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A QUANTITATIVE INVESTIGATION OF COMPUTER LITERACY SKILLS AND THE CARRY OVER INTO SUBSEQUENT AREAS

by

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B.S., SOUTHERN UNIVERSITY, 1971

M.S., CENTRAL MICHIGAN UNIVERSITY, 1980

A DISSERTATION

submitted in partial fulfillment of the

requirement for the degree

DOCTOR OF PHILOSOPHY

Department of Curriculum and Instruction
College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1997

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A QUALITATIVE AND QUANTITATIVE INVESTIGATION OF COMPUTER LITERACY SKILLS AND THE CARRY OVER INTO SUBSEQUENT AREAS

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Abstract

Computer literacy skills, as they are taught to junior high school students, is the focus of this investigation. The researcher was not attempting to find a definition for computer literacy but was seeking information concerning the use of computer literacy skills used in subsequent areas other than in a computer literacy class.

The researcher utilized questionnaires administered to students, teachers in subsequent areas, and computer literacy teachers to obtain the necessary data. The instruments were used to harvest their opinions regarding the use of computer literacy skills taught in computer literacy classes.

DEDICATION

THIS DISSERTATION IS DEDICATED TO
MY PARENTS, WALTER L. JOHNSON
and MYRTLE D. JOHNSON.
WITHOUT THEM, THIS WOULD NOT
HAVE BEEN POSSIBLE.

SPECIAL THANK YOU TO MY WIFE, RUTH.

DUE TO HER PATIENCE, THIS DISSERTATION

IS COMPLETED.

LOVE,

VINCENT

ACKNOWLEDGMENTS

I wish to give special thanks to all the wonderful people who assisted me with this dissertation. Words cannot express the feelings of thanks. Still, I would like to convey my gratitude to them by acknowledging their support.

Mrs. Ruth W. Johnson

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Ms. Dorothy Stuart

Dr. James Fortenberry

Ms. Deborah Anders

Mr. Walter Crain

Ms. Julia Scott

Ms. Mildred Jenkins

Mr. William Guillory

Master Henry Price

God bless you, and thanks.

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Chapter 1

"The increasing use of computers by government, industry, and business demands an awareness of computer uses and limitations."

Molnar, 1978

The use of computers in the process of instruction is increasing at all levels of education. Some factors which tend to popularize the use of computers as instructional aids are obvious. For example, the computer can assist in providing increased pupil access to learning materials through the use of video disks, CD-ROM, and other visual aids (i.e., camcorders and television sets). Repetitive exposure to unaltered information can be achieved with the assistance of computers more readily than without them. Students can reach out and obtain enormous amounts of information via the computer by touching a few buttons. Self-learning activities can be designed and computerized for use by pupils when necessary, particularly where pupils have learned the skills required to operate the equipment. Before these skills are acquired, a foundation must be laid. This foundation can be accomplished in courses that deal with computer literacy.

An ideal computer literacy program in any school would have an agreement, among the teachers of computer literacy courses, students, and teachers of subsequent courses, on the objectives of the computer literacy course. The computer literacy course would be taught with a goal of providing students tools with which they could enhance their learning in other courses. In this ideal setting, the teachers would expect students to have such skills and encourage their use. Furthermore, there would be sufficient computer

resources available in classrooms, laboratories, media centers, etc., where students would have ample opportunity to employ these skills.

The latest technology on the scene is Internet. Which enlarges pedagogical capabilities to astronomical heights. Students are able to access the most current ideas in nearly every field. E-mail and Internet communication are currently used in the workplace, education, recreation and numerous other places. They are used to link house-bound users to the external world, students to teachers and to other students and, individuals to friends and families with just the stroke of a key. "The Internet is a vast collection of networks connecting over 1,000,000 computer systems and over 30 million individuals" (Ackermann, 1995).

Statement of the Problem

It may be argued that a computer literacy class should contain word processing, database searching and database management, spreadsheets, graphics, (e.g., Print Shop), and some entry level programming (e.g., BASIC) to be considered an overall literacy course. This researcher examined the extent to which students believe that they apply skills taught in computer literacy classes in subsequent classes.

In order to answer this question, a questionnaire was given to computer literacy teachers, teachers in courses taken subsequent to computer literacy, and students who had taken a computer literacy class.

In addition to examining the extent to which computer literacy skills were applied, the researcher sought to find the expectations of other teachers concerning the use of

computer related skills in their courses and checked to see how many resources were available for the students to use these skills in other areas.

Questions to be Answered by the Study

1. To what extent do teachers of computer literacy courses and their students agree on what was taught in the computer literacy course?
2. To what extent do the teachers of computer literacy classes, the students, and the teachers of subsequent classes believe that skills taught in computer literacy classes are employed in subsequent classes?
3. To what extent do the teachers of computer literacy classes, the students, and the teachers of subsequent classes believe the resources and other conditions encourage the use of computer literacy skills in subsequent classes?
4. To what extent are race and gender related to the use, study of, and access to computers?

Limitations of the Study

This study was limited to four school districts in the State of Louisiana with a total of fifteen (15) junior high schools. These districts are representative of rural and medium-sized school districts in the State of Louisiana. A survey was completed by junior high school teachers and students who gave their perspectives on computer literacy courses taught in the school in which they worked or were enrolled as students.

For the purpose of validation, the instrument was field tested and administered to two ninth grade classes in Manhattan High School (students all had at least one-half year of a computer literacy course) and six teachers. Students in a methods course at Kansas

State University, who were preparing for student teaching (some were preparing to teach computer technology) also responded to the survey. The students and teachers were interviewed after administration of the instrument to ascertain that the instrument was clearly worded and gave them ample opportunity to express their concerns regarding the topics considered. The instrument was pretested prior to administration with student teachers enrolled in a Methods course at Kansas State University and with ninth grade students at Manhattan High School. The researcher met with the teachers and the results of the pretest were discussed. They suggested that some open ended questions be eliminated. The instrument was amended to reflect this change.

The researcher was unable to run a reliability test due to the nature of the study. The usual measures of reliability were not available and a test-retest reliability was not possible since the researcher did not have sufficient access to the student populations. Each question was essentially a discreet item. Table 42 reports the responses of the teachers in subsequent areas, computer literacy teachers and those of the computer literacy students. The instrument did not gather economic data, however, which may have been reflected in some of the responses.

In 1985, the state of Louisiana mandated a program in which all students enrolled in public schools must have at least one-half unit of credit in computer literacy, database management, or an equivalent course. "The Louisiana Board of Elementary and Secondary Education has ruled that, beginning with the ninth grade class of 1985-86, every public school graduate in Louisiana must have one-half unit of credit in computer literacy, computer science, or data processing" (Clausen, 1985).

In this 1985 mandate, there was a list of skills required for students enrolled in computer related courses. These skills ran from keyboarding to an advanced programming language; it is from this list of skills that this researcher selected skills to study. Therefore, this study is limited to word processing, database management, spreadsheets, graphics, a programming language (BASIC), and an area where students could apply these skills.

Procedures

In order to determine the extent to which students apply the skills taught in computer literacy classes in subsequent classes, this researcher did the following:

1. Developed a list of plausible topics for a junior high school computer literacy course. These topics were based on the literature reviewed, the Louisiana guidelines that were mandated in 1985, and consultation with teachers.
2. Developed a questionnaire to ask teachers of computer literacy classes, teachers of subsequent classes and students about the extent to which the topics were taught, were expected to be used in subsequent classes, and were used in subsequent classes. This questionnaire was developed through conversations with both teachers and students from the school districts observed in this study and the subjects that were mandated in the 1985 Louisiana mandate.
3. Designed a questionnaire to ascertain the extent to which the conditions and resources encouraged the use of computer literacy skills in subsequent classes.

4. Pretested the instrument with student teachers enrolled in a Methods course at Kansas State University and with ninth grade students at Manhattan High School. After meeting with student teachers, the instrument was amended.

5. Selected a set of school districts representative of rural and medium-size school districts in Louisiana. Those who agreed to cooperate are considered to be representative of such districts throughout the state of Louisiana, and potentially through the southeastern part of the United States. The school districts that were chosen are equivalent to those in the other areas based on the information from a population map of those areas.

6. Distributed questionnaires to computer literacy teachers, teachers of subsequent classes and a selection of students in their last year in each junior high school who had taken the computer literacy course.

7. Compared opinions on what was taught, believed to be applicable in subsequent classes and actually applied in subsequent classes.

8. Employed Chi-Square techniques were employed to determine if any of the resource factors were significantly related to the extent to which computer literacy skills were used in subsequent classes.

9. Compared student responses by race and sex to determine if these factors were related to usage of computer literacy skills.

Definitions

Computer literacy: understand skills and attitudes one needs to function effectively within a given social role that directly or

indirectly involves computers. It should be clarified that "function effectively" within roles is considered to be a matter of well-being and personal comfort, not just rational goal attainment (MECC, 1987).

Word processing: the computer software used to manipulate and edit textual material.

Database management: the computer software used to store, sort and retrieve information.

Electronic spreadsheet: a computer program which allows information to be organized in tables in order to assist the user in drawing conclusions about mathematical data.

Graphics: a computer program which allows pictures to be drawn and manipulated within the computer program.

Teacher of subsequent course: teacher who is teaching a course which students take after taking computer literacy.

Programming language: a series of instructions that will instruct the computer to complete a specific job or task.

Chapter 2

Review of the Literature: Computer Literacy

This literature review was designed to investigate areas taught in computer literacy courses and to see if skills learned are being transferred to other classes. The skills investigated are word processing, database management, spreadsheet, entry level programming, and graphics.

Computer literacy is a necessary skill in our society if we are to reap the benefits of science-driven industries (Molnar, 1978). It is an essential outcome of schooling today because the society we live in is rapidly growing into an information era dominated by computer technology.

The National Council of Supervisors of Mathematics (1978), in their position paper on the basic skills, emphasized the need for computer literacy to equip the citizens of tomorrow.

It is important for all citizens to understand what computers can do. Students should be aware of the many uses of computers in society, such as their use in teaching/learning, financial transactions, and information storage and retrieval. The "mystique" surrounding computers is disturbing and can put people with no understanding of computers at a disadvantage. The increasing use of computers by government, industry, and business demands an awareness of computer uses and limitations (Molnar, 1978). The implication of this statement for teachers is clear: "If the schools are to provide for this new literacy, then teachers must themselves become computer literate" (Fray, 1984, p.3).

The National Commission on Excellence in Education (1983) extended this notion and recommended that all high school graduates be required to have completed one-half year in computer literacy as a minimum requirement.

The definition of computer literacy will differ from person to person, and definition of computer literacy has been cause for debate among some authors. Some authors argue that it implies knowledge about computers, while others use the term synonymously with computer programming. These conflicts show that staff development goals in computer literacy can vary widely according to which definition is utilized.

Computer literacy is seen as a changing concept because of the rapid developments in the field of technology (Fray, 1984). Bowman (1983) stresses that computer literacy is likely to remain "an essentially fluid notion for the foreseeable future" (Fray, 1984, p. 8). Definitions of computer literacy, such as that of O'Donnell (1982), can be found at one of a continuum. "At its basic level, it is an awareness and understanding of the computer, its role in the society, and its impact on education" (O'Donnell, 1982 p. 490). The debate centers around what is meant by "awareness and understanding of computers." Some writers (Hansen, Klassen, Anderson, & Johnson, 1981 p. 473), define this understanding to mean the "non-technical and low technical aspects of the spectrum." Luehrmann (1981) equates computer literacy with programming.

One who is truly computer literate must be able to do computing to conceptualize problems algorithmically, to represent them in the syntax of a computer language, to identify conceptual 'bugs' and express computational ideas with a high degree of organization and readability. Every student should be able to use computers "as an

intellectual tool with application to do whatever subject matter is being taught" (O'Donnell, 1982 p. 492). A similar equation of computer literacy and programming is implied by Ershov (1981).

The notion that computer literacy implies the "ability to make informed judgments about the social and ethical issues involving computer and communications systems" (Hunter, 1981 p. 66) would be generally accepted. Knowledge of the capabilities and limitations of computers is another domain which authors agree is an important part of computer literacy. Luehrmann (1981) would argue that these objectives define computer awareness, not computer literacy.

The debate of computer literacy could continue, but this researcher chose the Minnesota Educational Computing Consortium definition (MECC, 1987). MECC has pursued the notion of computer literacy both in terms of definition and research in some depth. Anderson and Klassen (1981), in a discussion of the MECC project, define computer literacy in the following way:

> We propose a definition of computer literacy which incorporates knowledge of computers, social implication of that knowledge, and also a recognition of the needs for skills in communicating with computers. Computer literacy, in our definition, is whatever understanding skills, and attitudes one needs to function effectively within a given social role that directly or indirectly involves computers. It should be clarified that we interpret function effectively within the roles to be a matter of well being and personal comfort, not just goal attainment (p. 139).

Capron and Perron (1993) give this definition a more universal appeal. They regard awareness, knowledge and interaction with the media as integral to acquisition of proficiency with computer technology (1993). These writers' definitions of computer literacy all run congruently. In spite of the rapid evolution of computer technology, one thing remains constant: computers are adaptable and useful tools that facilitate human performance.

Word Processing

Current wisdom indicates that children need to learn more mathematics and science so they can participate in a computer-based world. Schools tend to relate computers to mathematics and science classes and only reluctantly find uses for them in the subjects that directly address language use. This fits the belief that technical skills are essential for the use of computers and that computers are best for teaching technical subjects.

In the business and scientific worlds, computers are increasingly seen as valuable tools for word processing and non-numerical information processing. The use of computers to facilitate and expand communication networks between people is likely to prove even more significant (Bruce, Michaels, & Watson-Gegeo, 1985).

The computer software used to manipulate and edit textual material is word processing. Of all the current uses of computers, word processing will quite possibly involve more people directly with computers than will any other computer activity. Essentially, word processing employs the use of computer software to create text in "soft" form on the screen, then to edit, store, retrieve, and print that text in "hard" form on the

paper, according to desired format specification. Word processing software can be very complex and may require extensive practice to achieve proficiency. However, a small amount of word processing skill will allow a student to type attractively formatted letters, essays, or notes without time-consuming rewriting.

Bruce, Michaels, and Watson-Gegeo's (1985) research with QUILL found it to be an individually paced, integrative software application program designed to motivate and improve student writing activities in a structured, computer based format. They discovered that changes in the pattern of social interactions in the classroom, as a result of the computer, may be even more significant than any simple technological effect. Use of this software helps students to develop writing ideas and computer based writing activities, becoming comfortable with the use of typing and tutorial software, which helps them edit and revise their writing.

Previous research has shown, primarily through case studies, that while some writers make more and difficult changes with computers, others do not. Of the research reported here, only Daiute's (1986) experimental study indicated students received higher grades for revised essays produced with word processing software.

Word processing is performed in one of four ways:

1. On a time-sharing system

   In time-sharing, the user operates a terminal that interfaces with a large computer at a remote location.

2. On a dedicated word processor

   A machine (i.e. typewriter) whose sole purpose is for word processing

3. On a shared logic system

This system shares access to its word-processing software with any other terminals

4. On a microcomputer

A personal computer that has the ability to store software that can enable it to function without the aid of another computer.

Stand-alone word processing systems do not need to interface with a large computer and require only one terminal.

The microcomputer is an alternative to the dedicated word processor. Available software can turn any microcomputer into a sophisticated word processor. The various word processing systems meet the needs of different users. Word processing technology now pervades nearly every area of society. Subjects other than creative writing benefit equally from the use of word processing in the classroom. Students and teachers of History, Social Studies, English, Foreign Languages, Science, and the Arts all can make use of word processing skills. Some education-oriented word processing packages are Magic Slate by Sunburst communication, AppleWorks by Claris, First Choice by Meizner Business Machines, Writing Workshop by Milliken, Microsoft Works and Microsoft Word by Microsoft, ClarisWorks by Claris Corporation, Multiscribe by Scholastic, Bank Street Writer by Scholastic, First Writer by Houghton Mifflin for young children, and FrEdWriter. FrEdWriter is public domain software, which means that it can be copied by anyone without charge.

An explanation of how some of these word processing packages work follows:

FrEdWriter:

This is a word processing tool designed for classroom use for grades three through twelve. Teachers can make as many copies of this program as they wish. Students can use FrEdWriter to create, edit, store, and print their writing (Bitter, 1987).

AppleWorks:

This software is three software programs in one package: a word processor, a database management program, and a spreadsheet program. These three programs are integrated, which means that they can access common files so that information can be transferred from one to another quickly and easily (Turner and Land, 1988).

Microsoft Works:

Microsoft Works is similar to AppleWorks in that it combines four major productivity applications in one package: a word processor, a spreadsheet with business graphics, a database management program, and a communication package (Salkind, 1988).

ClarisWorks:

ClarisWorks is similar to AppleWorks and Microsoft Works in that it contains four major productivity applications in one package: a word processor, a spreadsheet with business graphics, a database and a communications package. These major packages make ClarisWorks comparable to AppleWorks and Microsoft Works, but ClarisWorks goes a step further. Some of the features that ClarisWorks has increases its power

for the user and makes it more user friendly. Some of the features that ClarisWorks has that AppleWorks and Microsoft Works does not are these: a drawing function, a painting function, and a presentation function all in one package.

Database Management

Just as some educators stress the use of mathematics and science in computer literacy classes, database management is an instructional tool capable of assisting both teachers and students. The computer software used to store, to sort, and to retrieve information is called database management software. Database management saves a great deal of time for programmers and others who access the database for many diverse reasons. The educational community has been one of the primary beneficiaries of the database's ability to compile, store, and manipulate primary amounts of demographic and statistical information.

Database management software is like an electronic filing cabinet or a computerized index-card box. This software allows the user to organize, store, and retrieve information.

All database programs contain three important elements:

1. Fields: A field is a category or item of information
2. Record: A record is a collection of listings of related fields
3. Files: A file is a collection of related records

The suppliers of educational software have recognized the need for commercially produced, educational database products and are working toward meeting that need. Two

of the first databases designed for schools were Bank Street and PFS. Other databases are Bank Street Filer by Scholastic, Friendly Filer by Houghton Mifflin, ClarisWorks by Claris Corporation, and Microsoft Works by Microsoft Corporation.

An explanation of how some of these database management packages work follows as the examples cited previously on pages 13 through 15 indicate that the possibilities are endless. In teaching computer literacy classes as in many other disciplines, databases can save hours of routine and repetitious data entry into the computer (Bitter, 1987).

Electronic Spreadsheet

One of the most widely used computer applications is the electronic spreadsheet. Perhaps the best way to describe an electronic spreadsheet is to visualize, on the computer screen, an accountant's ledger sheet with its array of horizontal rows and vertical columns. The term spreadsheet implies material spread before the eye of the user for quick and easy reference (Bitter, 1987). An electronic spreadsheet is a computer program which allows information to be organized in tables in order to assist the user in drawing conclusions about mathematical data.

Spreadsheets are particularly helpful in the financial field since they allow the user to predict and to play "what if" For example, a person using a spreadsheet to model a financial situation might be able to explore the following "what if" questions:

1. What additional amount of money must be paid, if a person wishes to purchase a home and negotiates a mortgage for 25 years rather than 20 years?

2. What change will there be to the amount of income tax paid, if a taxpayer decides to contribute $150,000 towards a Registered Retirement Savings Plan.

One of the most obvious uses for spreadsheets in education is to teach accounting, both principles and practical application. Mathematics and science also have a similar need to teach concepts and theories, as well as manipulate numerical and statistical information. Additionally, mathematics teachers find the spreadsheet helpful in teaching students to write and use mathematical formulas (Bitter, 1987).

Students will be working in the real world in business and industry, education, government, and nonprofit agencies. Spreadsheets will inevitably be a part of their world. For that reason, students will benefit from hands-on classroom training with the spreadsheet (Bitter, 1987).

Some education-oriented spreadsheets are Educalc by Houghton Mifflin, AppleWorks by Claris, Microsoft Works by Microsoft, ClarisWorks by Claris Corporation, First Choice by Meizner Business Machines, and Wingz by Informix Software (Salkind, 1988).

An explanation of how some of these spreadsheet packages works follows

Wingz:

This new spreadsheet has an expanded graphing capability and its own programming language called HyperScript. Wingz comes complete with a graphics toolbox as part of its package (Salkind, 1988).

Graphics

Most of us are familiar with graphic art, whether or not we recognize it as such. Advertisements in newspapers and magazines as well as television commercials are some of the more common uses of graphic art that we come in contact with daily. Today, although most of us would not be aware of the difference when looking at a picture, computers are often used to create in minutes or hours what would take an artist days, weeks, or months to create (Bitter, 1987).

Computer graphics is the fastest growing computer application today. Software has been available for some time, and it is becoming more sophisticated as new and diverse ways are discovered for using graphics in everyday life.

Most people may recall mathematics and science teachers using graphs to teach students about numbers and formulas. With the computer's ability to create complex presentation graphics in short periods of time, other subjects can be made more easily comprehensible (Bitter, 1987).

The teaching of art, itself, benefits from design graphics in the classroom. A whole new world of creativity is open to everyone, even those with minimal artistic skills. The classroom teacher is limited only by his or her imagination in creating lesson plans using presentation and design graphics to enhance the curriculum. Popular classroom graphics programs are Print Shop by Borderbound, MacPaint by Claris, Easy Graph by Houghton Mifflin Co., Delta Drawing by Spinnaker Software, Create with Garfield by DLM, MECC Graph by MECC, ClarisWorks by Claris Corporation, and Award Maker Plus by Baudville (Bitter, 1987).

An explanation of how some of these graphics packages work follows:

Print Shop:

Print Shop allows the user to create signs, posters, greeting cards, and banners. Many choices of graphics and fonts are available, which makes Print Shop ideal for the bulletin boards.

Easy Graph:

Easy Graph is used to create tables and graphs from all kinds of data. Students can create pictographs, bar line graphs, and pie charts. All can be printed on a dot matrix printer.

There are three types of graphics available on computers:

1. Presentation:

   Presentation graphics are used to present numerical data in an easy-to-comprehend diagram. The data can be input directly, or called up from a spreadsheet or database, and a graph can be created from it.

2. Design:

   Everything that is produced for human use or consumption is related in some way to a design procedure. Graphic artists spend a great deal of time at the drawing board creating and revising designs that would catch the eye and imagination of the consumer.

3. Entertainment:

   Animated cartoons are universally enjoyed. They are one of the most basic and familiar forms of film entertainment.

Programming Language

According to current estimates, there are more than 1,000,000 microcomputers in the classrooms across he country (Bitter, 1987). While the availability of inexpensive and reliable computer hardware has become a reality, the future of microcomputer technology classrooms hinges on the teachers' preparation to handle some of the many types of programming languages that are available.

To operate efficiently, computer hardware requires software which consists of sets of instructions written by people. A computer can only do what the program tells it to do. It is incapable of judgment (Bitter, 1987).

Computers are designed to handle data in the following manner:

INPUT----------PROCESSING----------OUTPUT

1. Input:

   Data entry can be accomplished with a light pen, terminal, mouse, keyboard, and disk. The basic purpose of input is to enter data into the computer.

2. Processing:

   Processing is accomplished by the Central Processing Unit (CPU). This unit is made up of a control unit and arithmetic and logic unit (ALU). This unit actually controls the running of the programs.

3. Output:

Data retrieval is accomplished by the same devices that perform in the input. The output is the result of the data that were entered through an input means and processed.

When a student is introduced to programming (e.g. LOGO or BASIC),he or she is introduced to a form of structured programming. The acquisition of skills in structured programming will aid in the development of the student's cognitive abilities. In Mindstorms, Papert (1980) argues that programming in LOGO leads to the development in children of general thinking and problem-solving skills such as planning, problem decomposition, and debugging on the one hand, and to the acquisition of powerful concepts having wide application on the other hand. Papert's theory is that LOGO should be acquired according to a guided-discovery strategy, analogous to how a young child learns to speak.

The creative use of microcomputers is different from automated education. Microcomputers broaden the array of tools that facilitate the educational process, thereby opening new and more creative avenues to teachers and for students. Art and pedagogy blend to produce a highly humanized learning process. This was one of the most significant findings. When the focus is on the development, in shaping the learning and original thinking, the teacher and the "art" of teaching becomes critical elements in shaping the learning environment (Carmichael, 1985). It was found that LOGO is a highly adaptable language which made it possible to explore certain mathematical concepts in a different sequence and much earlier than is currently believed.

There is a growing contingent of educators who choose to bypass the issue of what software to use by having their students focus all their efforts on learning a programming language such as BASIC, LOGO, or Pascal. This approach has the advantage of being inexpensive, since most computers come with one or more languages installed. Students of all ages, in theory, can be taught the same language using the same software (Kurland, 1986). Knowing how to program a computer is a valued skill outside of the school. Learning to program may teach the student something about logic, reasoning, and problem solving that can potentially be applied in domains far removed from programming (Kurland, 1986).

The great excitement in education about children learning to program with microcomputers is easy to understand. But it is of particular interest that such excitement has had less to do with the practical value of learning how to write programs (Pea & Kurland, 1986). Instead, programming is viewed by many of its devotees as a "Wheaties of the mind," a panacea for the ambiguities of everyday cognition (Pea, 1983).

The elegance and beauty of LOGO that derives from its parent language, LISP, used in artificial intelligence, procedurally allows one to define new procedures and use them as building blocks in increasingly complex problems. It controls structures that allow very brief recursive problems, through the use of conditional tests--all these features present deeply challenging conceptual problems on a turf over which our children will travel during their discovery learning (Pea, 1983). Since students may have the opportunity to explore these significant computational concepts. They must make use of their own creative juices to create instructions that encourage them to conduct

developmental research. LOGO is an excellent application program for this purpose. Heuristics and problem-solving methods can be examined using LOGO and other programming languages. These provide the student with a definitive tool that may enhance their conceptualization of what actually runs the computer.

BASIC and Pascal are the two most frequently used programming languages in secondary education. The structural styles of these two programming languages render them quite useful as cognitive aids for secondary level students.

There is likely to be a change in the current patterns of programming used due to the increasing occurrence of computer literacy requirements (Cobern, 1986). School districts are requiring computer literacy for high school graduation, while colleges are doing the same for teacher certification (Abernathy & Pettibone, 1984). It seems inevitable that these teachers are going to experiment with student programming. A teacher's decision to teach and use BASIC is a controversial one since the use of BASIC is vigorously discouraged by some eminent science educators and computer scientists (Bork, 1985 & Papert, 1980).

Easy access and the relatively reasonable price of most canned software and Internet have de-emphasized the need to actually teach or learn computer languages for the average user. In fact, Ackerman regarded this as great motivation for novice users since it makes computers even more user-friendly (1995).

Playing to Win, Inc., defined "computer equity" as the equal opportunity for each individual to use a computer and learn the same subjects at the same level. However, inequity exists in all communities. It may be influenced by gender, economics, race, age,

academic achievement, etc. (1985). The variables race and sex were examined to determine the extent to which they impact computer usage and accessibility. The acquisition and use of computer literacy skills appears to be most influenced by the latter.

Studies reviewed for this project indicate that in the advent of a computer in the residence, the male would be the most probable user. Computers are most often purchased for the use of the male. If a white male were in residence in the home, he would have priority access (Sanders, 1993). The extent to which race and sex influenced computer use and access was examined to further the understanding of the relationship of these two variables to computer literacy skills.

The researcher set about to examine teachers and students and their opinions regarding computer literacy curriculum, student usage and the application of skills in other classes. An instrument was designed and administered to this population to gather the data for analysis.

Chapter 3

Procedures

The review of the literature in the previous chapter revealed that the idea of using computer literacy courses to enhance students' abilities in other areas may have merit. Using word processing as an example, the studies demonstrated that students would revise and rewrite their work more frequently.

The researcher's primary purpose in this study was to ascertain the extent to which computer skills are taught and used in a junior high school environment and are being carried into subsequent classes. In order to carry out the study, the researcher did the following:

1. Developed instruments to gather data. According to a 1985 Louisiana State Board of Education mandate, computer literacy skills were to be taught to elementary and secondary students. This researcher selected the following areas to be represented in this study.
   - A. Word Processing
   - B. Database Management
   - C. Spreadsheets
   - D. Graphics
   - E. A Programming Language (BASIC)

After consulting with junior high school teachers, the researcher determined that ninth grade students who had taken a computer literacy course would be the target group for this study.

2. Selected schools were in predominantly rural areas because the researcher was interested in schools located in the rural south and those that could be indicative of most rural schools.

3. Contacted the schools officials in Washington, St. Helena, St. Tammany, and Tangipahoa Parishes for permission to administer the instruments.

4. Administered the instruments to the participants selected in the school districts. To ensure that all the students that had taken a computer literacy course, the survey instrument was distributed to the teachers by the researcher and the teachers administered the questionnaires to the students who had taken a computer literacy course.

5. Analyzed the data using Chi-Square, Conditional Probability, and Percent Tables.

The population studied consisted of junior high school students, teachers in areas other than computer literacy, and computer literacy teachers in school districts in St. Helena, St. Tammany, Washington, and Tangipahoa parishes in the State of Louisiana.

The information provided in this chapter includes the population, the development of the instrument, the method for obtaining the data, and the procedures for analysis of the data.

Population

The population of this study was ninth grade male and female students, both black and white, who had taken a computer literacy course. The instructors were junior high

school teachers who taught computer literacy and who taught subsequent courses in the schools. The majority of the schools selected were rural in disposition, although two were urban. The parishes selected (St. Helena, St. Tammany, Washington, and Tangipahoa) all have school districts that cover both rural and urban settings, but the overall majority of the schools are rural. The researcher selected these areas because a large portion of the schools in the state of Louisiana are rural. Washington Parish, St. Helena Parish and Tangipahoa Parish are rural area school districts. These areas are essentially void of major industrial developments. St. Tammany Parish was the only parish included in the study that was in close proximity to a large metropolis. However, both rural and urban schools are nestled in this parish.

These parishes are located in the southeastern section of the state. Data garnered from the 1990 Census revealed rural and urban communities in all parishes included in this study. Such is the case of parishes throughout the State of Louisiana.

Some schools in each parish did not offer a computer literacy course and were excluded from the study. Consequently, the sample came from the schools that taught a course in computer literacy.

The questionnaires used in this study were distributed and collected at each junior high school that participated. The variance between the numbers of students (black and white) counted on individual tables was influenced by the students' choice to respond to the individual questions.

The total number of participants for this study is listed in the following table.

Table 1

Study Group Sampled

	Teachers	
Students	Computer Literacy	Subsequent Areas
887	20	178

Methodology

Three different questionnaires (instruments) were developed and administered by the researcher for this study. The first questionnaire was designed for the students. This questionnaire consists of ten questions that revolved around the skills that were taught in the computer literacy classes and the students perceptions of the amount of instruction that was given in each skill. It also contains questions related to the use of the computers at home, if the student had access to one. A Likert-type scale was used to determine the degree of participation by each student. A copy of this questionnaire may be found in Appendix A.

The second questionnaire was designed for teachers in classes other than computer literacy. This questionnaire consisted of seven questions that revolved around the skills that were used in these teachers' respective classes as well as their acceptance and encouragement of these skills for assignments in their classes. A Likert-type scale was used to determine the perceptions of each teacher. A copy of this questionnaire may be found in Appendix A.

The third questionnaire was designed for computer literacy teachers. This questionnaire consisted of seven questions that asked these teachers what skills they put

emphasis on, the use of these skills in other areas, if there was access to computers at school other than in the computer literacy class, and if there was access to a computer at home and if so, if they (students) use it for school assignments. A Likert-type scale was used to determine perceptions of each teacher. A copy of this questionnaire may be found in Appendix A.

Validation and Administration of Instrument

The researcher distributed a sample questionnaire to students enrolled in a Methods Course at Kansas State University and teachers in the Manhattan School District. The college students were polled after completing the survey and reported that the instrument adequately and appropriately measured students' and teachers' opinions of computer literacy curriculum, student usage and transference of skills to other areas.

The Manhattan District school teachers distributed the questionnaires to their students. The instruments were collected by the researcher and the results discussed with students and teachers to ensure that the data did indeed answer the questions as the researcher intended. The sample questionnaire in the pilot test was found to cover the topics that the teachers of computer literacy were teaching and the students' opinions of what was taught. These teachers wanted more questions asked that centered around word processing. Their reasoning for more word processing questions revolved around their perceptions about job trends. These teachers felt that the use of computers is headed toward more of an information processing era than a computer programming era. The students offered no new input.

Three different questionnaires were administered. One was administered to students who had taken a computer literacy course. Another questionnaire was given to the computer literacy teachers. The third, and final, questionnaire was given to teachers in subsequent classes. Each questionnaire examined the level of study and usage of computer literacy skills as seen by the students and teachers.

As a result of examination of the surveys by the supervising committee, and the pretests with middle school students and teachers and pre-service computer studies teachers, concept validity was established for the surveys. Since no existing instruments were found that asked the questions of this study, it was not possible to compare results and determine validity on that basis.

Since each item of the surveys constituted a single stand-alone survey in itself, the usual tests of internal consistency to establish reliability were not conducted. These tests are meaningful only when each item in the instrument contributes to a summative total. Such was not the case in this study. The item correlations to the total could not be done. The only alternative strategy would have been to conduct a test-retest reliability study. Due to insufficient access to the student population, this was not possible.

The researcher went to each school and collected the questionnaires. While gathering the data, each school was assigned a code number to provide anonymity for students and teachers who participated. After the administration of the questionnaires was completed and data were then recorded for each student and teacher, Microsoft Works was used to enter the data into the computer. The Microsoft Works Communication package allowed the researcher to use the mainframe computer via modem for the

completion of the statistical process. The researcher used conditional probability and percent tables with the SPSS-X and SAS statistical packages for the purpose of analyzing the data after collection.

Chapter 4

Analysis of the Data

This study was designed to examine the skills taught in a computer literacy course and to determine the extent to which these skills were being used in subsequent classes. The schools, students, and teachers that responded to the questionnaire were given a code number for anonymity.

The following table lists the fifteen schools that participated in this research with totals for the number of students and teachers involved.

Table 2

Participants in Field Test by Schools

School	Students	Teachers
1	64	12
2	4	2
3	100	24
4	75	13
5	97	21
6	141	0
7	15	12
8	28	12
9	37	8
10	52	2
11	19	27
12	8	15
13	48	19
14	45	8
15	15	3
Totals	887	178

Findings Concerning Computer Usage

A 1985 mandate by the Louisiana State Board of Education required one-half unit of computer literacy, computer science, or data processing for each student. The following tables identify the reported usage by students, the skills taught by computer

literacy teachers, and the views of other teachers in subsequent areas pertaining to the use of skills taught by computer literacy teachers.

Table 3

Extent to Which Students Indicated Study of Computer Literacy Skills

	None	A Little	A Lot	Total
Word Processing	144 16.6%	328 37.7%	396 45.6%	868
Database Management	273 31%	375 43.8%	208 24.2%	856
Spreadsheet	364 42.3%	319 37%	178 20.7%	861
Graphics	116 13.4%	296 34.2%	453 52.4%	865
Programming Language (BASIC)	163 19%	293 34.3%	399 46.7%	855
Others (i.e. History and Science)	182 42.4%	118 27.4%	129 30.2%	429

Table 3 showed the extent to which the students reported having studied computer literacy skills. The students reported that they studied word processing (83.5%) and a programming language (81%) more than spreadsheets (57.6%) or database management (68.1%). The last category shows that 57.6% of the students also remembered studying something other than these computer literacy skills. This (57.4%) was based on the number of students that answered this question. The other skills that the students reported were games that would aid them in other subject manner.

Table 4

Students' Indicated Use of Computer Literacy Skills in Subsequent Classes

	None	A Little	A Lot	Total
Word Processing	520 60%	205 23.6%	142 16.4%	867
Database Management	653 76.1%	152 17.7%	53 6.2%	858
Spreadsheet	651 73.6%	139 15.7%	95 10.7%	885
Graphics	523 60.9%	213 24.8%	123 14.3%	859
Programming Language (BASIC)	584 68.5%	165 19.4%	103 12.1%	852
Others (i.e. History and Science)	328 69.6%	79 16.8%	64 13.6%	471

Table 4 demonstrated the reported use of the skills learned in the computer literacy course in subsequent classes. This table shows that the students reported very little usage of these skills in all areas ranging from a high of 40% for word processing to a low of 23.9% for database management.

Table 5

Student Usage Predicated on Teacher Encouragement

Definitely Yes	Probably Yes	Probably No	Definitely No
253 28.9%	429 49%	149 17%	45 5.1%

Table 5 shows that the students reported a large percentage (77.9%) believed that they would use the skills more, if teachers would encourage or accept more work completed on computers.

Table 6

Student Usage Predicated on Computer Availability

Definitely Yes	Probably Yes	Probably No	Definitely No
339	301	149	33
41.2%	36.6%	18.1%	4%

Table 6 indicated that the students reported a large percentage (77.8%) believed that they would use the skills, if more computers were available.

Table 7

Student Belief that Computers were Available for Use in Other Classes

All of my Classes	Some of my Classes	None of my Classes
36	302	515
4.2%	35.4%	60.4%

Table 7 showed that 60.4% of the students felt that there were no computers available for classes outside of the computer literacy class.

Table 8

Student Access to a Computer at Home

Yes	No
329	503
39.6%	60.4%

Table 8 indicated that computer access at home was low with 60.4% of the students reporting that did not have access to a computer at home.

Table 9

Student Home Computer Usage

All of my Classes	Some of my Classes	None of my Classes
32	61	236
9.7%	18.5%	71.7%

Of those students who reported access to a computer at home, (n = 329), 28.3% reported using a computer at home for either all or some of their classes. Conversely, 71.7% of those having access to a computer did not use a computer at home for any of their classes. It appears that students who have access to computers at home are taking some advantage of the capacity of personal computers for the completion of homework assignments.

Summary

The data indicated that the students in this research believed that they would make greater use of the skills in areas other than a computer literacy class if more computers were available.

These tables also illustrated that the skills taught in computer literacy classes are not usually used in subsequent classes.

Tables 10 - 26 examined students' recall of study and usage of computer skills by sex and race. Approximately 80 students did not identify themselves as black or white so that the maximum number of responses in these tables is 808.

Table 10

Report of Study of Word Processing by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	9 14.3%	73 23%	10 13%	44 12.7%	136
A Little	27 42.9%	121 38.2%	23 29.9%	121 35.3%	292
A Lot	27 42.9%	123 38.8%	44 57.1%	180 52.2%	374
Total	63	317	77	345	802

Chi-Square = 22.1, df = 6, $p < 0.05$

The null hypothesis that recall of extent of study of word processing was homogeneous across race and sex was rejected because the Chi-square value of 22.1 was greater than the 12.59 required for the rejection at the 0.05 significance level.

The significant Chi-square was largely the result of the female students reporting a greater extent of study of word processing than did male students.

Table 11

Report of Study of Database Management by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	13 21.7%	118 37.2%	16 21.6%	110 32.4%	257
A Little	34 56.7%	132 41.6%	34 45.9%	140 41.2%	340
A Lot	13 21.7%	67 21.1%	24 32.4%	90 26.5%	194
Total	60	317	74	340	791

Chi-Square = 15.06, df = 6, $p < 0.05$

The null hypothesis that recall of the extent of study of database management was homogeneous across race and sex was rejected because the Chi-square value of 15.06 was greater than the 12.59 required for rejection at the 0.05 significance level. The significant Chi-square was largely due to the fact that females reported a higher extent of study of database management than did males.

Table 12

Report of Study of Spreadsheet by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	20 31.2%	136 43.3%	27 35.1%	157 46.3%	340
A Little	25 39.1%	124 39.5%	24 31.2%	116 34.2%	289
A Lot	19 29.7%	54 17.2%	26 33.8%	66 19.4%	165
Total	64	314	77	339	794

Chi-Square = 15.95, df = 6, $p < 0.05$

The null hypothesis that recall of the extent of study of spreadsheets was homogeneous across race and sex was rejected because the Chi-square value of 15.95 was greater than the 12.59 required for rejection at the 0.05 significance level.

Rejection of the null hypothesis was influenced by the report of black males and females indicating greater degree of the recall of the study of spreadsheet.

Table 13

Report of Graphics Study by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	30 48.4%	188 60.1%	45 59.2%	220 64%	483
A Little	20 32.3%	77 24.6%	16 21.1%	85 24.7%	198
A Lot	12 19.4%	48 15.3%	15 19.7%	39 11.3%	114
Total	62	313	76	344	795

Chi-Square = 8.96, df = 6, $p > 0.05$

Table 13 examines the extent to which students who were identified by sex and race indicated they studied graphics.

The null hypothesis for this question was retained. The critical value of Chi-square (8.96) was less than the value of 12.95 required for a level at 0.05. This indicated that there was no statistically significant difference in the recall of study of computer graphics by sex and race.

Table 14

Report of the Study of Programming Language (BASIC) by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	16 25%	67 21.2%	14 19.4%	51 15%	148
A Little	23 35.9%	107 33.9%	19 26.4%	117 34.4%	266
A Lot	25 39.1%	142 44.9%	39 54.2%	172 50.6%	378
Total	64	316	72	340	792

Chi-Square = 9.01, df = 6, $p > 0.05$

Table 14 examines the extent that students who were identified by sex and race indicated they studied a programming language (BASIC).

The null hypothesis that recall of extent of study of a programming language (BASIC) was homogeneous across race and sex was retained because the Chi-square value of 9.01 less than the 12.59 required for rejection at the 0.05 significance level. Females, both black and white, reported a somewhat higher recall of the study of a programming language (more than 50%).

Table 15

Report of Study of Other Computer Literacy Skills by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	12 35.3%	81 45%	10 32.3%	64 43.8%	167
A Little	9 26.5%	51 28.3%	9 29%	36 24.7%	105
A Lot	13 38.2%	48 26.7%	12 38.7%	46 31.5%	119
Total	34	180	31	146	391

Chi-Square = 4.16, df = 6, $p > 0.05$

Table 15 examines the extent that students identified by sex and race indicated they studied other computer literacy skills (i.e. History and Science).

The researcher retained the null hypothesis for this question since the Chi-square value of 4.16 was far below the required value for the alpha level (0.05). This indicated no statistically significant relationship existed between the study of computer literacy skills (i.e. History and Science) and sex and race.

Summary

Tables 10 - 15 examined the extent to which computer literacy skills were taught to students in computer literacy classes by sex and race. The values of Chi-square allowed the researcher to reject the null hypothesis with confidence with regards to the existence of relationships of statistical significance between the independent variables "Race" and "Sex" and the dependent variables "Student Recall of the Study of Word Processing,"

"Student Recall of the Study of Database Management," and "Student Recall of the Study of Spreadsheet."

No statistically significant relationship was found to exist between the independent variables "Race" and "Sex" and the dependent variables "Student Recall of the Study of Graphics," "Student Recall of the Study of A Programming Language (BASIC)," and "Student Recall of the Study of Other Computer Literacy Skills" (i.e. History and Science). Hence, the researcher retained the null hypothesis for these topics.

Table 16

Reported Use of Word Processing Skills in Other Classes by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	29 44.6%	192 61.1%	33 42.9%	225 65.4%	479
A Little	21 32.3%	76 24.1%	25 32.5%	64 18.6%	186
A Lot	15 23.1%	47 14.9%	19 24.6%	55 16%	136
Total	65	315	77	344	801

Chi-Square 19.69, df = 6, $p < 0.05$

Table 16 examines the extent to which students used word processing skills in classes other than computer literacy classes by sex and race. The null hypothesis to the question was rejected because the value for Chi-Square was greater than the critical value at the 0.05 probability level.

The major contribution to the Chi-square was that the white males and females reported lower use of word processing skills than did black males and females.

Table 17

Reported Use of Database Management Skills in Other Classes by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	40 65.6%	242 76.8%	48 64%	277 81%	607
A Little	15 24.6%	58 18.4%	17 22.7%	46 13.5%	136
A Lot	6 9.8%	15 4.8%	10 13.3%	19 5.6%	50
Total	61	315	75	342	793

Chi-Square = 17.36, df = 6, $p < 0.05$

Table 17 examined the extent to which students used database management skills, in classes other than computer literacy, by sex and race.

The null hypothesis that recall of usage of database management was homogeneous by race and sex was rejected because the Chi-square value of 17.36 was greater than the 12.59 required for rejection at the 0.05 level. The students generally reflected little to no use of database management skills in subsequent classes. The significant value of Chi-square was largely due to the fact that black males and females reported a higher usage of database management skills that did white students.

Table 18

Reported Use of Spreadsheet in Other Classes by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	40 65.6%	249 78.8%	52 67.5%	280 82.1%	621
A Little	15 24.6%	53 14.5%	9 11.7%	43 12.6%	120
A Lot	6 9.8%	14 3.8%	16 20.%	18 5.3%	54
Total	61	316	77	341	795

Chi-Square = 36.34, df = 6, $p < 0.05$

Table 18 examined the extent to which students used spreadsheet, in classes other than computer literacy classes, by sex and race.

The null hypothesis that the use of spreadsheets in subsequent classes was homogeneous across race and sex was rejected. The significant Chi-square was largely the result of the white male and female students reporting a lesser extent of use of spreadsheets than did black males and females.

Table 19

Reported Use of Graphics in Other Classes by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	30 48.4%	188 60.1%	45 59.2%	220 64%	483
A Little	20 32.3%	77 24.6%	16 21.1%	85 24.7%	198
A Lot	12 19.4%	48 15.3%	15 19.7%	39 11.3%	114
Total	62	313	76	334	795

Chi-Square = 9.02, df = 6, $p > 0.05$

Table 19 examines the extent to which students used graphics in classes other than computer literacy classes by sex and race.

The null hypothesis for this question was retained since the Chi-square value (9.02) with six degrees of freedom was less than the value of 12.59 required for the 0.05 probability level. The students' use of graphics was not found to have been influenced by sex or race. Most (85%) students reporter little to no usage of graphics in subsequent classes.

Table 20

Reported Use of Programming Language (BASIC) in Other Classes by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	35 57.4%	219 69.5%	42 56%	245 72.7%	541
A Little	17 27.9%	60 19%	16 21.3%	60 17.8%	153
A Lot	9 14.8%	36 11.4%	17 22.7%	32 9.5%	94
Total	61	315	75	337	788

Chi-Square = 15.97, df = 6, $p < 0.05$

Table 20 examines the extent to which students indicated they used a programming language (BASIC), in classes other than computer literacy, by sex and race.

The null hypothesis to this question was rejected because the Chi-square was greater than the value of 12.59 required at the 0.05 level. Substantial contribution to the value of Chi-square was made by the higher frequency of black females who reported "A Lot" of use of a programming language in subsequent classes.

Table 21

Reported Use of Other Skills (History/Science) in Other Classes by Students by Sex and Race

	Male		Female		
	Black	White	Black	White	Total
None	23 56%	143 71.9%	23 51.1%	112 73.2%	301
A Little	9 22%	35 17.6%	6 13.3%	15 9.8%	65
A Lot	9 22%	21 10.6%	16 35.6%	26 17%	72
Total	41	199	45	153	438

Chi-Square = 23.19, df = 6, $p < 0.05$

Table 21 examines the extent to which students used other computer literacy skills, (History and Science) in classes other than computer literacy, by sex and race.

The researcher rejected the null hypothesis. The Chi-square value (23.19) indicated significantly sufficient support for the researcher's hypothesis that student use of other computer literacy skills (History/Science) was not homogeneous across race and sex. Black males and females reported a higher use of these skills than did white males and females.

Summary

Tables 16 - 21 examined the use of computers in classes other than computer literacy. The null hypotheses were rejected for all except one set of variables (use of graphics). Statistically significant relationships were found to exist between the variables "Sex and Race" and student use of the following skills: "Word Processing," "Database

Management," "Spreadsheet," "Programming Language (BASIC)," and "Other Skills (History/Science)" (Tables 16, 17, 18, and 21). Significantly higher values were found on the black males' and females' response to the use of word processing skills, database management skills, spreadsheet skills, programming language skills (BASIC), and other skills (History/Science) in classes other than computer literacy (Tables 16, 17, 18, and 21). This factor was primarily the result of white male and female students reporting a lower extent of usage of these skills than did black male and female students.

The data in Table 19 revealed no statistically significant relationship between sex and race and students' use of graphics in other classes. The null hypothesis that student use of graphics in classes other than a computer literacy class would be homogeneous across race and sex was retained.

Table 22

Students' Use of Computer Literacy Skills Predicated on Teacher Encouragement

	Male		Female		
	Black	White	Black	White	Total
Definitely Yes	16 23.2%	82 25.9%	19 27.9%	102 29.1%	219
Probably Yes	42 60.9%	152 48.1%	36 52.9%	172 49.1%	402
Probably No	5 7.2%	58 18.4%	8 11.76%	68 19.4%	139
Definitely No	6 8.7%	24 7.6%	5 7.5%	8 2.3%	43
Total	69	316	68	350	803

Chi-Square = 22.4, df = 9, $p < 0.05$

Table 22 examines the belief that students identified by sex and race would use computer literacy skills more, if teachers encouraged or accepted more work from computers.

The null hypothesis that the recall of use by teacher encouragement was rejected because of the Chi-square value was greater than the required rejection value at the 0.05 significance level.

Again, the significant Chi-square value resulted from the responses of the black male and female students that they would make greater use of their computer literacy skills if teachers encouraged or accepted more work completed on computers to a greater extent than did white students.

Table 23

Students' Use of Computer Literacy Skills Predicated on Availability of Computers

	Male		Female		
	Black	White	Black	White	Total
Definitely Yes	27 39.1%	123 39.9%	45 57%	176 50%	371
Probably Yes	29 42%	124 40.3%	24 30.4%	143 40.6%	320
Probably No	11 15.9%	45 14.6%	5 6.3%	28 8%	89
Definitely No	2 2.9%	16 5.2%	5 6.3%	5 1.4%	28
Total	69	308	79	352	808

Chi-Square = 26.94, df = 9, $p < 0.05$

Table 23 examines the belief that students identified by sex and race would use computer literacy skills, if more computers were available.

The null hypothesis to this question was rejected because the value for Chi-Square was larger than the value required for rejection at the accepted probability level of 0.05.

The significant Chi-square was largely a result of female students reporting a greater expectation of higher use with more computers than did male students.

Table 24

Availability of Computers to Students for Use in Other Classes

	Male		Female		
	Black	White	Black	White	Total
All of my Classes	7 10.6%	8 2.5%	4 5.3%	13 3.7%	32
Some of my Classes	22 33.3%	107 34.1%	40 52.6%	116 33%	285
None of my Classes	37 56.1%	199 63.4%	32 42.1%	223 63.4%	491
Total	66	314	76	352	808

Chi-Square = 21.89, df = 6, $p < 0.05$

Table 24 examines the extent to which computers are available for students' use in other classes.

The high value of Chi-square (21.89) was found to have been higher than that required for rejection at the 0.05 level. This gave statistical support for the researcher's hypothesis that sex and race somehow were related to the availability of computers for students' use in other classes. The primary contributor to this high value was black males and females reported higher availability of computers than did white males and females.

Table 25

Students' Access to a Computer in the Home

	Male		Female		
	Black	White	Black	White	Total
Yes	17 26.6%	157 50%	20 31.7%	117 34.6%	305
No	47 73.4%	157 50%	43 68.3%	221 65.4%	444
Total	64	314	63	338	749

Chi-Square = 23.95, df = 3, p = 0.05

Table 25 examines the extent to which students had access to a computer at home. The high value of Chi-square (23.95) was found to have been higher than the 12.59 required at the 0.05 level. This factor suggests statistical support for the researcher's hypothesis that sex and race were related to the extent to which students reported the availability of computers in the home. White males and black females reported the highest rate of availability of computers in the home. The null hypothesis to this question was rejected.

Table 26

Students' Home Usage of Computers for Completion of School Assignments

	Male		Female		
	Black	White	Black	White	Total
All of my Classes	3 9.1%	16 7.9%	1 3.3%	16 9.5%	36
Some of my Classes	9 27.3%	94 46.3%	9 30%	66 39.3%	178
None of my Classes	21 63.6%	93 45.8%	20 66.7%	86 51.2%	220
Total	33	203	30	168	434

Chi-Square = 8.91, df = 6, $p > 0.05$

Table 26 examined the students' use of computers at home for school assignments. The null hypothesis was that when students were considered by race and sex, the extent of home use of computers for school assignments would be homogeneous. The null hypothesis that students' home usage of computer for completion of school assignments was homogeneous across race and sex was retained because the Chi-square value of 8.91 was less than the 12.59 required for rejection at the 0.05 level.

Summary

Tables 22-25 examined students' belief that computer usage would be enhanced by teachers encouragement/acceptance of work done on computers, availability of computers, availability of computers for use in other classes, and access to computers in the home.

The null hypotheses of homogeneity of computer usage for these topics was generally rejected. The high value on Chi-square was most often influenced by the responses of black male and female students.

In general, white males indicated they would use the computers more, if teachers accepted the work. If there was a computer in the home, they would probably be the ones to have more access.

Table 26 examined the use of computers for assignments. The null hypothesis, stating the student usage of computers at home for school assignments was homogeneous, was retained. The majority of all students responded that they used computers, at home, for school assignments for none of their classes. This was a carry-over from table 25 where there was a computer in the home. These students indicated that there were no computers in the home for their use.

The data in Tables 27 through 32 reflect the Computer Literacy Teachers' responses.

Table 27

Computer Literacy Teachers' Emphasis on Computer Literacy Skills in Class

SKILL	None	Little	Lot
	0	6	14
Word Processing		30%	70%
	2	8	9
Database Management	10.5%	42.1%	47.4%
	4	11	4
Spreadsheet	21.5%	57.7%	21.5%
	2	9	9
Graphics	10%	45%	45%
Programming	0	4	16
Language		20%	80%
Other Programs	0	3	5
History/Science		37.5%	62.5%

Table 27 examined the extent to which teachers of computer literacy emphasized computer literacy skills in their classes. The data revealed that word processing and a programming language (BASIC) are most heavily emphasized.

Although the teachers strongly agree about emphasizing these two skills, they did not neglect emphasis on the other computer literacy skills.

Table 28

Computer Literacy Teachers' Expectation of Use of Computer Literacy Skills

SKILLS	None	Little	Lot
Word Processing	0	4 20%	16 80%
Database Management	3 15.8%	12 68.2%	4 21.1%
Spreadsheet	7 36.8%	11 57.9%	1 5.3%
Graphics	3 15%	13 65%	4 20%
Programming Language (BASIC)	3 15%	10 50%	7 35%
Other Skills (History/Science)	1 16.7%	3 50%	2 33.3%

Table 28 examined the extent to which computer literacy teachers expected students to apply computer literacy skills they acquired to other classes.

Computer literacy teachers expected that word processing (80%) would be applied in other classes more than any other of the skills learned. Though expectation of use of programming language BASIC (35%) was well below that of word processing, it emerged second to word processing.

Computer literacy teachers believed quite strongly that students would apply word processing skills in classes other than computer literacy classes. The teachers (80%) reported that students would use these skills a lot.

Table 29

Extent to Which Computer Literacy Teachers Encouraged Use of Computer Literacy Skills in Other Areas

Definitely Yes	Probably Yes	Probably No	Definitely No
18 94.7%	1 5.3%	0	0

The data in table 29 indicated the frequency of encouragement of computer literacy teachers for students to apply skills in other areas. All of the computer literacy teachers who responded to this question encouraged their students to use skills learned in computer literacy classes in the other classes.

Table 30

Extent to Which Computer Literacy Teachers Believe Computers were Available for Student Use Outside Computer Literacy Classes

Definitely Yes	Probably Yes	Probably No	Definitely No
8 40%	5 25%	7 35%	0

Data in Table 30 reported that (65%) of the computer literacy teachers believed that computers were available for students to use computer literacy skills in other areas, but (35%) of the teachers had some doubts that computers were available for student use in areas other than computer literacy.

Table 31

Probability of Increased Student Usage of Skills Based on Availability of Resources as Reported by Computer Literacy Teachers

Definitely Yes	Probably Yes	Probably No	Definitely No
16	2	2	0
80%	10%	10%	

The reported frequency of teachers who believed that student usage would be enhanced by increased availability of resources was 90% by the computer literacy teachers as indicated in Table 31.

Table 32

Probability of Increased Student Usage of Skills Based on Teacher Encouragement as Reported by Computer Literacy Teachers

Yes	Probably Yes	Probably No	Definitely No
19	1	0	0
95%	5%		

Table 32 reported that all the computer literacy teachers felt that teachers in subsequent areas should encourage the students to use the skills learned in computer science more.

Summary/Computer Literacy Teachers

The data in Tables 27 through 32 indicated that computer literacy teachers emphasized BASIC, word processing and other programs the most over other skills. However, a vast majority reported that they most often expected students to apply word processing skills in other classes. All computer literacy teachers indicated that they encouraged students to use computer literacy skills in other classes.

A smaller majority of teachers indicated that they believed that computers were available for student use outside computer literacy skills classes. Most computer literacy skills teachers believed that student use and increased availability were congruent. Unanimous agreement was noted among teachers regarding the positive effect of their encouragement to increase student use of computer literacy skills in subsequent areas.

The data in Tables 33 through 38 depicted student usage of computer literacy skills as reported by teachers in subsequent areas.

Table 33

Extent to Which Teachers Encourage Student Use of Computer Literacy Skills

SKILL	None	Little	Lot
	80	43	34
Word processing	51%	27.3%	21.7%
Database	119	13	10
Management	83.8%	9.2%	7%
	113	21	9
Spreadsheet	79%	14.7%	6.3%
	84	52	8
Graphics	59.5%	35.1%	5.4%
Programming	110	22	10
Language (BASIC)	75%	15.5%	7%
Other Programs	48	7	7
(History/Science)	77%	11.3%	11.3%

Table 34

Student Usage of Computer Literacy Skills as Reported by Teachers in Subsequent Classes

SKILL	None	Little	Lot
	83	46	27
Word Processing	53.2%	29.5%	17.3%
Database	119	15	4
Management	86.2%	10.9%	2.9%
	116	20	5
Spreadsheet	82.3%	14.2%	3.5%
	92	49	9
Graphics	61.3%	32.7%	6%
Programming	115	16	7
Language (BASIC)	83.3%	11.6%	5.1%

The data in Table 34 showed that students made little to no use of computer literacy skills in subsequent areas according to those teachers in subsequent areas. The most common response was found in the lowest category of usage. The lowest frequency of usage was found to be database management skills (13.8%). However, low values were found on all computer literacy skills except word processing.

Table 35

Extent to Which Teachers in Subsequent Classes Accepted Work Completed on Computer

Definitely Yes	Probably Yes	Probably No	Definitely No
113	29	17	0
71.1%	18.2%	10.7%	

Table 35 showed that (90%) of the teachers in subsequent classes would accept work completed using skills acquired in computer literacy classes.

Table 36

Availability of Computers for Student Use Outside Computer Literacy Classes

Definitely Yes	Probably Yes	Probably No	Definitely No
108	35	9	7
67.9%	22%	5.7%	4.9%

Teachers of subsequent classes (89.9%) indicated that they believed computers were available for student usage by the frequency of their response shown in Table 36.

Table 37

Students' Use of Skill Predicated on Resource Availability

Definitely Yes	Probably Yes	Probably No	Definitely No
50	43	49	41
27.3%	23.5%	26.8%	22.4%

By their responses, shown in Table 37, teachers of subsequent courses appear to be almost equally divided pro and con in their belief that students would use the skills more if there were more computer resources available.

Summary/Teachers in Subsequent Areas

Teachers in subsequent areas all agreed that the skills taught in computer literacy classes were not being used in their classes. There was also consensus among teachers to accept student assignments completed with the aid of computer literacy skills.

Table 38

Students' Usage Predicted on Increased Computer Availability by Participants

RESPONSE	Students	Computer Literacy Teachers	Teachers in Subsequent Areas
Definitely Yes	47%	40%	27%
Probably Yes	38%	25%	23%
Probably No	11%	35%	27%
Definitely No	4%	0	22%

Table 38 compared the anticipated use of computer literacy skills, if more computers were available. This table showed that students and computer literacy teachers believed that more computers (Definitely Yes) would increase the use of the skills by students. The teachers in subsequent classes also indicated that more computers would increase the use of computer skills. However, a slightly higher frequency of (Definitely Yes) student responses were noted in this same category.

Summary/Computer Literacy Teachers

The data in Tables 33 through 38 indicated that teachers in subsequent areas encouraged student use of word processing most. More than 80% of the computer literacy students did not use their computer literacy skills in completion of assignments according to the teachers in subsequent areas. However, most teachers reported that they accepted assignments completed on computer.

Table 39

Student Usage Predicted on Teacher Encouragement by Participants

RESPONSE	Student	Computer Literacy Teachers	Teachers in Subsequent Areas
Definitely Yes	33%	99%	63%
Probably Yes	46%	1%	21%
Probably No	16%	0	15%
Definitely No	4%	0	0

Encouragement is a strong influence for many things. If students were encouraged to use computer literacy skills more, or if more teachers accepted more work completed with the aid of computers, increased student usage may result. Table 39 revealed a strong consensus among respondents that students would make more use of computer skills if encouraged to do so. The computer literacy teachers felt very strongly that teacher encouragement of students to use computer literacy skills would result in increased utilization of their skills. The teachers in subsequent areas expressed strong feelings that more encouragement and acceptance of more work completed with the aid of computers

from students would result in increased usage of computer literacy skills. The lowest frequency of positive responses was furnished by students.

Summary/All Participants

Examination of Tables 38 and 39 indicated that students, computer literacy teachers, and teachers from subsequent areas all believed that an increase in the availability of computers and teacher encouragement would result in increased usage of computer literacy skills.

Table 40

Emphasis in Topics Covered in Computer Literacy Classes as Reported by Students and Computer Literacy Teachers

	Computer Literacy					
Response	Teachers			Students		
		A			A	
	None	Little	A Lot	None	Little	A Lot
Word Processing	0	30%	70%	17%	38%	46%
Database Management	10%	42%	47%	31%	44%	24%
Spreadsheets	21%	58%	21%	42%	37%	21%
Graphics	10%	45%	45%	13%	34%	52%
A Programming Language	0	20%	80%	19%	34%	47%
Other	0	38%	62%	42%	27%	30%

Note: The percentages have been rounded off from Tables 3 and 27.

With the exception of the topic of graphics on which there was high agreement, the students uniformly recalled less emphasis on each of the topics than did computer literacy teachers.

Table 41

Availability of Computers for Use in Other Classes

Response	Students	Computer Literacy Teachers		Subsequent Teachers Classes
All of my Classes	4%	Definitely Yes	40%	68%
Some of my Classes	35%	Probably Yes	25%	22%
None of my Classes	61%	Probably No	35%	6%
		Definitely No	0	5%

Note: The percentages have rounded off from Tables 4, 28, and 35.

Teachers of subsequent classes believed that computers were available for student use to a greater extent than did computer literacy teachers. Students thought that computers were much less available for them than did either set of teachers.

The data in table 41 indicated that the teachers already thought that computers were much more available to students than did the students. Therefore, the teachers showed a lower expected increase in usage with more computer availability than did the students who thought that computers were not generally available to them.

Table 42

Use in Subsequent Classes

	Reported by Students			Reported by Computer Literacy Teachers			Reported by Subsequent Teachers		
	None	A Little	A Lot	None	A Little	A Lot	None	A Little	A Lot
Word Processing	60%	24%	16%	0%	20%	80%	53%	30%	17%
Database Management	76%	18%	6%	16%	63%	21%	86%	11%	3%
Spreadsheet	77%	16%	7%	37%	58%	5%	82%	14%	4%
Graphics	61%	25%	14%	15%	65%	20%	61%	33%	6%
A Programming Language	69%	19%	12%	15%	50%	35%	83%	12%	5%

Note: The percentages have rounded off from Tables 4,28, 35

Table 42 examined the data represented in Tables 4, 28, and 35 which indicate the usage of skills in subsequent classes. The data in this table reported that the students indicated that the basic skills taught by computer literacy teachers were not being used in the other classes in which they were enrolled. The report of teachers in subsequent classes was most congruent with that of the students.

The congruency of report of present conditions between teachers and students give indirect evidence of the validity of these questionnaires.

Chapter 5

Conclusions and Recommendations

Dissension continues as to which skills should be taught in a computer literacy class. Most of the disagreement revolves around the use of application packages, programming languages, and the importance of theory versus application. This researcher was not attempting to determine which skills should be taught, but rather the extent to which computer literacy teachers and students agreed upon what was taught in the computer literacy class. Further study examined the extent to which these skills were employed in subsequent areas, in order to find how resources (or the lack thereof) affect the students' use of these skills in subsequent classes and the impact of race and gender on these variables.

The researcher began the investigation with an examination of the perceptions held by students and computer literacy teachers regarding the curriculum taught in the computer literacy course. The students and subsequent teachers held congruent perceptions with regard to what skills computer literacy teachers emphasized and those students reported they studied most. Computer literacy teachers indicated that they placed more emphasis on BASIC (80%), word processing (70%), and other skills (62%) than on spreadsheet, graphics and database management (Table 40). Students ranked their study of BASIC first, word processing was second, and other skills was third (Tables 10-15). While computer literacy teachers agreed with the students, that the most emphasis and study was on a programming language, word processing and other skills, they felt that some emphasis was also placed on the other skills as well (Table 42).

In terms of actual usage, students and teachers in subsequent classes give similar accounts. The data reported by subsequent teachers regarding student use of computer literacy skills display these data. Tables 4 and 34 display this data. The most utilized skill was word processing. Computer literacy skills for specific subject matter was the second most used skill. It was followed by a programming language.

Students' responses regarding the recall of study of computer literacy skills was fairly evenly distributed among respondents. Female students indicated that they recalled studying word processing by a significant margin over male students. The data reported in Tables 10, 11 and 12 suggest a relationship between race and sex and the recall of the study of word processing, database management and spreadsheet. Black males and females reportedly recalled the study of these computer literacy skills to a greater degree than white students. However, the respondents' recall of the study of graphics, BASIC and other computer literacy skills was more evenly disbursed according to the students' report (Tables 13, 14 and 15), resulting in the retention of the null hypothesis for these questions. Race and gender appear to have the greatest bearing on study and use of graphics, BASIC and other computer literacy skills.

Several tables showed significant Chi-square values when recall of study of topics or current usage were examined by race and sex. Examination of these tables and the cells contributing to these differences does not lead to any clear pattern.

Computers have developed along the same lines as mathematics and science (fields viewed historically as masculine) and have an inherent bias toward male dominant thinking. This study revealed a high interest among females and blacks. This may be due,

in part, to availability in the schools of this novel technology. White males had significantly higher accessibility to computers in the home; however, this did not translate to higher usage.

Students reported most ready recall of the computer literacy skills emphasized by their teachers. The computer literacy skills most emphasized by computer literacy teachers and recalled by students were the following: first, a programming language; second, word processing; third, database management (Table 40). All computer literacy teachers reported that they encouraged their students to utilize computer literacy skills in other classes (Table 29). The majority of computer literacy teachers indicated that subsequent teacher encouragement and increased availability of resources would promote increased usage of computer literacy skills among students (Tables 31 and 32).

However, data in Table 33 shows that teachers in subsequent areas believed that their encouragement would not increase student usage of computer literacy skills. They indicated that fewer than 20% of computer literacy students used their skills to a great extent to complete their assignments. The majority of teachers in subsequent areas did accept work completed using a computer (Tables 34 and 35).

A smaller majority indicated that they believed students had access to computers outside the computer literacy skills class. The perceived lack of availability factors into the low usage of computer literacy skills to complete assignments. Since quite a few teachers in subsequent areas believed that some problem existed with availability of computers, increased requirement for work completed on a computer would be inconsistent with such belief.

The responses from students and teachers in subsequent areas were more congruent than those of students and computer literacy teachers, with regard to availability of computers and teacher encouragement positively impacting student usage, though most answered affirmatively. However, computer literacy teachers' responses appeared to have been overly optimistic. Reports of actual usage were in a similar vein. Computer literacy teachers reported a great deal more student use in other areas that did the students or teachers in subsequent areas (Table 42). Computer technology is very expensive, and the parishes studied are impoverished.

The population sample was drawn from the rural South where the economic outlook in these previously agricultural communities has not been very promising. The average income for the four parishes sampled ranged from $10,900 to $16,800 (1990 US Census). A large percentage of the population subsists below the poverty level. The transition from agrarian to industrial production has been torpid.

Computer technology is a relative novelty to these locales. The obvious lack of economic resources is a likely factor in the schools' deficiency in the technological arena. Yet, the white males reported the most access to a computer in the home (Table 25). Despite the technological shortage in these parishes, the white male emerges as the type most likely to access the computer, suggesting some relationship between race and sex and computer usage.

Interestingly, only a small majority of the teachers in subsequent areas believed that availability and student usage were positively related (Table 37). The skill most encouraged by subsequent teachers was word processing (Table 33). Of all the skills, this

one is most practical to the average student and is the most useful in almost every academic exercise.

Recommendations

A real and pressing need for more computers in the classrooms is indicated. Economic deprivation presents a real challenge to rural pedagogists. The dearth of industry, coupled with chronic poverty, means these communities must broaden their field to seek funding for their technological needs. Applications for federal and private grants are options that should be considered. Teachers in both areas should try writing grants for funding to get additional equipment.

Another method to obtain more equipment for their classes would be to attend meetings where government agencies list what they have available. An example of this type of program is FEDIX (Federal Government Opportunities). These agencies do not require teachers to expend too much time writing grants. They must, instead, state what problems they have and the equipment needed.

Teachers can acquire additional training via seminars given at local colleges or universities, as well as seminars at the schools where they are employed. These seminars will increase their knowledge and competency with regard to computer literacy. In addition to heightened awareness of computer applications, this will give them new insight into using computer in their classrooms.

Teachers in other classes and students agreed that if encouragement were given to use the computers in other classes, or if teachers required the use of the computers' word processing packages in classes where there was a large amount of writing, student use

may increase. This may enhance the students' writing across the curriculum. Teachers in other areas can also require the students to use computers to aid them in their studies. As an example, mathematics teachers could also give assignments that would require the students to use the computer.

When purchasing software, consideration should be given to the acquisition of programs that facilitate the development of cognitive skills. Additional consideration should be given to gender and racial biases in software programs.

Further exploration of the relationship between race and sex and computer literacy skills is warranted. How these might be channeled to facilitate teaching and usage is certainly an area worthy of further study.

The increasing use of computers in today's information gathering society necessitates that a person be equipped not only with knowledge, but also with computer skills. An understanding of how these work together and the cumulative affect on individuals and society will enhance the computer-literate's performance in the workplace and school. Therefore, school systems should introduce students to computer literacy skills as early as possible in the primary years. Understandably, finding the additional money to purchase computers may be a problem, but many other outlets exist by which computers may be acquired.

Another avenue rural pedagogists might choose is the National Aeronautics and Space Administration (NASA). They do quite a bit more than 'go places where no man has gone before.' This organization has a very extensive education program. For instance, Stennis Space Center has a special building dedicated to education.

The space program also distributes grants to fund the appropriation of educational equipment for public school systems. The Department of Education, as well as, the Department of Energy, provides funding to aid schools in the acquisition of educational technology.

Both APPLE and IBM have some form of out-reach program to assist teachers in obtaining funds to implement or acquire needed equipment. In addition to these options, many communities have come up with innovative ideas to help their school boards purchase the badly needed computers.

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Appendix A

Computer Literacy Teachers

Instruction: This questionnaire seeks your opinion about the contributions of instructional experiences in computer literacy. The information provided will be grouped in a final report. There will be no references to individual responses. You are under no obligation to respond to the questionnaire, but your cooperation would be greatly appreciated. Please respond as candidly as possible. Check the appropriate answer. Thank you for your cooperation.

1. To what extent do you emphasize the following in your course?

	None	A Little	A Lot
A. Word Processing			
B. Database Management			
C. Spreadsheet			
D. Graphics (i.e. Print Shop)			
E. A Programming Language (BASIC)			
F. Other			

2. To what extent do you expect your students will apply these skills or concepts in courses that they take after your course?

		A	A
	None	Little	Lot

A. Word Processing

B. Database Management

C. Spreadsheet

D. Graphics

(i.e. Print Shop)

E. A Programming

Language (BASIC)

F. Other

3. Do you encourage your students to make use of their computer skills in other areas.

Definitely	Probably	Probably	Definitely
Yes	Yes	No	No

4. Are the computers available for students to make use of their computer skills in course other than computer literacy?

Definitely	Probably	Probably	Definitely
Yes	Yes	No	No

5. Do you believe that students would use the skills more, if more or better computer sources were available?

Definitely Yes	Probably Yes	Probably No	Definitely No

6. Do you believe that students would use the skills more, if teachers of subsequent areas encouraged and/or accepted the use of computer literacy skills in their courses?

Definitely Yes	Probably Yes	Probably No	Definitely No

7. Comments:

Students

Instruction: This questionnaire seeks your opinion about the contributions of instructional experiences in computer literacy. The information provided will be grouped in a final report. There will be no references to individual responses. You are under no obligation to respond to the questionnaire, but your cooperation would be greatly appreciated. Please respond as candidly as possible Check the appropriate answer. Thank you for your cooperation.

1. To what extent is the following emphasized in your course?

	None	A Little	A Lot
A. Word Processing			
B. Database Management			
C. Spreadsheet			
D. Graphics (i.e. Print Shop)			
E. A Programming Language (BASIC)			
F. Other			

2. To what extent do you apply these skills or in courses that you take after your computer courses?

	None	A Little	A Lot
A. Word Processing			
B. Database Management			
C. Spreadsheet			
D. Graphics (i.e. Print Shop)			
E. A programming Language (BASIC)			
F. Other			

3. Do you believe that you would use the skills more, if your teachers encouraged or accepted more work from computers?

Definitely Yes	Probably Yes	Probably No	Definitely No

4. Do you believe that you would use the skills more if more computers were available?

Definitely Yes	Probably Yes	Probably No	Definitely No

5. Are the computers available for you to make use of in courses other than computer literacy classes?

All of my Classes	Some of my Classes	None of my Classes

6. Do you have access to a computer at home? Yes

If no, go to question #8 No

7. Do you use your computer at home for assignment?

All of my classes	Some of my classes	None of my classes

8. Circle your sex and race.

Sex:	Male	Female	
Race:	Black	White	Native American
	Hispanic	Other	

9. Comments:

TEACHERS OF SUBSEQUENT CLASSES

Instructions: This questionnaire seeks your opinion about the contributions of instructional experiences in computer literacy. The information provided will be grouped in a final report. There will be no references to individual responses. You are under no obligation to respond to the questionnaire, but your cooperation would be greatly appreciated. Please respond as candidly as possible. Check the appropriate answer. Thank you for your cooperation.

1. To what extent do you encourage your students to use the following computer literacy skills in work for your course?

	None	A Little	A Lot
A. Word Processing			
B. Database Management			
C. Spreadsheet			
D. Graphics (i.e. Print Shop)			
E A programming Language (BASIC)			
F Other			

2. To what extent do your students use the following computer literacy skills in work for your course?

	None	A Little	A Lot
A. Word Processing			
B. Database Management			
C. Spreadsheet			
D. Graphics (i.e. Print Shop)			
E. A Programming Language (BASIC)			
F. Other			

3. Do you accept work for your course done using computer skills?

Definitely Yes	Probably Yes	Probably No	Definitely No

4. Are the computers available for students to make use of their computer literacy skills in other courses?

Definitely Yes	Probably Yes	Probably No	Definitely No

5. Do you believe that students would use the skills more, if more/better computer resources were available?

Definitely Yes	Probably Yes	Probably No	Definitely No

6. What subject(s) do you teach?

7. Comments:

APPENDIX B

A - 7 Jardine Terrace

Kansas State University

Manhattan, Kansas

Superintendent of Schools

St. Tammany Parish School District

Covington, Louisiana

Dear Sir:

Please allow me the opportunity to introduce myself. My name is Vincent Johnson and I am a graduate student at Kansas State University pursuing a ph. D. Degree in Computer Science Education.

As part of my dissertation research I am attempting to complete a study that will encompass computer literacy skills taught at the junior high or middle school level. The premise of the research is to show that these skills will not carry over into other classes.

Please be assured that all names and answers of the participants in this will be held in the strictest confidence.

Thanking you in advance; I am.

Respectfully,

Vincent Johnson

A - 7 Jardine Terrace

Kansas State University

Manhattan, Kansas

Superintendent of Schools

St. Helena Parish School District

Greensburg, LA

Dear Sir:

Please allow me the opportunity to introduce myself. My name is Vincent Johnson and I am a graduate student at Kansas State University pursuing a PH. D. Degree in Computer Science Education.

As part of my dissertation research I am attempting to complete a study that will encompass computer literacy skills taught at the junior high or middle school level. The premise of the research is to show that these skills will not carry over into other classes.

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Respectfully,

Vincent Johnson

A - 7 Jardine Terrace

Kansas State University

Manhattan, Kansas

Superintendent of Schools

Washington Parish School District

Franklinton, Louisiana

Dear Sir:

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Respectfully,

Vincent Johnson

A - 7 Jardine Terrace

Kansas State University

Manhattan, Kansas

Superintendent of Schools

Tangipahoa Parish School District

Amite, Louisiana

Dear Sir:

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As part of my dissertation research I am attempting to complete a study that will encompass computer literacy skills taught at the junior high or middle school level. The premise of the research is to show that these skills will not carry over into other classes.

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