me. By bringing in your personal experiences, you make what you are trying to get across seem worth the effort. To me, you are a very effective teacher. The discussion we had the other day on professionalism I thought was one of the best I've had in my college career. It seems that you're trying to make us aware of the things that it is extremely hard to teach. Go Packers.
- I found the most outstanding one that you believe the student is the most important person in the classroom. You always concern about their ideas and what they want to do in class. Moreover, you give a chance and opportunity to every students even if I am an international student. You are very informative. You always best in preparation and presentation... Tell you the truth, I feel very comfortable to be in your class. In case that I am international student, your styles of teaching and your personal philosophy are very great model for me. If you have any feedback and anything that you would like to suggest to me please, send me an e-mail I will appreciate.
- There has been a general occurrence of all aspects of the philosophy of teaching; however, some have been more outstanding than others: (1) enough time and appropriate instruction, mastery learning is possible for all students; and (2) competency-based education is standard for the classroom. Have a good break.
- Day to day you have proven that you believe in teaching strategies which take your philosophy of teaching into consideration. We have used cooperative learning, discussion, and lecture. You do put your whole being into teaching. I realized this when you brought several copies of articles for us to use as references. I know that you have read all of them and feel that they would be useful to us.
- When a student stood up to speak, the instructor "gave him/her the floor" and sat down. This allows the student to feel a sense of self-worth, confidence, and control. There is always time allocated for discussion of whatever happens to come up in class. Nothing is brushed aside. This seems to give the class as a whole the willingness to touch on subjects that perhaps otherwise



Table 1, continued

**What specific occurrences did you observe of this teacher's philosophy of teaching?  
Evaluate the effectiveness of the occurrences?**

they might keep to themselves. We have worked in groups; there are class discussions, transparencies are used, and numerous helpful handouts and resources are distributed. The exercise of searching for the pieces of paper on the wall (international competencies, student learning, etc.) stuck in my mind and probably always will. How simple an exercise that seems to be, but how much information I retained and understood as a result! The resources this instructor reviews, copies and distributes to others is an indication that this is an important element of her teaching philosophy. The personal experiences she brings to the classroom are most helpful in understand points brought out in class. This is an exciting class of learners! (Note: This student subsequently dropped the class.)

- When a student stood up to speak, the instructor "gave him/her the floor" and sat down. This allows the student to feel a sense of self-worth, confidence, and control. There is always time allocated for discussion of whatever happens to come up in class. Nothing is brushed aside. This seems to give the class as a whole the willingness to touch on subjects that perhaps otherwise they might keep to themselves. We have worked in groups; there are class discussions, transparencies are used, and numerous helpful handouts and resources are distributed. The exercise of searching for the pieces of paper on the wall (international competencies, student learning, etc.) stuck in my mind and probably always will. How simple an exercise that seems to be, but how much information I retained and understood as a result! The resources this instructor reviews, copies and distributes to others is an indication that this is an important element of her teaching philosophy. The personal experiences she brings to the classroom are most helpful in understand points brought out in class. This is an exciting class of learners! (Note: This student subsequently dropped the class.)
- Although the class has just begun, I have been finding a lot of greatful for your philosophy. It's very important that you believe that student is most important person because I think it is the basic to increase self-esteem and confidence for the students. It is good to give opportunities to the students for sharing his/her ideas and you always be the good listener!! Everybody can get the world-wide perspective from each other...not only American. I always see the good examples of your appropriate manner, such as the way you talk and dress. I love the way you are!! I believe that you are one of the great teacher!!

*Notes from log, first week: I am really anxious (scared) and nervous about reading the comments from the students. Fear and trepidation--one never knows how one is coming across. Is my philosophy of teaching evident? I hope that just by asking, the students are not giving me what they think I want to hear. Oh, well...*

The comments from the log after reading the first round of e-mail are presented next. They were very positive and supportive.

*Notes from log after first week's question: Wow! I am so overwhelmed. I never expected such open, honest feedback. And so much of it is positive! I hope I can live up to this the rest of our time together. But, after all, I asked for this. Well, let's see, what should I ask? This is going to be harder than I thought to come up with different questions each week.*

Table 2 presents the students' comments from Week 2's question. Again, comments are presented in the students' own words.

*Notes from log, second week: Well, here goes. I'm not sure about this question. I probably don't have it worded right. The feedback to the class was short and we moved on. I don't want to turn this into a discussion, because I want to be very careful about swaying opinions. But, it is important that their participation was acknowledged so that their efforts were not in vain. And also it serves as a reminder to those who might forget to participate.*

As one can see from the comments in Table 2, there were very good suggestions for keeping the class moving forward. I have known for a long time that I want to be sure that every student has his or her opportunity to contribute to the class discussion. Now, I have proof.

*Notes in log, second week: Nice to know that one will not be stepping on toes to keep the class discussion moving forward. Perhaps this is the feedback I have needed to pay more attention to this. I will try to improve this; it'll be interesting to see what kind of feedback I get. Also, I have thought long and hard about how to help the foreign students be understood by the other students. I will try harder to help both American and foreign students understand each other. Will the students notice?*

**When did elements of this teacher's philosophy of teaching detract from, hinder, interfere with, or keep you from learning? What suggestions do you have for this teacher to increase effectiveness?**

- I must say that I don't think any of your elements of teaching philosophy have ever hindered my learning. I feel that you are an excellent professor. I look to your philosophy for guidance. I respect you for abiding by your teaching philosophy.
- The only hindrance is the time factor and our tendency to stray from or extend the conversation on one topic, otherwise I am quite pleased with what I am learning.
- Continue doing exactly as you have been. At this point I look at the way you teach as a role model for me and at this point I am yet to find areas where I don't agree with your technique or style. If you were looking for constructive criticism I am sorry I could not be more helpful.
- The only time your philosophy really hinders me is when someone in the class from a foreign country speaks and I can not understand him. It might help if you summarize what he or she is saying. I think they have a point and are very intelligent but I just can not hear or understand then some times.
- There are one thing I would like to tell you, that is the one about the equality of educational opportunity. I also believe that everybody has the ability to learn equal to each other but it still has some differences between American students and foreign students. Those foreign students may need a little bit some more time to complete their works (if compare with the American students). The reason that I talk about this is just want to tell you that we (foreign students) will try our best to do our works but if there is anything you do not like in this class, I and my friends would like to say "apologize" to you.
- I am very much surprised that we have not shifted away a little from the philosophy. I will however, recommend that students be allowed to make presentations for chapter read in emblock so that the trend is not lost by students and so that the presenters come out with just outlines since all the students are expected to read the chapters. See you on Monday.
- I think your philosophy of teaching about the teacher as a professional in every way seems to be formal all the time that can interfere me from learning. In my opinion, I think it might be better in some situations that a teacher should be informal.
- One thing I think hindered learning this week was that we kept getting off the subject. This is fine, but we stayed off the subject for to long. I think that you needed to take a little more control of what we were discussing...I think you should have said let's move on and then we could have continued.
- It seems to me that everything we do in some way gets stuck in my brain for later recall. It may not be the most conventional teaching method, for instance the discussions that the class inevitably gets into, but you get to take a little bit of knowledge from everyone.
- If I can find anythings that keep me away from learning according to your philosophy, I will identify it and let you know.
- I could not find any of your teaching philosophy that hinders or interfere with my learning. Personally, I feel that teaching is a difficult task. To be a teacher is easy, but to be a good teacher is not easy at all.
- I like your daily question, "Does anyone have anything they want to add for the good of the community?" I usually have something to say at that point and I am wondering if that distracts other students or gets us off on tangents...If this proves to be distracting, perhaps you could guide the class more in terms of "moving on" to other matters.

*Time to think about the question for Week 3. I have gone back to read some sources of action research and specifically about teaching philosophies. Maybe a good strategy is to ask if students' suggestions were utilized. Let's see what happens. I have learned so much about my teaching style and its manifestation in the classroom. I am still overwhelmed at the positive responses. One thing I have noticed about the responses from the foreign students is how respectful they are to their teacher; they project this same respect in the classroom. American students find this to be "brown-nosing" the teacher. Each culture represented in this classroom could learn from the other. I've also begun to notice that the responses are getting shorter. Need to come up with a different approach.*

The question(s) for Week 3 turned out to be long; students were faithful in answering them, however. The long-lasting effects of all of this probing has been an increased awareness of how to keep a class moving forward. Table 3 displays the students' comments--again in their own words and phrases.

*Note in log from Week 3: This may have been a redundant question or series of questions. Am I too sensitive about interfering with their learning? Are they trying to "guess" at what I want to hear? The comment about stressing professionalism and hindering learning is interesting. Too formal in my approach? I'll watch this and see if it comes up again. Paying attention to my teaching philosophy has really forced me to change and/or improve my approach to enhance learning.*

The question for Week 4 was put in statement form to be completed by the student. It is getting harder to come up with a different approach. Table 4 presents the students' comments that were appended to the statement. The reader may notice reference in the students' comments to a project or "incident" that was assigned and then recalled. I made (what I consider to be) a serious error in judgment in assigning a project that would have taken more time than students had available, considering the length of the course. In recalling the project, I used the occasion to talk about how a teacher can reestablish credibility with students when they perceive they have made an error. More on this in the log.

*Notes in log, Week 4: I really thought I had blown it this week. I guess I am still struggling with respect vs love. I'd like to have respect; love is lagniappe! I am still overwhelmed at the positive responses. Are they saying what they think I want to hear? This exercise, so far, has been very enlightening for me. It places such a heavy responsibility on me to be aware of everything I do in the classroom.*

The next series of questions focused on how the students perceive they have matured as pre-service teachers from the first day of the class to the last week. Tables 5, 6, and 7 presents the findings from the three questions.

**Table 3**  
**Week 3**  
**n=11**

**Some of you had excellent suggestions for improving my performance in the classroom. Were your suggestions implemented? Is there enough content being covered in the course? Or do you see too much emphasis on this teacher's philosophy? What aspects of this teacher's philosophy have hindered your learning? What aspects of this teacher's philosophy have enhanced your learning?**

- I have not noticed my suggestions utilized but I have not looked for it either. I think enough content is being covered. No other hindrances; I agree that you talk to the students not down to them and you respect them and in return they respect you. It enhances learning to see the other ideas presented when the students taught.
- My only suggestion this week, and this is going to sound crazy coming from a student, is that I think it would be helpful to be able to teach another keyboarding lecture now that we have seen many demonstrations. I do think we cover sufficient content...
- You do make it clear that we have our own set of beliefs as a teacher.
- Yes, I realized that my suggestion has been fully utilized. I think there has been much contents covered in this course that prepare students not only for student teaching but also for real-life teaching.
- I still have to say that I haven't found any of your teaching philosophy hinder my learning. But I have found that most of them enhance my learning...As a student, I have had to adjust to different teachers. I may not be very helpful when it comes to giving a critique.
- About the class, I think that everything is o.k. I feel very tired for sometimes because of a lot of assignments. The content of the course is very good.
- Yes, I have noticed we stayed on task this week. Things moved rapidly and we accomplished a great deal more than in previous weeks. The content is enough. Your focus on the student is an important aspect of your philosophy. You are always thinking about us and what we will need as educators. Thanks.
- Actually, this class make me feel more confident. One thing I found to hinder my learning is my personal problem in learning because of language. Sometimes it interfere my opportunity to learn. To me, this class also provide enough content to learn in six weeks.
- Yes, I think the class kept moving this week. We seemed to stay on the subject more than usual. I think we have covered a lot with a lot to go. I feel the feedback right after we did our micro-teaching was wonderful. We got feedback while it was fresh in our mind. I think the behavior problems are good, but they can really get out of hand.
- No suggestions for improving performance; emphasis on philosophy does not affect what teaching is teaching; professional in every way seems to be very stressful to me which might hinder my learning.
- It seems to me that you are always taking our suggestions to heart. Everything about your philosophy enhances learning. You put together a list of your ideas about teaching that puts the student first. As a future educator, I hope to have the same enthusiasm for the kids.

Table 4  
Week 4  
n=11

**This week I observed that your philosophy of teaching...**

- ...you assigned the extra work from this week [and] I notice that your concerns our feeling that we have not enough time to complete it. It is not wrong to give it to us...I think if we have more time, we will please to work on it...You very well prepared to touch the moment in students.
- You always take care of your students wonderfully...You have a strong intention for your teaching...You are open-minded teacher. It is good for teacher to listen to the students' opinion...I think it's hard to find the teacher who know that she/he is out of their philosophy and try to correct it.
- I noticed this week your philosophy on "aiming on student learning" has been applied as you always use...and I notice that your philosophy "Given enough time" has been used when you have canceled the loaded jobs on us.
- ...you knew you had given us too much to do so you took it back. We as a class appreciate it very much. Most professors would not have been so generous...I think you are doing great at following your philosophy. I think for a teacher to be so concerned about their students is wonderful especially at the college level. I haven't seen much of it at this level during my college career and I appreciate it.
- ...the "incident" on Tuesday when you assigned another piece of assignment to students was not anybody's fault. I think that students usually react that way when they learn that they have to do some unexpected work. But then they will realize that they can fit another assignment on their schedule. They can work it out somehow. Anyway, I appreciated your concern and kind reaction.
- ...came into account when you perceived an unrest with your assignment. It caused you to rethink the assignment and determine that you were in the--I won't say wrong--minority of thinking it was for the better of the class. You probably thought that it would have more of a detrimental affect on the class than be a benefit. Kudos.
- ...you took care of the situation based on your philosophy. That was a very good move and method of making us understand that it is right to make mistakes. This tells students that we are human and can make mistakes any given time. The most important of it all is the ability to handle the situation well.
- ...when you thought you made a mistake and corrected it...you respect the students because you saw that we were upset and respected that...This was a teachable moment because we saw as teachers we can correct ourselves.
- ...by considering our reaction to the assignment you gave us...you gained a lot of respect for this.
- ...does mean what it says. When the problem of the extra assignment came about, you realized that maybe it was not in agreement with your philosophy. Instead of questioning it you simply disregarded the assignment.
- ...you noticed that you violated your teaching philosophy and corrected the situation. It takes a sensitive person and a person with a big heart to admit when they made a mistake.
- ...helped me write my own philosophy of teaching. Your philosophy has a strong effect on your teaching style.

It appears from the students' comments in the three tables that they have grown as individuals, as well as pre-service classroom teachers. It is important that they recognize this in themselves. Since this is a new experience for most of the students, they approached it seriously and thoughtfully.

*Notes from log, Week 5: I was disappointed that all of the students did not respond to this week's e-mail assignment. However, the comments were very insightful--some more than others. Especially glad to see the acceptance of other cultures; the recognition that teaching is not an "easy" job; and that the students have been*

*re-evaluating their assumptions about and philosophy of teaching. The low response rate probably reflects the hectic nature of the last week of a six-week course in which half of the students in this class are preparing for a ten-week student teaching assignment.*

For the last question, I asked the students to rank the elements of my teaching philosophy which had the most meaning for them during the course. Table 8 displays the results of the ranking by the students. I only received 7 out of 11 responses; I am sure it is because of the last week of class and other things to think about.

**Table 5**  
*Week 5*  
*n=8*

**While evaluating your philosophy of teaching, I have become skillful...**

- ...observing teaching style, planning, teaching strategies, problem-solving methods, your immediate plans and purposes for the class, and your behaviors.
- ...skillful in classroom management and teaching.
- ...skilled at teaching. This was my first experience with actually teaching a class. Corporate training is similar but for some reason leading a class felt different.
- ...at sending e-mail. I think this is good because nowadays you just have to know how to use e-mail.
- ...more familiar with teaching system. I have a great opportunity to touch one moment of teaching. Good experience, isn't it?
- ...at watching the students to make sure that most of them are understanding my message.
- ...in my field about how to teach business subjects. I learn several things which are important for being effective teacher.
- ...at being organized.

**Table 6**  
*Week 5*  
*n=8*

**What have you discovered about teaching?**

- ...you treat students as most important person in classroom; aim at student learning, and give enough time and appropriate instruction.
- ...teaching requires a lot of patience and endurance. I also discovered that having a philosophy helps the teacher maintain an effective teaching method.
- ...I enjoy teaching and think I can become an accomplished instructor.
- ...some very valuable philosophy of teaching; I also discovered some of my own philosophy of teaching.
- ...to develop objectives, teaching method, classroom management, and how to prepare lesson plan, unit plan, and semester plan. I have not even realized before that to be a good teacher needs many components.
- ...teaching is a lifestyle. You can never stop. Even if teachers don't want to, they teach whenever they come in contact with others. This profession takes dedication in a way that most probably others wouldn't understand. When in the classroom, the teacher is the only one with control over what the students learn.
- ...a good teacher has to believe in a philosophy. I think that it is easy to write the philosophy but it is hard to follow the things which one writes, isn't it?
- ...others look to me when they do not know what to do.

**Table 7**  
**Week 5**  
**n=8**

What assumptions have you reevaluated about the teaching profession?
<ul style="list-style-type: none"> <li>• I re-evaluated my assumption about [being a professional].</li> <li>• I re-evaluated my assumptions about teaching and classroom discipline and management. I have also improved to a great extent my teaching methods. We would take your message to the classroom.</li> <li>• I have re-evaluated my assumptions about classroom management. As a corporate trainer I was very rigid; now I think I can relax and have fun.</li> <li>• I have re-evaluated my assumptions about teaching: I used to think that teaching is not challenging. But now I have to say that teaching is one of the most challenging and exciting jobs. I'm now really excited to go out and teach.</li> <li>• I have become more understanding about the student as the most important person in the classroom. If I have an opportunity to be an instructor, it will become one of my personal philosophies.</li> <li>• I have re-evaluated the assumption that teaching is all fun and games. It takes work. A lot of work.</li> <li>• I re-evaluated my assumptions about my aspects on this career. I used to think that being a teacher is easy but I have changed this opinion already because I have learned that it is very difficult to be ready for teaching.</li> <li>• I have re-evaluated my outlook on foreigners. I have enjoyed the foreign people in the class and have learned a lot from them—some more than others.</li> </ul>

**Table 8**  
**Week 8**  
**n=7**  
**Ranking of Philosophy Elements in Order of Importance**

Commitment Professionalism Lifelong learning Experience Strategies Curricula Time
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**CUES Protocol Results**

After the formal class was over, a CUES PROTOCOL FOR ESSENTIAL KNOWLEDGE ELEMENTS, was mailed to each student, asking him or her to return the completed form in three weeks. Students were asked to respond to the relevancy of the teaching methods to the course knowledge element (course content) and to their mastery (self-efficacy) of the knowledge elements using a scale of 1=low relevancy or self-efficacy to 4=high relevancy or self-efficacy. The main purpose for using this instrument was to focus on how the content was taught (specific teaching strategies), not just on how the teacher taught. Ten of eleven (90.9%) forms were completed and returned. The tabulated results are presented in Tables 9, 10, and 11. The results from the use of the protocol in a previous class (a senior-level Office Management class) are included in the tables where appropriate.

From overall findings in Table 9, it appears that professionalism and micro-teachings received the highest relevancy and mastery ratings; none of the knowledge elements was perceived as irrelevant to the course content. It appears that evaluation and grading techniques and administration of programs in Business Education need more time and attention to content. No comparison can be made with a previous study, since the knowledge elements differed in each class.

The results from Table 10 reveal that across all of the knowledge elements in this study, class discussions appeared to receive the highest relevancy and mastery ratings; readings consistently received the lowest ranking. In both studies, lectures were ranked as the second most effective strategy. In the previous study, class discussions also received the highest rel-

*Notes from log, Week 6: I guess I am not surprised at the rankings, although I might have thought that strategies would have ranked higher. The ranking does validate my commitment to my students. I am very proud of this group of students and the growth I have seen from the beginning of the course until now. I'm sure they're glad the class is over; I'm emotionally drained!*

As a whole, I believe the entire action research project produced more reflective and well-thought-out teaching philosophies from the students as compared with teaching philosophies developed by students from previous pre-service classes.

The next section of the paper focuses on quantitative data from the administration of the CUES Protocol instrument which was mailed to the students after the class was completed.

**Table 9**  
**CUES Protocol for Essential Knowledge Elements of F309**

Student No. \_\_\_\_\_

Course Knowledge Element	Lecture Time & Exposure		Readings Time & Exposure (Text/other)		Assign. Time & Exposure		Discuss. Time & Exposure		Group Time & Exposure		Total Time & Exposure		Overall Relevancy of Element	Overall Self-Efficacy of Element
	*	**												
Trends in Bus Education	3.4	3.3	2.5	2.6	2.9	3.0	3.5	3.3	3.3	3.3	3.4	3.1	3.35	3.2
Teacher Competencies	3.7	3.5	2.9	2.9	3.1	3.2	3.7	3.5	3.2	3.0	3.2	3.2	3.0	3.4
Principles of Bus Education	3.4	3.0	2.6	2.6	2.9	2.8	3.7	3.3	3.4	3.1	3.3	2.9	3.4	3.2
Teaching Philosophy	3.6	3.5	3.0	3.1	3.5	3.5	3.8	3.8	3.2	3.4	3.8	3.5	3.8	3.7
Lesson/Unit Planning	3.6	3.3	3.2	3.2	3.8	3.5	3.6	3.6	3.4	3.3	3.6	3.5	3.7	3.4
Materials/Equipment Bus Educ	3.0	2.8	2.7	2.2	3.0	2.7	3.4	3.2	3.0	2.7	3.3	3.2	3.3	3.2
Micro-Teachings	3.9	3.8	2.7	3.0	3.7	3.7	3.9	3.7	3.7	3.7	3.8	3.6	4.0	3.8
Evaluation/Grading Techniques	2.9	2.9	2.6	2.9	3.2	3.2	3.1	3.3	3.5	3.3	3.4	3.5	3.35	3.4
Administration of Programs-Bus Ed	3.1	2.8	2.5	2.5	3.2	2.9	3.0	2.8	2.7	2.8	2.9	2.6	3.2	2.9
Professionalism	3.6	3.6	2.7	2.5	3.5	3.4	4.0	3.7	3.6	3.5	3.9	3.9	4.0	3.9
Teaching Portfolio	3.7	3.6	2.9	3.1	3.8	3.7	3.8	3.4	3.3	3.2	3.7	3.25	3.8	3.4

\* Rate the relevancy of knowledge elements on a scale of 1=low relevancy to 4=high relevancy in the first column of each element.

\*\* Rate your self-efficacy (mastery) of knowledge elements on a scale of 1=low self-efficacy to 4=high self-efficacy in the second column.

evancy and mastery ratings; but group work and class assignments received the lowest ranking. In this study, all of the rankings of the instructional strategies appear to have a stronger effectiveness rating. I hope this comparison reveals that I have paid closer attention to how students learn.

**Table 10**  
*Effectiveness of Instructional Strategies in Presenting Knowledge Elements*

<u>Element</u>	<u>% this study</u> n=10	<u>% previous study</u> n=7
Class discussions	3.95	3.76
Lectures	3.79	3.71
Assignments	3.66	2.96
Group work	3.63	2.93
Readings	3.03	3.50

Table 11 presents the summative results of the ranking of the relevancy and self-efficacy of each topic in the course. It appears that overall there was high relevancy of the topics covered; the students' own personal knowledge of the content of the course was approaching high mastery. Again, the rankings appear to be stronger.

**Table 11**  
*Relevancy and Self-Efficacy of Knowledge Elements*

<u>Element</u>	<u>% this study</u> n=10	<u>% previous study</u> n=7
Relevancy	3.89	3.71
Self-Efficacy	3.75	3.32

Further analysis showed that there was a high correlation ( $r=.95$ ) between relevancy of the knowledge elements to class discussions and lectures; there was no correlation between self-efficacy and any of the knowledge elements. This kind of analysis of course content and teaching strategies provides excellent feedback for development and revision of course content and instructional strategies.

#### *Traditional Evaluation Instrument*

The last element included in this study is the result of the traditional evaluation instrument. This is a student-administered form, taking place during one of the last two weeks of the class. After the forms are completed, they are hand-delivered by the student to the appropriate administrative office; the teacher receives the results after the semester is completed and grades are

finalized. The results of this evaluation tool are consistent with the comments the students made throughout the study.

#### **Findings and Conclusions**

The results from the qualitative and quantitative instruments used in this study provide the following conclusions with the caveat that these are very personal findings; action research, however, is a very personal tool.

Most of the students acknowledged that elements of my teaching philosophy were on display in the classroom. The overwhelming reinforcement of my teaching philosophy is gratifying. Results from the traditional evaluation instrument administered at the end of the course also reinforced the effectiveness of the instructor. I chose to conduct the action research project in the pre-service class because the results from the summative evaluation instrument from a previous pre-service class were less than supportive.

I feel that the classroom environment encouraged comments and class discussions. This feeling was reinforced with quantitative data derived from the use of the CUES Protocol instrumentation. In addition, the materials included in lectures appear to aid mastery of the course content.

The majority of the knowledge elements (content) in the course appeared to be relevant to the course; however, more time and attention needs to be placed on the administration of the Business Education program and evaluation and grading techniques.

Students felt they achieved a high degree of mastery from the content of the course. High self-efficacy might be expected, since it is the capstone course for the students who are going into teaching; students are needing and wanting the content of the course.

The readings were not as effective for the students in the pre-service class as they were for students in a previous class. Further investigation is required to discover either more relevant content or to provide more time to absorb, internalize, and reflect on the content.

Overall, the elements of my teaching philosophy were relevant and student-centered. The elements and the modeling of the elements appeared to have an impact on students' learning and on pre-service teachers' philosophies, theories, beliefs, and practices about teaching. There appeared to be consistency between ranking of the teaching philosophy elements by the students in Week 6 and the results of the CUES Protocol. Professionalism received high rankings in both cases. The value of comparing the results of the CUES Protocol in the pre-service class with the results of the protocol with a previous class of students is revealed through stronger ratings for the relevance of the course content and instructional strategies and somewhat stronger self-efficacy for the students.



## Educational Importance of the Study

Teaching is a complex, demanding, and challenging activity. It is worthy of one's time and commitment. Through efforts to research one's own philosophy of teaching and practices, one gains a feeling of autonomy and responsibility as curriculum decision-makers, as classroom strategists, and as shapers of the future. It is an awesome calling—one that demands one's whole being.

I hoped to learn how much of my teaching philosophy is manifested in the classroom. I expected to find areas in which to improve and be more sensitive. My sense of awareness of the critical role of the teacher in the classroom was heightened by the results from this study.

The students were given ample opportunity to make a formative difference in my professional philosophy of teaching. This was an awesome responsibility for them—although one is not sure that students understand the difference they make.

A periodic evaluation of one's philosophy of teaching should be undertaken separate and apart from the summative, formal evaluation process that occurs in every institution. This kind of evaluation requires willingness to go "under the microscope" to find out what students really think, not what they think the teacher wants to hear. Most of us want to do the best we can for our students. Action research is one tool that can help us accomplish this goal.

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**PART II**  
**RESEARCH TRAINING PAPERS**

# Conducting Doctoral Research: Suggestions from the Advisement Trenches

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## Abstract

Doctoral research requires a very different set of intellectual and personal skills from those developed from graduate course work. Critical issues involving one's research topic, the selection and the group dynamics of one's committee, the development of the research design, and methodological specifics, and the actual research itself, which culminates first in the writing of the proposal and then in the final dissertation--and the final oral defense--are presented in this paper. Suggestions are provided to assist in moving through the doctoral maze.

## Overview

This training session could be called Supervising Doctoral Research; however, since most of the design and conduct of doctoral work lies in the hands of the doctoral student him/herself, this session covers some of the essentials of the candidate's research identification, the topic, committee selection, the research proposal and the dissertation final product--with comments and suggestions along the way--from both student and advisor perspectives. Thus the subtitle, suggestions from the advisement trenches, will attempt to provide guidance to the candidate as well as to provide some advice on how to avoid the common potholes and pitfalls while on the trip. Because the author has served as the chair of over 50 dissertations, another 50-60 as a committee member, and (egad) as an outside reader for at least another 100, these experiences might be helpful to candidates as they make their journey onward.

The key points in this presentation cover a) getting started; b) major decision points; c) practical considerations; d) hurdles and hoops; e) research design elements; f) writing the proposal and the dissertation; and g) handling the final oral defense. The personal "you" approach will be used throughout.

## Getting Started

While the research topic is usually identified as the starting point, the process really needs to begin a good deal earlier. The student--generally fresh from a successful candidacy or qualifying examination--wrestles with a topic, trying to pin it to the mat in the form of a problem statement. However, it is far more beneficial to begin the doctoral process--at the very outset--with an idea of what you want to be known for a decade hence. By being able to (or forced to) identify early on an area of research within your expertise and considering your resources, doctoral advisement can then focus on the final product rather than on merely completing courses. This activity makes advisement not only more profitable and effective but also more enjoyable. For

example, if you are required to take foundation courses and select from sociology, psychology, history, or philosophy, it just makes good sense to center on courses that will help you in the final research design or concept. Thus, if you want to survey ethical attitudes of accountants then a sociology course (for the group impact) and a philosophy course (for the ethical domain) would clearly make more sense than taking psychology or history courses, their content quality notwithstanding. If your academic advisor is likely to serve as a member of your committee, his/her advisement can then be highly focused. And while on the subject, I cannot be more emphatic than to strongly recommend the development of close ties with your advisor--even--or especially at this early stage. Working with an advisor in the doctoral process is not like what you've experienced at the Master's level where course work and, possibly, a thesis is the norm. The doctoral process requires close working relationships with a committee of from three to five individuals, and this working relationship can last longer than some marriages! Selection issues, thus, are critical.

Likewise, being aware of your research strengths early on is also an obvious advantage. Are you already strong in quantitative methods? In qualitative techniques? Do you have the resources of time/energy/funds/interest/commitment necessary to undertake your study? Do you have an acceptable level of sophistication in the discipline to be studied? This juncture is not the time to begin something brand new. Save the "I think I'd like to explore X because it just sounds so interesting" for your next dissertation! Additionally, does your personality suggest a research method to be recommended or avoided? Field research may be troublesome if you're somewhat opinionated; historical research should be encouraged if you're a thoughtful introvert; experimental research avoided if you have no subjects under your control or prospects of acquiring them. The list goes on; however, this is a time for serious personal reflection to consider an objective analysis of your skills, competencies, resources, and interests.

## Major Decision Points

Flowing from the foregoing, will you address qualitative or quantitative issues? What competencies must you exhibit before attempting your research? How will they be tested and if lacking, how acquired? Course work can help; however, as suggested previously, build on your strengths—those which are already well in hand—not just on something that may be “interesting” but with which you have little background or current competence.

On what area will you focus? Will it be in a traditional business education field (whatever “traditional” means) or related to business teachers or business teacher education? If a discipline is identified, such as accounting, marketing, management, or information systems, what current issues are important and need to be addressed? What does the literature in your specific field have to say about what is important or unimportant? Ethics in marketing? Performance of business faculty? The 150-hour accounting curriculum? The effectiveness of group support systems? The job satisfaction of women managers in selected industries? Again, the list goes on.

Being able to answer these two questions--type of research to be conducted and the arena within which you will study it--provides a critical jump start and reduces the wheel spinning students frequently experience at this point.

## Practical Considerations

Some of the most difficult bridges you'll have to cross include many aspects of doctoral work over which you'll have little or no control. These bridges include financial support for course work and those unanticipated expenses--such as computer lab time, postage costs, telephone charges, instrument acquisition, Xeroxing, e-mail links, library and outside searches, related (but not course-required) texts, and attendance at professional meetings--local and elsewhere. In addition to the financial issues, getting committee members to agree to serve (and then to actually do so actively and productively) when sabbaticals, leaves, retirements, moves, and even (unfortunately) deaths occur unexpectedly. Some of these issues can be predicted; however, Murphy's Law generally prevails and many problems will occur at the worst possible time. Finally, and perhaps most importantly, what degree of spousal--or significant other--support exists? I'd argue that more ABDs result from a lack of friends and/or family support than being able to carry out the research itself.

## Hurdles and Hoops

Hurdles and hoops consist of general procedures imposed by your own institution. They include, but are not limited to: the establishment, selection, and agreement/signatures of appropriate committee members; working with this committee; the development of the proposal and limitations thereof; the proposal review and approval stage; the editor(s) and the Human Subjects Committee; and finally the final oral defense itself. Of

course one is not through even at this point as there are always additional elements such as getting the final sign off on the dissertation following your final oral defense; sending the results to the study participants; writing the abstracts and having them approved; the school's binding and library requirements; and, of course, the notes of appreciation to all involved. Let's talk first about committee considerations.

## Your Committee

Critical, critical, critical! Need I say more? The members of your committee are usually (but not always) selected by you, the candidate. As such, try to avoid asking your faculty friends who may say “yes” because of their friendship with you--although this may work if the following consideration is positive. Since your chairperson may have the expertise in your discipline, method, or theory, you will need to select the other members with respect to their expertise and competence in the areas with which you need help (and here we'll talk about a traditional three-member committee). If, for example, your study focuses on accounting ethics, you will need someone in accounting, another in philosophy/ethics, and a third in the method you intend to employ. If, for another example, your study will focus on learning theory in a business communications experiment, you will need someone with a strong background in communications theory, another in experimental design (and who will probably have a strong statistics background), and a third in psychology or research design.

Your committee will probably need to meet collectively at least once at the outset to get to know one another and to establish a working system of who sees your initial drafts first and/or the sequence of chapter submissions as well as to identify individual strengths and weaknesses. Since most committee members serve as a “professional labor of love,” your skill in dealing with the dynamics of small groups will probably have a direct relationship with future happy outcomes. And, because you will probably sift initial drafts through your chairperson first and then to your other committee members, you will need to make sure that you can merge multiple and, sometimes contrary suggestions . . . and because you'll probably have multiple drafts of each chapter--all out to different committee members at the same time, plan to have a system of keeping track of where each draft of each chapter is, who has it and for how long, and which draft is the most recent draft. Remember, too, that some committee members--usually your second and/or third member--may want only to see the entire package rather than chapter by chapter. Plan to be flexible.

Finally, don't leave your committee ‘out in left field’ with gaps in communication contact. Keep each of them informed of your progress (or even the lack thereof) by a note, telephone call, or--best yet--a copy of your latest draft. Keep in mind that talk is cheap and excuses are only good the first time around!

Let's now move to the proposal stage.

The proposal is usually where ABDs become ABDs. This document--the proposal--is probably the first in your academic experience that will require such precise writing and editing that you'll wonder why you were never really exposed to it earlier. Every word in a proposal--especially in your terminology--will be critical since once the proposal has been approved it amounts, in essence, to a type of contract with your institution. My favorite description is that the proposal is similar to an architect's design and blueprint for constructing a house. Once you've approved the architect's design and blueprints, any competent builder should be able to construct your dream house. Thus, the proposal should be so clear and unambiguous that another researcher with your competence should be able to carry out the project to its logical conclusion following the details you've provided in your proposal. This is the hallmark of a good proposal.

At NYU's School of Education, dissertation proposals cannot exceed 40 pages of text exclusive of front matter, bibliography, appendices, and your CV. Your proposal includes the problem statement as Chapter One--including the introduction and background, theory/conceptual base(s), population, rationale and/or justification/significance, purpose, research questions, limitations and delimitations, and definitions. Chapter Two sets forth the theoretical rationale and the related literature, ending with hypotheses, if any. Chapter Three outlines the method to be employed--the population, sample, method of selection, instrumentation, pilot testing; and data gathering, treatment, and analysis. All of this in 40 pages! Of course, each institution has its own requirements, format, rules, and regulations; however, the proposal is a significant piece of your project as it usually provides the draft of your dissertation's first three chapters. The two final chapters, usually entitled Findings and Discussion; and then Summary, Conclusions, and Recommendations generally round out the package along with your bibliography and appendices.

The proposal, once approved by your committee, is usually reviewed by an outside committee. In our department at NYU, we select two faculty members who are not on the committee to serve as a review panel to consider the proposal from all standpoints. This 2-hour meeting, called the Dissertation Proposal Review (DPR), is open to all students and faculty and is conducted much as a final oral might be with the candidate and his/her chairperson present, along with the other members of the committee invited--but their presence is not necessarily required. The results of this review--in open discussion with everyone involved--is advisory in nature; however, all paperwork goes along with the proposal to the final oral defense so these recommendations are not to be taken lightly. Often two extra sets of eyes can provide additional perspective and serve to strengthen the proposal as well as point out areas of weakness to be considered as the research progresses. Doctoral graduates usually state that this phase of the research process is the most demanding--yet often the most rewarding. After this experience, they say, the final oral defense is a breeze!

Mentioned previously, under this heading comes the discussion of the major elements in the research design of the proposal. These elements include the theoretical foundation or conceptual framework to be used as the cornerstone of the study; the research setting, background, and problem statement--including significance; the research design itself; the research questions; limitations and/or delimitations; definitions; related literature; hypotheses; and method. The method, of course, can consist of a week-long (or more) discussion all by itself; however, since this is not intended to be a 'research course,' I'll forego the urge to go into details here. Needless to say, though, it's prudent for you to amass a solid personal library of professional research texts to which you can refer for guidance or support. In addition, don't forget about your Human Subjects Committee. This committee is generally an institutional group responsible for overseeing all research projects (students, faculty, administration) to ensure that no "harm" will come to these subjects. While most such studies in business education are classified as "exempt" due to the optional nature of survey responses, there are a number of stringent rules to protect human subjects involved in all research projects. Be prepared to discuss this with your doctoral committee chairperson and/or your full committee.

### Writing the Proposal and the Dissertation

When writing your proposal--or any other professional document for that matter--it's absolutely essential that you apply the highest standards of writing possible. Some candidates may find the use of professional editors helpful--indeed, many are excellent; however, these documents are your documents and, thus, they should be yours in all sense of the term. Get into the habit of writing, writing, writing, writing and then examine with a critical eye what you've written. Try reading your work aloud. Does it sound logical and coherent? Does it flow with a consistency and make links between thoughts and concepts? Are your words backed up with citations and support so that your cause and effect relationships are beyond question? In short, this is the time for you to be your harshest critic! Also, it's already probably beyond the time when you should have learned how to keyboard and use a computer; however, if you are computer literate, you've already moved onto the fast track, technologically speaking.

A style manual? May I suggest the *Publication Manual of the American Psychological Association*, 4th Edition (1994). While it's not perfect by any means, it does provide a consistency of style that you'll need not only for your dissertation but for future papers and publications as well. Other style manuals are OK, too; however, it's highly recommended that you select a good reference guide early and stick with it. As you use and get more comfortable with a certain style, the mechanics will become transparent so that you can concentrate on your text and not on the technical side of the coin. Likewise, an early familiarity with a good word processing package cannot be overestimated. Combined with a good bibliographic software program--ProCite, as

one example--your materials will make you look better than you ever could have imagined. Be careful, too, so as not to go beyond "reasonableness" in your production graphics. Desktop publication is fine for newsletters and flyers; however, except in rare instances, it's not really appropriate for your research proposal or the final dissertation.

### Handling the Final Oral Defense

Well, here you are! Your dissertation has been approved by your committee and you've submitted it to your Graduate Office and you're awaiting the (dreaded) Final Oral Defense. Not to worry as no one in the orals room will know as much about your study as you do. This is the good news and the bad news. Some final orals are open to the academic public while others are not; both have much to recommend either situation. You and your committee will be usually joined by two or more outside readers from your School or Department, who have actually asked to be a part of your final oral defense. During the Commission event, which generally lasts about two hours, you can be asked about any phase of your research or your dissertation--including the research design, your analysis, your findings, your interpretations--anything! The commission can also ask about your professional qualifications and what you plan to do with the results once the final oral experience is over. The best final orals are those you conduct with an eye to informing others of your research and your findings. So be prepared; however, don't be afraid. After all, as I've stated above, no one knows more about your study than you do.

### Final Comments

OK, now that your diploma is in hand and you are breathing a sigh of relief, what will you do next? As I tell my doctoral students, "Now comes the hard part--giving back to the profession what you've learned from the academic experience." Therefore, don't forget to disseminate the results of your research in the appropriate forums--publications (you should have from three to six articles coming out of your research: one in your discipline, one in business education, and one from your related literature); presentations (DPE, NBEA, NABTE, OSRA, ASTD, etc.); and school/department/program (newsletters, workshops, guest speaking to graduate classes, alumni days, etc.). The list is endless; however, now is the time to think about your move from being a "professional student" to your new role as a "professional academic." Remember, too, that your former mentors will (usually) continue to support you; however, the mentor role will now shift to you as a mentor to others. This is an awesome responsibility, and one I'm sure you'll take seriously as your mentors have done for you. And with this final comment, the torch has now been passed--Good Luck!

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# The Role of Data Analysis and Interpretation in the Research Process

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## Abstract

This manuscript focuses on important skills needed by educational researchers to analyze and interpret data. The rationale underlying the use of statistics to describe a sample and to generalize about the population is presented. The importance of preanalysis procedures, appropriate uses of descriptive and inferential statistics, and functions of postanalysis procedures for analyzing and interpreting research data are examined.

“Statistics is a set of procedures for describing, synthesizing, analyzing, and interpreting, quantitative data . . . application of the appropriate statistic helps you to decide if the difference between groups is big enough to represent a true difference, not a chance difference” (Gay, 1992, p. 371). The analysis of the raw data collected during a study is an important component of the research process. The choice of an appropriate statistical technique is determined to a large extent by the design of the study, the kind of data collected, and the research hypothesis being tested. Part of the task of designing a study involves deciding beforehand what statistical procedures will be used. Bear in mind, however, that the complexity of the data analysis is not an indication of its value to the study.

Borg and Gall (1989) pointed out that the fundamental purpose of most educational research is to test whether a knowledge claim is true in a particular situation that is being studied and then to test whether the knowledge claim is likely to be true in other situations. Specifically, the data collected is analyzed to provide a descriptive summary of the phenomena studied and then to determine if the results of the sample studied can be generalized to the population represented by the sample.

Gay (1992) noted that the choice of statistical procedures to be used is determined not only by the research design and hypothesis, but also by the type of measurement scale represented by the data. Consideration of the actual variables and the way in which they are measured results in data with four different measurement scales: nominal scales--sometimes called the classificatory scale, classifies subjects into two or more mutually exclusive categories based upon unique characteristics; ordinal scales--classifies subjects and also orders or ranks them in terms of the degree to which they possess a characteristic but with no specified intervals; interval scales--identifies arbitrarily ordered relations of a characteristic with known equal intervals and an arbitrarily assigned zero point; and ratio scales--identifies arbitrarily ordered relations of a characteristic with known equal intervals and an absolute zero point.

Conducting research produces raw data that may result from the completion of measurement instruments, the collection of available data, or the recording of actual observations. Most research data can be subjected to more than one type of statistical analysis. A different analysis may shed a different light on the research data. However, careful analysis of the data that results in maximum use of the data collected should be the researcher's goal. The actual procedures used to collect and analyze the data should be described in detail in the research report.

Borg and Gall (1989) classified statistical techniques into three major types: descriptive statistics, inferential statistics, and test statistics.

## Descriptive Statistics

Descriptive statistics are sometimes called summary or distribution statistics. They are used to describe meaningfully with a small number of indices the data that has been collected in a study. Gay (1992) identified the major types of descriptive statistics as measures of central tendency, measures of variability, measures of relative position, and measures of relationships. The commonly used measures of central tendency are mean, median, and mode. These three indices depict how scores tend to cluster in a particular distribution. The mean is considered the most sensitive index of central tendency because it takes into account or is based on every score. However, the median may be the most appropriate measure of central tendency when interval or ratio data are involved. Keep in mind that the ultimate goal of descriptive statistics is to describe the data in the most accurate way.

Measures of variability depict the dispersion of scores across a measurement scale in relation to the central index. The standard deviation is the variability measurement most often reported in research studies. It tends to be the most stable measure of variability and takes into account each and every score. A small standard deviation indicates that the scores are close together

while a large standard deviation indicates that the scores are more spread out. In addition, the range, quartile deviation, and variance are sometimes reported to indicate how items differ in terms of the measurement scale.

Measures of relative position indicate where a score is in relation to all the other scores in a distribution. They may be used to express how well an individual has performed when compared to all the other individuals who were measured on the same variable. Also, they enable comparisons to be made of two or more different measurement instruments because they use a common scale or frame of reference. Gay (1992) pointed out that the two measures of relative position most often used are percentile ranks and standard scores. Standard scores are derived scores that express how far a raw score is from a reference point, typically the mean. The most commonly reported standard scores are z scores, T Scores (or Z scores), and stanines. Standard scores are appropriate when the test data represent an interval or ratio scale of measurement.

Measures of relationships or correlations involve determining whether and to what degree a relationship exists between two or more quantifiable variables--not a causal relationship, just a relationship. While descriptive statistics may describe scores on a single variable, often there is a need to describe the relationship or correlation between two or more variables. The specific method used to compute a correlation coefficient depends upon the measurement scale represented by the data. The Spearman Rho rank difference correlation coefficient and the Pearson r product moment correlation coefficient are frequently used in educational research to measure relationships. The Spearman Rho is typically used if the variables are expressed as ranks instead of scores, the data represent either ordinal or interval scales, and the median and interquartile deviation are used. Ordinal data is also referred to as nonparametric data.

The Pearson r product moment is the most appropriate measure of correlation when the data sets represent interval or ratio scales (Gay, 1992). Gay stated that the Pearson r takes into account each and every score in the distributions and is the most stable measure of correlation. When the Pearson r is used, it is assumed that the relationship between the variables is linear.

Other bivariate correlation coefficient statistics that enable researchers to describe in mathematical terms the strength of the relationship between two variables include Kendall's tau, biserial correlation, widespread biserial correlation, point-biserial correlation, tetrachoric correlation, phi coefficient, contingency coefficient, and correlation ratio (Borg & Gall, 1989). The selection of an appropriate bivariate correlation coefficient depends upon the types of data (continuous, ranked, dichotomous, or categorical) that are related to each other.

Today's researchers are increasingly turning their attention to the use of multivariate correlation methods which allow the study of relationships between three or more variables. This is especially useful in education since many variables are affected by

multiple factors. For example, school effectiveness may be affected by a number of factors including prior school experiences, personal characteristics, social elements, and home environment components. Several sophisticated but quite useful multivariate correlation methods available for educational researchers are multiple linear regression, discriminant function, canonical correlation, partial correlation, part correlation, and factor analysis (Borg & Gall, 1989).

### Inferential Statistics

Studies in education typically measure some portion (sample) that is assumed to be representative of a population (parameter). Descriptive statistics provide a basis for determining indices that describe the sample. With these indices, we are able to apply statistical procedures to estimate how they apply to the entire population. Statistical inference is defined as the process of estimating the parameters or characteristics of a population from statistics that represent the characteristics of a sample (Williams, 1992).

Identifying the population, determining the sample size, and selecting the sampling method need to be carefully considered if the researcher wants to be able to generalize from a sample to the population. Methods of selecting a sample include simple random sampling, stratified sampling, cluster sampling, systematic sampling, convenience sampling, purposive sampling, quota sampling, and time sampling (Gay, 1992). Gay pointed out that the degree to which the selected sample represents the population is the degree to which the results are generalizable. He further stated that samples should be as large as possible, but minimum acceptable sample sizes depend on the type of research being conducted. Gay offered the following general guidelines for determining minimum sample sizes of different types of studies: descriptive--10% of the population, correlational--30 subjects, causal-comparison--30 subjects per group, and experimental--15 subjects per group. However, keep in mind that the larger the sample, the more representative of the population it is likely to be and the more generalizable the results are likely to be. Sampling bias, often caused by using convenience samples of volunteers and available groups, weakens a study and should be fully described in the final research report.

Borg and Gall (1989) identified both parametric and nonparametric tests of statistical significance to determine whether a null hypothesis can be rejected. The parametric tests of statistical significance described were t-test, critical ratio (z) tests, analysis of variance, analysis of covariance, trend analysis, Duncan's multiple-range test, and Scheffe's test. The nonparametric tests noted were the chi-square test, Kruskal-Wallis test, Mann-Whitney U-test, and Wilcoxon signed-rank test.

### Test Statistics

Various types of statistics are used to determine and describe the psychometric properties of tests and other related forms of educational measures. The psychometric properties of tests can be



classified into three types: test validity, test reliability, and item characteristics (Borg & Gall, 1989).

Test validity is often investigated through calculating the correlation between test scores and scores on a criterion-referenced measure. The reliability of a test can be estimated through the use of the following techniques: split-half, test-retest, Kuder-Richardson formula, and Cronbach's coefficient alpha. The selection of an appropriate validity or reliability coefficient depends upon the form of the scores for the variables being correlated (e.g., continuous, dichotomous). Several statistical techniques that are typically used to analyze characteristics of the individual items in a test are item validity, item reliability, discrimination index, and difficulty index.

### **Data Analysis Problems**

Borg and Gall (1989) enumerated three potential problem areas that researchers should be cognizant of as data is being collected and analyzed: exploratory data analysis, missing data, and unit of statistical analysis. They pointed out that with today's use of technology in analyzing the data, a common problem is that the data are "untouched by human hands." Increasingly data are entered into a computer and the computer software generates the descriptive and inferential statistics specified by the researcher.

An examination of the patterns and variability in individual scores or items of data by the researcher can reveal important insights about the nature of the data. Exploratory data analysis may consist simply of examining a printout of the individual scores in some predetermined order to determine the distribution of the scores, to provoke questions about the data, and to facilitate the identification of "outliers." Borg and Gall (1989) described an outlier as a research subject whose scores differ markedly from the general pattern of scores of other subjects in the sample.

Consideration needs to be given to the importance of having complete and accurate data when data analysis is performed. Numerous reasons can account for missing data including someone's carelessness, an oversight when keying in the data, misplaced instruments, or the subject's refusal to participate fully in the study. Because missing data complicates and may weaken the statistical analysis, caution should be exercised to ensure that the data are not lost through avoidable human error. If data are missing, consultation with an experienced statistician may be helpful in salvaging the remaining data and not having to abandon or repeat the study.

The unit of statistical analysis selected needs to be carefully considered in educational research. Researchers may study individuals as they learn in isolation, as they learn independently but within a group setting, or as they learn in a group. Thus, a decision needs to be made whether to consider the individual learners or the group of learners as the unit of statistical analysis. For example if each student is the sampling unit, then stu-

dents from various classes or even from different time periods can be added to the sample to be described, correlated, or experimentally manipulated.

While the computer has greatly facilitated the data analysis process, it is important to avoid the tendency to run multiple statistical tests searching for some significance. The researcher should determine what analyses are needed and appropriate, given the research questions to be answered, types of data to be examined, and hypotheses to be tested, and then identify statistical packages that are available to perform the needed analyses.

### **Mistakes Sometimes Made by Researchers**

Borg and Gall (1989) identified the following mistakes sometimes made by the educational researcher when exploring phenomena and studying relationships between variables:

- \* Does not make sure that each step in a research design is logically related to the others.
- \* Does not consider the different ways in which the variables to be studied might be causally related to each other.
- \* Selects a statistical tool that is not appropriate for the proposed analysis.
- \* Collects research data before deciding on a statistical tool for analyzing the data.
- \* Uses only one statistical tool when several can be applied to illuminate different aspects of the data.
- \* Uses parametric statistics when the data grossly fail to meet the necessary assumptions.
- \* Misinterprets the meaning of an obtained probability (p) value.
- \* Overstates the importance of small differences that are statistically significant.
- \* Initiates statistical analyses before carefully examining the individual scores collected in the study.
- \* Does not adjust statistical analyses to account for missing data.
- \* Uses the individual as the unit of analysis when it is more appropriate to use the group mean as the unit.

### **Qualitative Research**

Researchers are constantly developing new procedures for investigating educational questions and testing hypotheses about the effectiveness and efficiency of educational strategies. This manuscript has focused on the quantitative method of data analy-

sis and interpretation. However, another equally important, formalized, and legitimated educational research procedure emphasizes qualitative measurement and analysis. The qualitative method of research relies on participant observations, nonparticipant observations, and ethnographic interviews as the primary means of gathering and analyzing data.

Qualitative research methods rely heavily upon the investigator's skills of observation and interpretation to provide valid information. The specialized training and experience of the researchers are critical when conducting qualitative research. Borg and Gall (1989) cautioned novice qualitative researchers to seek training in qualitative research methods, use triangulation rather than rely entirely on participant observation, remain neutral and not allow preconceived ideas and expectations to influence observations, and devote ample time to observations. Many excellent books and articles are now available to educational researchers that focus specifically on qualitative research methods and the analysis and interpretation of the data collected.

### Summary

The selection of appropriate statistical techniques to analyze the data collected is an important step in the educational research process. The need to understand conceptually the rationale underlying the use of statistics and the role both analysis and interpretation plays in research is critical for the beginning researcher. Specifically, the importance of preanalysis procedures, the appropriate uses of descriptive and inferential statistics, and the functions of postanalysis procedures relative to data analysis and interpretation were presented

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# Utilizing the Internet for Research

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## Abstract

With the increase of demand for research in educational institutions, educators have looked for more efficient ways of preparing and performing research. Internet offers a viable solution to both of these concerns. This article addresses the purpose of the internet to the researcher and the avenues available to them. It provides insights on how to utilize the different parts of the Internet. Also discusses the importance of performing searches that will provide the most relevant material from the internet resources is discussed.

## Introduction

Most people view the Internet in terms of entertainment value. It is a great place to surf, shop, socialize, and advertise. In actuality, the Internet is a vital research tool. The Internet was founded with the idea that scholars and researchers could communicate and access information quickly and efficiently. One article described the Internet as "a collective brain for the nation's scientists, and perhaps the world's most important bulletin board" (Coursey, 1991, 48). Primarily funded by the federal government, it was designed to link educational institutions, government agencies, and other research organizations to facilitate government research. These groups opened their computer systems to allow access to their databases. As the Internet has expanded to other users, so has the uses of the Internet expanded in research. Researchers use the Internet to "look up" data, communicate with colleagues, and perform research.

The Internet can be an invaluable tool for the researcher. One of the constraints experienced by researchers is the issue of time. With the Internet, the researcher can do much of the literature search from an office if the computer in the office is "hooked up" for online access. This can eliminate long periods of time in the library looking for information and sources. Office hours can be held and other tasks be fulfilled while performing searches. Although most databases available are not in full text, many provide good abstracts to enable decisions to be made about the resources. The time spent in the library can be planned much more efficiently when the researcher already knows what sources he/she is going to access in the library. Several databases provide full text documents that allow the researcher to download the article or print the article from the screen.

Another issue related to time is the idea of prompt feedback. With the utilization of Internet, communication between re-

searchers has become much less time consuming. E-mailing a colleague to ask about previous research can be done quickly and the response in many cases is returned just as promptly. Communication on the Internet can allow for further collaboration between researchers. The sending of messages and files across the "information superhighway" makes collaboration much less laborious (Cole, 1993).

Many researchers are beginning to use the Internet as a way of conducting research. In designing research projects, researchers are assessing the ability to use the Internet as a part of the study. The idea of accessing large groups of people in a relatively short period of time with the use of E-mail makes the use of the Internet appealing. There are concerns about the privacy issues in regard to the research itself and the use of the Internet. Abiding to the Belmont Principles may be difficult to do with Internet access (Jones, 1994).

The currency of information on the Internet is one of the distinct advantages to using the medium. Most online journals have rapid publishing allowing the researcher to access current information that may not be in print form. With many of the traditional journals falling behind in publishing of articles, the online journals offer a refreshing alternative for current relevant information (Lancaster, 1995).

## The World Wide Web

The World Wide Web is a collection of electronic documents called Web pages or Web documents that are linked together. The beauty of the World Wide Web is that information can be viewed textually and graphically. Another feature of the "Web" is that one Web page on a specific topic may link the researcher to other resources related to the topic. The Web can give the researcher much more coverage of a selected topic (Clark, 1995).

### ***Educational Resources***

Many resources are available on the World Wide Web that are compiled of information pertinent to educators. One of the most popular Web pages is the AskERIC and ERIC Database site (<http://ericir.syr.edu>). From this page, the user may search ERIC (Educational Resource Locator) which contains 85,000+ abstracts of documents and journal articles relevant to educational research and practice. The user will receive a resume that includes a citation of the document and an abstract. The AskERIC service provides lesson plans, a question and answer service allowing the user to enter a topic for searching which is conducted by the information specialists of AskERIC, a listing of current AskERIC Research and Development projects, and a virtual library containing selected resources for educators and general interests including lesson plans, full-text ERIC Digests, AskERIC Infoguides, and Goals 2000 information.

### ***Professional Organizations***

National Business Education Association is one of many professional organizations that have their own Web site, (<http://www.thomson.com/partners/nbea/default.html>). Information about organizations and links to affiliated organizations are provided on the Web page. Other professional sites of interests are the National Center for Research for Vocational Education (NCRVE) <http://NCRVE.berkeley.edu/> and the American Vocational Association (AVA), <http://www.mgi-net.com/mglists/ava.htm>. These sites provide information about the organizations as well as interesting links to topics of interest within the organizations.

### ***Grant Information***

World Wide Web sites also provide a good source of information concerning grants. These sites include public and private grants. Some sites that provide grant information are: Department of Education, <http://www.ed.gov>, Office of Grants and Contracts Accounting, <http://www.cc.emory.edu/OSP/ogca.html>, and AAUW Research (2000), <http://aauw.org/2000/research.html>. Included in many of these sites are questions about applying for grants and hints on writing grants.

### **Gopher**

Gopher servers have been established to organize Internet resources. Gopher is easy to use as there are no commands to remember--the information is available by selecting options presented on the screen. Gopher files are mainly text files. They may be read, printed, or downloaded by the user.

### ***Searching Gopher***

Two tools are available to search for information in Gopherspace. The first tool, Jughead, searches for information within the gopher site that the user is presently logged into. The second tool, Veronica, searches for information across all Gopherspace. The

rules for using Veronica are similar to those when searching the World Wide Web which is discussed later in the article. A document containing these rules may be printed or downloaded from most Gopher sites.

### **Telnet Sessions**

Telnet is a tool that allows the user to remotely login to another system. The user's terminal emulates the other system and allows access to public information. Telnet sites range from university and college libraries to sites that provide information about weather conditions and the stock market.

University and college libraries across the country are accessible to the researcher via Telnet sessions. The OVID and INFOTRAC systems are available through the University of Missouri-Columbia as they are through many campus networks as well. The University of Missouri system is available through Telnet [sequoia.iso.missouri.edu](http://sequoia.iso.missouri.edu), and the login is "services." The Penn State Library is available at Telnet [lias.psu.edu](http://lias.psu.edu). Rutgers on-line catalog is available through Telnet [library.rutgers.edu](http://library.rutgers.edu).

### **E-mail and Mailing List Information**

Information pertinent to specific topics may be obtained from mailing lists. A researcher may become familiar with the mailing lists in their particular subject area by asking others in the area or reading trade magazines and journals. Listserv is one of the most popular mailing list programs available. The user may E-mail Listserv and search for mailing lists that are available on a specific topic or subject area. To E-mail Listserv, the user sends an E-mail message to [LISTSERV@LISTSERV.NET](mailto:LISTSERV@LISTSERV.NET). No subject line is required, and the body of the message should include this message: list global/topic. The user will receive a message back from Listserv describing the mailing lists found on this topic. If no lists are found, the user may wish to broaden the topic and send another message.

### **Searching for Information on The World Wide Web**

Many tools are available for the researcher to locate information on the World Wide Web. These tools are known as search engines. Search engines are Web pages that allow the user to enter a word or phrase for which relevant information may be located. The results are returned to the user which describe the item found and a link to connect to the item. Many search engines also provide a relevancy rating--how relevant is the item to the topic. However, the user must remember that this relevancy rating may be determined by the number of times the search term appears in the document and may not indicate true the relevance to the particular subject being researched.

Tennant (1996) described search engines as falling into two categories. The first category, subject directories, directs the user to find information in particular categories and sub-categories. Some examples of this category are Yahoo and Galaxy. The second category, Web databases, utilizes software that explores the

Internet and downloads the information into a database to be rated. Examples of the second category are Alta Vista and Infoseek Guide.

Wehmeyer (1996) also prepared a review of search engines. She divided the search engines into three categories: a) search engine lists; b) metasearch tools; and c) the comprehensive search tool. The first category, search engine lists are Web pages that have prepared a list of search engines for the user to select. These lists enable the user to access different search engines from one source and decreases the time spent on entering addresses for each individual search engine. The All-In-One Search Page and Internet Sleuth are examples of search engine lists.

A metasearch tool is described as a source that does not maintain its own database but actually submits a request to other Web search engines. The results are compiled together. Examples of metasearch tools include SavvySearch and Unified Search Engine for InTernet (USE IT!).

The third search engine category, comprehensive search tool, described by Wehmeyer searches beyond the Internet sources and may actually produce results from other databases including ERIC, Business Periodicals Index, and Education Index. The search engine also provides information on obtaining the resources.

**A few of the most popular search engines are:**

Infoseek	<a href="http://guide.infoseek.com">http://guide.infoseek.com</a>	searches for information found in 12 predetermined categories.
Excite	<a href="http://www.excite.com">http://www.excite.com</a>	includes a search tool, site reviews, today's news updated every 30 minutes, reference including Yellow Pages and information on top cities and countries in the world.
Alta Vista	<a href="http://altavista.digital.com">http://altavista.digital.com</a>	claims to be the largest Web index including 275,600 Web servers, 14,000 Usenet groups, and accessed 17 million times per day.
Nlightn	<a href="http://www.nlightn.com">http://www.nlightn.com</a>	searches not only Web sites but also other proprietary databases and provides information on finding these resources.

**Preparing for the Search**

Before embarking on a World Wide Web search, the researcher should carefully form a search plan. Librarians and information specialists have refined this process and it may be adapted to searching the Internet.

**Strategy**

The following are steps for preparing a search for the Internet. These steps were adapted for the Internet from steps for performing an on-line search that were presented as part of a class on automated referencing conducted by Mary Ellen Seivert (1995).

1. Analyze the query (what you want to know) into its component parts. What are the key terms of the query.
2. Choose a search engine to perform the search.
3. Read available information about the search engine (go to the Web page containing the search engine and read about the search engine and the way it works).
4. Develop a strategy from the components-list synonyms of the components.
5. Decide which strategy to use.
6. Think about ways to adjust the strategy.
7. Check the features of the search engine and design your strategy to fit the particular search engine.
8. Enter the initial strategy into the form on the search engine Web page.
9. Look at the items received after the initial strategy is entered.
10. Adjust or revise the strategy according to the relevant information retrieved.
11. Continue to revise and view to get the best set of results.

**Precision and Recall**

When designing a search strategy, the researcher must decide whether to focus on precision or recall. Precision refers to retrieving only the most relevant information. However, some good materials may not be found. Recall refers to retrieving all

relevant information. This strategy may retrieve a lot of useless information as well as the very relevant information. The researcher most often has to accept a trade-off between the two.

### **Boolean Operators**

When preparing the search strategy, the researcher must combine concepts with Boolean operators. These include "and", "or", and "not". Search engines handle these operators differently. Therefore, check the Web page of the search engine before entering the strategy to determine the symbols or syntax for using Boolean operators.

### **Truncation**

Searching using pieces of a word may improve the results of the search. This process is also called stemming. By truncating a word, the researcher will find all forms of the word. A wildcard character is used in truncating. For the Alta Vista search engine, the character is an asterisk (\*). To truncate education using Alta Vista, enter educat\*. Documents found would include the words educate, educator, education, educating, etc. This search tactic could be useful if the researcher was not sure how the precise term would appear in the documents.

### **Summary**

With the emphasis placed on research and the shrinking of resources at many educational institutions, Internet proficiency is necessary for the modern researcher (Williams 1995). The Internet opens avenues of information as well as avenues for collaboration. The ease and speed which Internet resources can be used makes the Internet a vital tool for any researcher.

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# The Web: A Medium for Collecting and Analyzing Research Data

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## Abstract

Electronic services of the Internet are emerging tools for gathering information in descriptive research. These tools include the World Wide Web (WWW) and electronic mail. Benefits of using the Internet as a medium for research include novelty of the electronic survey, potential for high response rate, and lower costs in distributing surveys. Limitations include difficulty of locating users among the population and sample, connectivity problems, and integrity of responses. Researchers using electronic surveys should adhere to sound web page design elements and WWW authoring procedures.

## Introduction

Descriptive research in education is a useful tool for individuals seeking to solve problems, answer questions, or characterize conditions. The electronic tools emerging via the Internet facilitate gathering and analyzing information collected in these settings. These tools include the World Wide Web, electronic mail, and their search devices. This computer training session introduces both novice and experienced investigators to the use of electronic media in the data collection phase of research projects.

## Related Literature

Currently, the Internet offers a wealth of resources useful to the educational researcher. One of the most widely used resources is the ability to search remote catalogs and databases from a local computer via telnet. This service allows the individual to search the more extensive library collections, such as Harvard, Oxford, and the University of California, without having to actually travel there (Silva & Cartwright, 1993). Other services such as gopher and FTP allow investigators to access files and directories on varied topics. Bulletin boards, newsgroups, and their archives provide the means to review past topics and participate in current discussions related to possible pursuits of study. Listservs, using electronic mail as a medium of communication, allow electronic discussion and interaction among subscribers of similar interests. The most recent addition to electronic services, the World Wide Web, brings connectivity to all Internet resources through an easy-to-use graphical or textual interface.

Extensive articles and publications describe the services available through the Internet, but few actually include the implementation of Internet-based tools in the research process. The Internet must be perceived as both a resource that supports re-

search and as a virtual laboratory for research (Silva & Cartwright, 1993). Koch, in her study of the impact of networks upon scientific research, concluded that "electronic networks are improving scientists' productivity by making their communication more efficient" (1991, p. 79).

## Benefits and Limitations to Electronic Data Collection

Benefits to the use of the Internet in the conduct of research are many. According to Bane and Milheim (1995), at least 4.5 million people are connected to the Internet planet wide, and over one million people connect to the Internet each day. These researchers list four solid reasons for the use of the Internet as a medium for research (p. 32):

1. the novelty of the methodology tends to "draw in" participants, as few formal studies have been conducted over the Internet;
2. the potential for a higher response rate when compared to that from the traditional survey methodology may be due to a large universe of potential respondents;
3. the cost to distribute the survey is the same for many participants as it is for just a few; and
4. the expenses associated with the distribution of a survey are greatly reduced, as there is no longer a need for postage and duplication.

Other advantages to electronic data collection are evident in the practice. Data gathered through a web page or other similar means are convenient to analyze. Files of data can be converted to statistical analysis programs for processing. In addition, the use of the Internet as a means for collecting data may increase

the number of appropriate recipients, as a population may be identified and targeted via electronic and telecommunications means. Finally, participant enthusiasm for telecommunications and related tools may generate responses to an instrument on the Internet, as this area of technology is still new and unique to some users.

network etiquette, and moderated listservs may not forward surveys on to members. Bucknall and Mangrum (1992) discuss issues of validity and integrity in electronic survey methodology. Challenges include incomplete surveys, inappropriate responses, duplicate responses, and impatient completers.

### Design of WWW Survey Pages

Limitations to the use of the Internet in data collection include the difficulty of locating groups of users, as there is no comprehensive list of individuals and organizations with Internet access. The intended population and sample of the study may not be accessible by electronic means, because traffic and connectivity is unpredictable. In addition, not every individual one seeks to survey may be reached via the Internet. Some countries have not installed technology to the extent necessary for telecommunication and networking. Sending unsolicited survey requests to random listservs or e-mail recipients is viewed as a breach of

Designing WWW pages includes implementing sound design elements and knowledge of HTML. Over 50 HTML editors are on the market (Ulanoff, 1996). FrontPage by Microsoft was judged as "Editor's Choice" from the 16 reviewed by *PC Magazine*. Add-ons to word processing packages are free to download from the Internet as well as other freeware and proprietary editors. These editors utilize graphical interface, allowing users to "point and click" when coding in HTML. Templates, graphics, and clip art often are a part of editors.

**Figure 1**  
*HTML Editors*

Editor	Company	URL	Price
CorelWeb.Designer	Corel Corp	<a href="http://www.corel.com">http://www.corel.com</a>	\$149
FrontPage*	Microsoft	<a href="http://www.microsoft.com/msoffice/frontpage">http://www.microsoft.com/msoffice/frontpage</a>	\$149**
GNNpress	GNN Hosting Service (American Online)	<a href="http://www.tools.gnn.com/press">http://www.tools.gnn.com/press</a>	free
HTMLed Proc 32	Internet Services Ltd.	<a href="http://www.eucanect.com/software">http://www.eucanect.com/software</a>	\$99.95
HotDog 32	Anaware Software	<a href="http://www.sausage.com">http://www.sausage.com</a>	\$99.95
Internet Assistant	Microsoft	<a href="http://www.microsoft.com/msword/internet/ia">http://www.microsoft.com/msword/internet/ia</a>	free
Internet Publisher	Corel/WordPerfect	<a href="ftp://ftp.corel.com/pub/WordPerfect/WordPerfect/WpInternetPublisher">ftp://ftp.corel.com/pub/WordPerfect/WordPerfect/WpInternetPublisher</a>	free

\*Editor's Choice, *PC Magazine*, September 10, 1996, p. 149

\*\*\$109 for MS Office users

Designing web pages includes design elements similar to those followed in desktop publishing but includes navigational considerations of web browsers and users. Published books and accom-

panying CD-ROMs and disks are also available to assist novice and advanced web page authors.

**Figure 2**  
*Web Authoring Books*

Graham, I. S. (1995). *A complete guide to HTML*. New York: John Wiley & Sons, Inc.

Horton, W., Taylor, L., Ignacio A., and Hoft, N. L. (1996). *The web page design cookbook: All the ingredients you need to create 5-star web pages*. New York: John Wiley & Sons, Inc. (Comes with CD-ROM)

Shafraan, A. (1995). *Creating your own netscape web pages*. Indianapolis: Que Corporation. (Comes with CD-ROM)

Smith, B. And Bebak, A. (1996). *Creating web pages for dummies*. Foster City, CA: IDG Books. (Comes with CD-ROM)



When developing web pages, authors should consider (a) value of the content, (b) usability, (c) navigational intuitiveness, (d) visual appeal, and (e) uniqueness (MOREnet, 1996).

The content is valuable when well organized and timely. Although web page authoring and maintenance is time consuming, keeping a web page up to date is critical to the integrity of the site. The web page is usable when the author considers the technological limits of possible users, keeping size and types of graphics and the size of individual pages "user friendly."

Making the web page easier to find and navigate includes placing on the web page the universal resource locator (URL) and the name and information of whom to contact regarding the page. For frequent users, announce "new" items. Title every page and provide useful "hot links".

To enhance a web page visually, use consistent design schemes of colors, graphics, backgrounds, and horizontal rules. A colorful, graphic-rich background is beautiful alone, but can clutter the home page making it nearly unreadable. Loading such a web page may take more time when accessing on slower networks.

Finally, uniqueness is the element that authors consider most. The content, use of frames, Java scripts, graphics, counters, and an E-mail link to the author make sites highly usable, enjoyable, and entertaining.

Online assistance is available with numerous web sites dedicated to HTML and web page development. Sites offer graphics, background colors, clip art, and templates. The validation of web pages identifies coding errors and verifies correct coding and is also available online.

**Figure 3**  
*Creating Sound Web Pages*

Background colors	<a href="http://www.infi.net/wwwimages/colorindex.html">http://www.infi.net/wwwimages/colorindex.html</a>
Icons (bullets, lines, symbols)	<a href="http://www.vuse.vanderbilt.edu/~vikranta/icon.html">http://www.vuse.vanderbilt.edu/~vikranta/icon.html</a>
Icons and Images	<a href="http://www.iconbazaar.com/">http://www.iconbazaar.com/</a>
HTML Bad Style Page	<a href="http://www.earth.com/bad-style/">http://www.earth.com/bad-style/</a>
HTML Guide	<a href="http://www.nwmissouri.edu/~0235657/guide.html">http://www.nwmissouri.edu/~0235657/guide.html</a>
Web Design and Publishing	<a href="http://www.oit.itd.umich.edu/guides/Web_DP/">http://www.oit.itd.umich.edu/guides/Web_DP/</a>
Doctor HTML (validates codes)	<a href="http://imagiware.com/RxHTML/">http://imagiware.com/RxHTML/</a>
Compendium of HTML Elements	<a href="http://www.synapse.net/~woodall/html.htm">http://www.synapse.net/~woodall/html.htm</a>
Style Tips	<a href="http://www.devry-phx.edu/webresrc/webmstry/styltips.htm">http://www.devry-phx.edu/webresrc/webmstry/styltips.htm</a>

### Conclusion

Conducting research allows an individual to discover new knowledge and test personal theories. The Internet brings a world of information to the desktop-- accessing databases, locating useful items from distant sites, and involving colleagues from around the globe. The wide range of possibilities is limited only by one's technical know-how and innate curiosity. Exposure to a variety of information-gathering resources will help investigators find answers to research questions in our ever-expanding information society.

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## DEVELOPING A PROFESSIONAL EDGE

DELTA PI EPSILON, founded in 1936, is a national honorary professional graduate society for men and women devoted to the advancement and professionalization of business education. Through its ideals of scholarship, leadership, and cooperation, the society strives to make significant and unique contributions to professional growth and scholarly achievement in business education. In the words of its founder, Dr. Paul Lomax, can be seen the scope of the society: "The professional interests of Delta Pi Epsilon encompass the whole of business education in relation to the entire fields of American business and American education. Its membership . . . must always think in terms of the common good and advancement of all our business teachers and of all students who pursue courses in business education."



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