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Student, instructor, and program factors associated with student success in an Associate Degree Nursing program

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Student, instructor, and program factors associated with

student success in an Associate Degree Nursing program

by

Mary Furleigh Woerner

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DEDICATION

Through the seven-year-long journey leading to my "doctoratehood," three people have unfailingly accompanied me. My primary sources of strength, they have borne with me during the highs and lows of this laborious process.

My children, Francie and Charlie, have rarely complained about the endless nights I've had to be "in my room" and the only-too-frequent sunny summer Sunday afternoons when I had to work on the "the big D" instead of going swimming or biking or on picnics with them. I thank them for their generosity of spirit in giving me the time I needed and the encouragement I cherished.

The person who merits having his name on the diploma alongside mine and to walk across the stage with me is my husband Warren. Problem-solver, listener, supporter . . . I couldn't have done it without him.

To these three I dedicate this labor. They were remarkable--long-suffering, patient, kind, and helpful. No student deserves all they gave. And no student will ever appreciate it more.

TABLE OF CONTENTS

LIST OF TABLES

x

ACKNOWLEDGEMENTS

CHAPTER I. INTRODUCTION

Problem Statement

As with all segments of higher education, nursing faculty are currently experiencing greater pressures for increased accountability. Demands by internal and external constituencies (college administrators, state and federal government, accrediting agencies, the corporate and business community, and the public at large) constitute continual challenges for faculty, program leaders, and department heads.

Much of the impetus of the demand for accountability on the part of educators arises from significant and sometimes startling societal changes in the U.S. Lenburg (1991, pp. 26-27) compares parts of U.S. society to third world nations. She states that children grow up experiencing tragedies like homicides, suicides, substance and person abuse, pregnancy, AIDS, homelessness, poverty, and despair as "normal." Society has turned to education and educators for help in resolving these issues, and in finding solutions to many serious others, such as environmental hazards, lack of adequate health care, unacceptable dropout rates, and unemployment.

The importance of the last of these problems, that of joblessness, is illustrated by its current negative impact on the U.S. economy. Factored into this equation are global competitiveness and troubling and persistent questions raised about the quality of the American work force. Harte (1990, p. F6) quotes Lester Thurow, dean of the Massachusetts Institute of Technology business school: "it takes twice as long to train an

American work force than a German one because the U.S. [worker] doesn't have the basic [educational] skills."

Fifield et al. (1990, p. 15) cite implications for higher education when workers' skills are deficient. They note a two-fold challenge: first, the "ongoing critical need for workers with higher levels of technical and problem-solving skills," and second, "the emerging demand for employees who understand and can function in the world marketplace." They point out that skills in foreign language, as well as an understanding of world finance, foreign business cultures, and import/export processes are crucial if our country is to be truly competitive in a global economy.

National nursing leader Carrie Lenburg (1991, p. 27) identifies joblessness and its resulting poverty, along with the aging of our population, as two aspects of our society impacting on health care providers and nursing educators. Since poverty and unemployment are often related to lack of education, the poor and jobless, in particular, may need help from health personnel in learning about a number of health-related topics. These may include health-care community resources available to them, health promotion and illness prevention, and how to care for sick or disabled family members. They also will be more likely to need public assistance in obtaining health care as opposed to the more affluent in our society, who are employed and able to pay for most or all of their medical costs themselves, through personal savings and/or private or employer-provided insurance plans.

As the aging process takes its toll, many elderly citizens may have additional health challenges and needs, while they have correspondingly fewer physical, family, social, and

financial means to meet them. Although more infirm and frail, they may wish to remain in their own home, requiring the care of a community health nurse and/or home health aide to do so.

In addition, the influx of large numbers of immigrants in recent years adds another challenge to those involved in helping to promote wellness and care for the ill. These new members of the community may require special health care teaching content or methods to overcome language, cultural, or economic barriers.

For the poor, the elderly, and those newly-arrived in our country, lack of money to provide adequately for nutritional needs, immunizations, diagnostic services, medications, and proper treatment modalities may be a problem. In addition, transportation to and from health care facilities may be difficult or too costly for all three of these groups.

Implications for nursing program curricula related to these sociological changes include added emphasis on patient teaching, inclusion of home health care experiences, increased gerontological content and clinical practice, and development of what Williams (1993, p. 182) refers to as "cultural competence." Williams (p. 183) defines this as "the ability to break down barriers which interfere with positive relationships with individuals whose culture is unlike your own."

Perhaps Quehl (1988, p. 9) summarizes it best: "The current widespread interest in the quality of higher education stems partly from a financial imperative, but it derives also from a concern that the undergraduate curriculum may no longer meet the needs of the times--particularly the twin challenges of international economic competition and the

need to improve the quality of national life. Behind this concern is a growing recognition that undergraduate students often are not being taught as well as they must be. The national debate centers on curricular reform, the quality of teaching, and the assessment of educational outcomes."

Lenburg and Mitchell concur (1991, p. 68) stating that "evaluation of outcomes and objective performance assessment are increasingly relevant topics for debate and research, as leaders in business and education, at all levels, realize their relationship to competence and productivity." Citing the research of Ewell et al., 1990, and that of Hutchings and Marchese, 1990, they point out, moreover, that "assessment of competence is no longer an option in education; it is now legislated to some extent by at least 40 states and several regulatory agencies" (p. 69).

Keith (1991, p. 2) is in agreement. She believes that assessment "ought not be considered merely a passing fad." She lists three reasons for her belief that assessment is here to stay.

First is the existence of numerous mandates from both state government and professional organizations, as well as the large number of institutions already engaged in assessment. Keith illustrates the history of this evolvement with a "Chronology of Higher Education Assessment 'Events'" (p. 5, Figure 1-1).

The second reason noted by Keith (1991) for her prediction of assessment's permanence is that of the societal context in which assessment has emerged. She describes this context as one of "crisis and transformation of our society" which assigns to education a "potentially new and vital role." At the same time, however, a series of

national "Report Cards" on the state of education in the U.S. indicated that many

evaluators felt education was not living up to its promise and potential. Keith enumerates

these in Figure 1-2, p. 11, in a listing of "Major Reports of [the] 1980s."

Thirdly, she ascribes the "staying power" of assessment to the fact that it explores a

question fundamental to all educational endeavors: What are students learning? She

feels that after several years of exploration and practice with assessment, a shift has

occurred from "precise and systematic measurement to emphasis on the uses of

assessment to improve learning."

Thus, not only is outcomes assessment currently required for institutions of higher

education in general and for nursing education programs, as a significant part of those

institutions, but it also appears that the responsibility (and opportunity!) associated with

the assessment process may become an integral part of student, program, and institutional

evaluation for the long haul.

Additional factors impact nursing which compound the responsibilities faced by

those charged with educating future nurses. Five of these challenges come to mind.

The first involves the widely publicized nationwide nursing shortage. It does not

appear likely that this shortfall will be resolved quickly. The February 1991 issue of

"Workforce Trends: Insights into Career Education and Employment," Volume 1,

Number 1, published by North Iowa Area Community College, lists registered (and

licensed practical) nurses among the 20 occupations with the largest job growth. Citing

as its source an article entitled "National Labor Market Forecast" in the Bureau of Labor

Statistics' Career Opportunities News, Volume 7, Number 4, the article states that "the

greatest future demand will be in the service sector where an increase of 8.7 million new jobs is estimated."

Thus, while expanding nursing education programs to meet the need for additional practitioners, nursing faculty are, at the same time, attempting to maintain high standards for all students. Since the nursing profession plays an increasingly significant role in the well-being of a society, thorough and appropriate education of future nurses continues to be a priority goal for that society.

A second factor faced by higher education, including nursing programs, is that of increasing student diversity. Lenburg (1991, pp. 29-30) dramatically illustrates this change with two examples: Laguardia Community College which recently had students from 28 different countries enrolled in its Associate Degree Nursing program, and California's Golden West College, with hundreds of Asian students (including 1200 Vietnamese), many of them nursing students. Naisbitt and Aburdene (1990) quote Tom Brown, a Seattle Times reporter, who states that "At least 84 languages are spoken by children in L.A. public schools" (p. 205). Thus, it appears that diversity will continue to be an issue facing higher education for the long-range future.

The presence of a diverse student population, of course, is a potentially positive and wonderful thing for an institution of higher learning. It provides opportunity for all segments of the college community to be enriched by association and sharing with each other. However, diversity brings added challenge as well. The reality is that a large proportion of the minority and nontraditional students who enhance the cultural content of the student body are at the same time members of the at-risk student population.

The barriers for many of these students are considerable--language, culture, finances, health, academic preparation--to name a few. Such barriers are not insurmountable, but overcoming them will require a sizeable amount of time, effort, and determination on the part of colleges in general as well as by nursing programs and personnel. Parnell (1990, Chapter IV) suggests that high on the agenda of higher education in the 1990s must be a commitment to address the needs of this at-risk student population. He states (p. 103) "they are not only at risk in terms of their own lives, but they create a risk for our society."

Though directed especially to urban communities, the remarks of Parnell (1990, p. 129) are a caveat to all charged with the task and privilege of being educators, as he predicts that "colleges and universities will increasingly be called upon to help the at-risk population move into the economic mainstream of American life." Of significance to all teachers is Lenburg's comment (1991, p. 30) that "Many Asian students report that the most important component to being successful in school is the 'authentic relationships' they have with caring and helpful instructors."

Lenburg and Mitchell (1991, p. 68) posit that economics and changing enrollment patterns have impacted the recent emphasis on outcomes assessment of students. They note a rapid increase in programs for already-licensed nurses, minority and disadvantaged groups, adult learners, and second-career students. They believe that this diversity has stimulated "more flexibility and assessment of prior learning and associated integration of competency-based and adult learning principles."

Third, nursing faculty, unlike those in most other college disciplines, must be responsive to another ongoing and annual challenge for their graduates--passing the state licensing examination. For persons aspiring to be registered nurses, various types of nursing programs exist, requiring varying time frames to complete and leading to different credentials. These programs include the two-year Associate Degree, the three-year diploma, the four-year baccalaureate, and the generic master's (which builds upon a four-year B.A. or B.S. degree in a field other than nursing). Regardless of the program they complete, however, nursing graduates are required to pass the National Council Licensure Examination for Registered Nurses (NCLEX-RN) in order to be licensed to practice as registered nurses. Thus faculty and students share the joint responsibility of seeing that students are adequately prepared to meet this challenge.

According to figures distributed on October 1, 1992, by the Iowa Board of Nursing, NCLEX-RN national pass rates for the past several years were as follows: 1985, 1986, and 1987 - 91%; 1988 - 84%; 1989 - 87%; 1990 - 92%; 1991 - 91%; and 1992 - 93%. As these figures indicate, in spite of successfully completing their respective programs, each year some graduate nurses throughout the U.S. fail to pass the licensing exam. As a result, these students experience added burdens to their psychological and financial resources at a time when these may already be depleted. Also, the nursing workforce is deprived of the benefit of needed additional professional personnel, since grads who fail the National Council Licensure Examination for Registered Nurses (NCLEX) are not allowed to work as R.N.s until such time in the future when they are able to pass the exam. Therefore, nursing faculties experience the added demand of adequately preparing

students so they will be able to successfully complete the NCLEX-RN examination at the end of their nursing program.

A fourth challenge compounding the problem is the reality that nursing today requires a more extensive knowledge base than ever before. In addition, technological advances in the health care field and the expanded use of computers, monitors, pumps, and other devices increase the number of "hands-on" skills in which nurses must become proficient.

Neighbors et al. (1991, p. 92), citing Bowyer (1986) and Mallison (1988) point out that in the not-too-distant past only nurses employed in specialized areas of a hospital, such as intensive care units, performed "high-tech" skills. Now, however, it is common for nurses working in general care units of hospitals and clinics, or even in patients' homes to perform them. In addition, much of this significant increase in technology in the health care field has occurred within just the past decade, and indications are that this trend will continue.

To illustrate their point, Neighbors et al. (1991, p. 93) describe a study which asked currently practicing nurses to develop a list of skills they deemed necessary for their practice. Table 1 in Neighbors et al. (1991, p. 94) lists the 54 items identified. In addition, the dramatic change in skill requirements in less than a century can be illustrated by comparing these complex nursing skills, now essential for a nurse practicing in the 1990s (Table 1) with those of "a girl" completing "nurses training" in the 1920s. At that time, nurses were not even taught to take blood pressure readings. Of the 54 skills listed as "necessary" for today's nurse, the nursing graduate of 1920 may have

been able to perform one or two: specimen collection and sterile dressing changes. Regarding most of the remaining skills on Neighbors' list, graduates of the '20s would have been not only unable to do them, they would probably have never heard of them.

Achenbach also highlights the demanding nature of the nurse's role. She quotes Nancy Halford, Director of Nursing at North Iowa Medical Center, Mason City, Iowa, who stresses not only the necessity for nurses to master the content of difficult academic courses such as the sciences, but also to apply this knowledge in the clinical setting, including, as Halford adds, "stay[ing] calm in emergencies and mak[ing] wise decisions" (p. 16).

A fifth aspect of nursing education is also receiving its due emphasis throughout the United States. Through the impetus/efforts of national nursing organizations, such as the American Nurses Association and the National League for Nursing, a renewed focus on the "caring component" of nursing is occurring. Though cognizant of the value and importance of teaching students the use and management of technological advances, educators have for some time been concerned about the danger of this taking precedence in students' minds over equally (or more) important affective nursing attributes, such as caring and compassion.

Aware that students may begin to think of nursing as caring for the patient's IV, heart monitor, or traction device instead of caring for the patient (who happens to have these types of apparatus), of late nursing associations and educators have given much attention to this topic, through conferences, videos, and written publications. Leininger (1988, p. 7) states that "Caring appears to be the largely unknown ingredient for helping

others . . . ." Bevis and Watson (1989, pp. 346-347) reiterate this belief. They describe

nursing as "a work of caring in an age that thrills to technology and waits breathlessly for

each new technological breakthrough." They add that "such things as pain, helplessness,

isolation, loneliness, disability, and decreases in life quality--are all problems that require

caring . . . ." Thus the need to stress affective skills, such as caring, becomes a further

responsibility of nursing education.

A renowned voice from higher education, but outside nursing, reiterates the

importance for educators of emphasizing affective learning. In citing the need for

assessing affective skills, Astin (1988, AAHE, p. 18), a self-confessed (but "reformed")

"number cruncher," lists some of the "great achievements of the intellect": atomic

energy, genetic engineering, modern agriculture and medicine, and computers and other

electronic marvels.

But in contrast he also notes the "great affective and emotional and spiritual

divisions that threaten our very existence: religious fanaticism and hatred, racial

prejudice, nationalism and political divisions, widespread criminal behavior in the land of

opportunity, and massive poverty and starvation in the face of unprecedented affluence."

He suggests that it is time to shift at least some educational interest and energy to the

affective side . . . "to help to create a society that is less materialistic and competitive and

selfish and more generous and cooperative."

In essence then, nursing education must continue to measure up to its traditional

demands of preparing graduates to understand basic concepts and apply them to patient

care in the clinical setting, as well as to pass the state board of nursing licensing

examination. In addition, nursing faculty responsibilities include helping students to

acquire new academic and technological knowledge and to develop in the affective

domain. Meeting internal and external demands for outcomes assessment and

accountability present added challenges.

Rationale

It is important for nursing faculty, administrators, advisory committees, student

services personnel, and students to examine these concerns periodically. This is true for a

number of reasons.

First, although student intellectual, social, personal, career, skill, and ethical

development has always been what a college community is all about, even more is

expected from colleges today. Research is needed into what is actually being

accomplished by the college experience, as well as how and why these accomplishments

do or do not occur. This is crucial if shortcomings in higher education generally and in

nursing education specifically are to be recognized and addressed.

Second, if students are to be actively involved and engaged in the learning process,

it is necessary for them to examine what they are currently doing to promote this process

and how this may be enhanced. Students, perhaps more than any other group in the

college community, are in a unique position to evaluate critically and constructively what

does and doesn't "work" in the educational setting. Yet, as Cross (1986, p. 249) notes,

"there is some danger that the present educational system is geared to creating dependent

rather than independent learners. Students in the formal educational system are rarely

asked to think about what they should learn or how they should learn it."

Cross contrasts this situation with the real world, where "the learner is required to

define the problem, locate appropriate learning materials, and demonstrate not just

subject matter comprehension but the ability to apply . . . knowledge." And Cross points

out that real life needs "call for thoughtful, autonomous learners rather than dependent

learners . . . for people who know how to select and use the multiple resources in the

learning society" (p. 250).

Students are a key litmus test to help faculty determine which classroom and

clinical teaching strategies, support services, and student behaviors promote maximum

learning and student growth. And, as Cross suggests, we need to involve them more fully

in the decision-making/implementing process controlling their education.

Definition of Terms

cognitive domain - "the recall or recognition of knowledge and the development of

intellectual abilities and skills" (Bloom, 1956, p. 7).

psychomotor domain - "some muscular or motor skill, some manipulation of material and

objects, or some act which requires a neuromuscular co-ordination" (Krathwohl et al.,

1964, p. 7).

affective domain - "interest, attitudes, and values, and the development of appreciations

and adequate adjustment" (Bloom, 1956, p. 7).

high-achieving students - the top ten students in the class as measured by first-semester

sophomore year total points.

low-achieving students - the lowest ten students in the class as measured by first-semester

sophomore year total points.

student outputs - "the operational manifestations of educational objectives" (Astin, 1966,

p. 8); "those aspects of the student's development that the college either does influence or

attempts to influence" (Astin, 1970, p. 224).

Student outputs in this research were measured by performance on the above

National League for Nursing posttest and by responses to a researcher-written

questionnaire and to questions asked during individual personal interviews.

student inputs - "the talents, skills, aspirations, and other potentials for growth and

learning that the new student brings with him into the higher education institution (i.e., to

college). These inputs are, in a sense, the raw materials with which the institution has to

deal." (Astin, 1966, p. 9 and Astin, 1970, p. 225).

The National League for Nursing Comprehensive Nursing Achievement Test, given

as a pretest, measured the student input of cognition.

student behaviors - actions carried out by students during the time they are enrolled in the

Associate Degree Nursing Program which engage their time, attention, and energy and

which may affect student outputs. Examples of student behaviors include the average

amount of time each week which the student spends studying, in a job, or in community

activities; the student's place of study; and whether the student studies alone or with

someone else.

Student behaviors will be measured by written responses to a researcher-written questionnaire and oral responses by the top ten and bottom ten students to in-depth interview questions.

program environment - program aspects affecting student cognitive, psychomotor, and affective development (e.g., program policies/practices, curriculum, physical facilities, clinical and classroom experiences and teacher behaviors).

Research Questions

The study addressed student, instructor, and program factors associated with student success in an Associate Degree Nursing program. It explored student perceptions concerning student inputs, instructor behaviors, and program characteristics which enhanced student success and/or satisfaction in the A.D.N. program. The research questions also examined student demographic and personal data related to student success. The research questions comprised the following:

1. *What correlations or relationships exist between student success, as measured by "value-added" gain between scores earned on the NLN (National League for Nursing) pre- and posttest and six selected demographic and personal characteristics: (1) age; (2) marital status; (3) annual income; (4) average number of hours study time per week; (5) average number of hours employed per week; and (6) average number of hours per week spent in outside class activities, other than employment (e.g., community, church, and local school activities)?*

2. *Who/what do students perceive as the prime motivator/motivation to encourage student learning/performance at its highest potential?*

3. *How do perceptions of high-achieving students compare with those of low-achieving students regarding which student behaviors (attendance, community activities, and study time) contribute most to student learning?*

4. *What program inputs (clinical/class experiences and teacher behaviors) are most effective, in the view of high- and low-achieving students, in promoting student learning in the cognitive, psychomotor, and affective domains?*

5. *What is the general satisfaction level of Associate Degree Nursing students with their education, both as to general education courses and to nursing theory and clinical course work?*

Research Design

Scope

The scope of the research was confined to studying one class of Associate Degree Nursing students enrolled in North Iowa Area Community College, Mason City, Iowa. The class of 1992 had 70 students enrolled at the beginning of the second semester. It was the intent of the researcher to combine a quantitative and a qualitative study in order to obtain a more in-depth and broad-based picture of class perceptions and behaviors contributing to nursing student success.

The quantitative study was designed to involve the total class of 70 students. It focused on the relationship between specific student behaviors/demographic data, and

"value-added" gain as measured by a pre- and posttest. The qualitative portion of the research utilized a variety of open-ended inquiries eliciting perceptions from both low- and high-achieving students as to what student, instructor, and program inputs encourage and enhance maximum student success and satisfaction in an Associate Degree Nursing program.

Assumptions

It was assumed that students would answer all questions as completely and honestly as they were able. This included questions contained in the questionnaire, the interview, and the NLN Comprehensive Exam, used as the pre- and posttest.

Limitations

The results of this research project were limited as to their application. The research results applied to one class of 70 sophomore Associate Degree Nursing students who attended North Iowa Area Community College in Mason City, Iowa.

Results also applied only to students enrolled the second semester of the 1991-1992 school year. The students were studying to become Registered Nurses, with the associate degree as their generic program.

The results of the research applied to two general areas. The first area was high- and low-achieving students' perceptions of student- and program/college-produced inputs and influences on student learning in three domains: cognitive, psychomotor, and affective. The second area was the relationship of five independent variables to improvement in student performance on a National League for Nursing (NLN) pre- and posttest.

Organization

The plan to organize the research involved comparing the results of the pre-NLN

Comprehensive Nursing exam (given when students enter the Associate Degree Nursing

program) and the results of a post-NLN Comprehensive Nursing exam (given at the end

of students' last semester in the program). "Value-added" gain was determined (i.e., the

amount of increase in correct answers demonstrated by students between the pre- and

posttest). The written questionnaire was administered once to students at the end of their

last semester in the nursing program.

This research utilized a questionnaire (combining multiple-choice and open-ended

questions) and personal student interviews (using mainly open-inquiry questions). In this

way, considerable attention was given to focusing student responses on specific items of

interest to the researcher. At the same time, this method allowed students to limit or

amplify their answers as they wished.

Need for the Study and its Significance

A review of the literature showed enormous activity in outcomes assessment

nationally, both in higher education generally and in nursing education specifically. At

the same time, however, the literature review demonstrated limited research in Associate

Degree Nursing overall and, in particular, a paucity of studies concerning outcomes

assessment and "value-added" gain in these programs. Thus, there was a need for more

research regarding outcomes assessment in Associate Degree Nursing programs.

There was also a lack of previous studies using qualitative methods primarily or in combination with quantitative measures. Astin (1988, pp. 13-14) describes the fallacy of basing conclusions exclusively on instruments such as multiple choice tests (or questionnaires). He refers to this as the "artificiality of the task" (p. 13) and asks, "How often in real life is any of us presented with a prepackaged set of possible answers to a question, only one of which is correct?" (p. 14). In response to those who state that such tests have "predictive validity," Astin agrees, but adds that "in such validity studies the outcome being predicted is almost always school or college grades or simply another test constructed in the same manner!" (p. 14).

Astin (1988, pp. 15-16) clarifies that multiple-choice tests do have a place in the assessment of cognitive development, but they, like other assessment methods, have advantages and limitations. In Astin's view, what he calls "holistic feedback" (written or spoken) "is far and away the most powerful assessment tool we have for enhancing the educational process" (p. 15). This study was a beginning attempt to start to fill this gap in qualitative research in Associate Degree Nursing.

Keith (1991, p. 2) concedes that the debate on assessment continues. The ultimate result, however, of asking questions about what students are learning and how we know this, has been to "reassert the centrality of the teaching mission of higher education" and to insist that "teaching and learning must matter" (p. 2).

The education of knowledgeable, skilled, and compassionate nurses to help serve the health care needs of those who are well and ill is crucial to the well-being of a nation. Therefore, research which leads educators, students, and the general public to better

understand what factors are most effective in helping nursing students accomplish significant developmental tasks is necessary and useful. The study outlined herein aimed toward that accomplishment.

Summary

Societal changes have impacted higher education, demanding increased accountability. These have resulted in mandates from governmental and professional organizations for higher education to demonstrate accountability, e.g., via assessment of outcomes.

As a segment of higher education, nursing programs are also mandated to participate in outcomes assessment. Other reasons for doing so include (1) the need to maintain quality education while increasing the number of graduates to meet the nationwide nursing shortage, (2) an increasingly diverse student body (with potentially more at-risk students), (3) preparing students to pass the annual NCLEX-RN licensing exam, (4) incorporating ever-expanding knowledge and technology into the nursing curriculum, and (5) assuring that the "caring" component remains a vital part of nursing education.

The need for research into what, how, and why Associate Degree Nursing students are or are not learning is one basis for the rationale for this study. A second is the need to more fully involve these students in all phases of their education, from planning and implementing through evaluation. In addition, the literature review showed a need for more quantitative and qualitative research in Associate Degree Nursing programs.

Chapter I of the dissertation discusses the research problem and the rationale for the study and defines terminology. It outlines the research questions and design and explains the need for and significance of the study.

Chapter II reviews the literature related to outcomes assessment at various levels of higher education and nursing. It summarizes the debate over implementation of outcomes assessment and identifies various assessment methods and techniques, as well as potential implications and benefits for participants.

Chapter III explains the study's design and methodology in detail and Chapter IV discusses the research results and data analysis. Conclusions of the study and recommendations based upon its findings are presented in Chapter V.

CHAPTER II. REVIEW OF THE LITERATURE

Outcomes Assessment

Educators have long been concerned with trying to measure student achievement. Throughout the history of education these attempts have taken on varying forms and terminology. Words such as "tests," "measurement," and "evaluation" appear frequently in the literature. From time to time, however, new methods and descriptors have arisen and become linked to the evaluative process. Astin (1970), for example, identifies a model based on a triad of components--student outputs, student inputs, and college environment. Astin (p. 224) describes student outputs as follows:

"Student outputs refer to those aspects of the student's development that the college either does influence or attempts to influence. Although these outputs can be expressed at very high levels of abstraction (for example, "the ultimate welfare and happiness of the individual"), research is usually concerned with those relatively immediate outputs that can be operationalized. Specifically, then, the term "outputs" refers to measures of the student's achievements, knowledge, skills, values, attitudes, aspirations, interest, and daily activities. Adequate measures of relevant student outputs are, clearly, the *sine qua non* of meaningful research on college impact."

Thus the work of researchers, such as Astin, set the stage for a major change in how educators measured the effectiveness of educational institutions. Previously evaluators had spent a lot of time looking at what Lenburg (1991, p. 32) refers to as "process-oriented traditions" involving the "quantification of such factors as space, library

holdings, class hours, and faculty activities (e.g., the number of grants, research projects, and manuscripts produced)." This new way of evaluating tried to measure outcomes for college and university students.

Keith (1991, p. 1) states that "In the mid-1980s, a new term entered the lexicon of higher education: *learning outcomes assessment.*" Since that time, conferences, seminars, formal (and informal) discussion, research, and publications have addressed the issue of assessing outcomes. Hutchings and Marchese (1990) cite figures from the American Council on Education's 1990 Campus Trends, indicating a significant annual increase in the percent of colleges engaged in assessment activities. These data show a growth from 55 percent in 1988 to 67 percent in 1989 to 82 percent in 1990 (p. 14). Outcomes assessment is now a subject which should, and does, concern everyone associated with higher education--students, their families, administration, student services personnel, faculty, and citizens-taxpayers alike.

The Community College

Community colleges, too, have been heavily involved in the national assessment movement. The landmark publication Building Communities: A Vision for a New Century (1988) outlined a comprehensive plan for reevaluation and development of community colleges. This effort, spearheaded by the American Association of Community and Junior Colleges (AACJC), came about in response to the fact that, in spite of numerous national studies aiming toward excellence in higher education, none had discussed in any depth the role of the community college. This was ironic in that

community colleges comprise the largest branch of higher education. Building

Communities (p. vii) identified "1224 regionally accredited community, technical, and

junior colleges enrolling over five million college credit students," with another four

million students enrolled in "noncredit adult and continuing education programs."

The last, in an array of areas to be dealt with in this report, was that of "Assessing

the Outcomes" of the community college. Included in this section (pp. 46-48) were such

topics as:

1. focusing on using classroom evaluation to improve teaching

2. developing a campus-wide assessment of institutional effectiveness

3. defining the educational outcomes the college desires for students

4. ascertaining the extent to which desired outcomes are achieved by students

5. evaluating the impact of college programs as viewed by consumers (students,

   graduates, and employers of graduates)

Building Communities was one of the early major documents to encourage

community colleges to engage in assessment. It also established concrete guidelines to

help them know how to go about this process.

Another key milestone in the development of assessment programs in community

colleges was the publication Indicators of Institutional Effectiveness: A Guide for

Assessing Two-Year Colleges (1989). Targeted at community colleges, this study was

the result of a joint project between the National Alliance of Community and Technical

Colleges and the Center on Education and Training for Employment at Ohio State

University. Using a "how to" format, the booklet first explored the issue of what is meant

by institutional effectiveness and why it is important to measure. A suggested assessment process was then described along with specific recommendations regarding how to implement it. Stressing (p. 3) that "traditional measurement criteria, such as enrollment, are no longer adequate," and that "measurement should be quantifiable" and "expressed in terms of the stated goals and mission of the institution," this guide became indispensable for many community colleges in their institutional evaluations.

As for all segments of higher education, a third prime motivation for community colleges to initiate assessment plans, is that of the regional accrediting agencies. Their recommendations have put added "teeth" into community college efforts at assessment, changing assessment from the category of "nice to do" to that of "necessary to do."

Nursing Education in General

Nursing education throughout the U.S. has been greatly affected by the trend toward outcomes assessment. Led on the national level by the American Nurses Association (ANA) and the National League for Nursing (NLN), nursing educators are being urged, guided, and mandated to look more deeply into the foundations, curricula, goals, and outcomes of their programs. The league, the accrediting agency for nursing programs nationwide, has been especially instrumental in proposing this "curriculum revolution" in nursing education. Bevil (1991, p. 54) calls the league "an important force in challenging us to enhance program evaluation efforts." She adds that "many faculties are currently taking another look at their program evaluation plans and making

modifications to assure that they incorporate the new emphasis on program outcomes advocated by the National League for Nursing" (p. 54).

Accrediting agencies, such as the NLN, have received external pressure to change their standards for accreditation. Hutchings and Marchese (1990, p. 16) note these agencies "face U.S. Department of Education (1988) and Council on Postsecondary Accreditation (1987) rules that stipulate, as a condition for their own approval, that they must require information about learning outcomes from the institutions and programs they review." Thus, as Bevil (1991, p. 54) summarizes, "Program evaluation has been an essential part of nursing education for decades." However, "In recent years . . . we have been challenged to expand the scope of our program evaluation activities and enhance the sophistication of our evaluation designs to assure that program evaluation information is comprehensive, meaningful, and useful."

Speaking from years of experience and influence designing and testing instruments to measure outcomes in the classroom and clinical setting, Lenburg (1991, p. 48) describes a proposed three-pronged educational reform in nursing education: "The 'curriculum revolution' focuses on caring; the 'assessment revolution' emphasizes competence; the 'agenda for health care reform' emphasizes accountability." Lenburg's proposed educational reform would integrate all three into a "cohesive and holistic system." Lenburg identifies the new roles for the main players in nursing education -- students and faculty. Students, as "clients of education," must assume additional responsibility for learning and competence. Faculty, as "expert consultants," are "accountable for helping learners achieve stated objectives."

Baccalaureate Nursing

At the baccalaureate level, much nursing research has been done in recent years on

the subject of helping students learn. Three examples illustrate the variety of scope of

such studies. Claus et al. (1991, p. 69), for example, describe a plan to assess if students

enrolled in one Michigan program were achieving a "liberal" education. These authors

used the COMP (College Outcome Measurement Project) test developed by the American

College Testing (ACT) program, and the ACT Composite Examinations (ACT, 1985,

1986). These instruments, which stress application of knowledge versus simple recall,

attempt to measure "six general outcome domains of liberal education: (1) solving

problems, (2) communicating, (3) functioning with social organizations, (4) using science

and technologies, (5) using arts, and (6) clarifying values" (p. 71).

A second example of nursing research related to student learning is that of Wells

and Higgs (Nov., 1990, p. 386) who, using the "Gregorc Style Delineator," studied

learning styles of first and fourth semester baccalaureate nursing students. These authors

explain (p. 386) that Gregorc divides individual learning styles into four categories:

1. The Concrete Sequential learner is methodical and structured, preferring a "step-
   by-step progression when assimilating new material."

2. The Concrete Random learner is "intuitive and impulsive," requiring "personal
   proof when validating new material" and ordering material in a "three
   dimensional type pattern."

3. The Abstract Sequential learner orders material in a "two-dimensional manner," tends to be "logical, intellectual, and rational," and demonstrates indecisiveness when forced to "make decisions or adjust to change."

4. The Abstract Random learner is emotional and imaginative, "ordering of information proceeds in a random, nonlinear fashion," and this learner focuses attention on personal relationships.

Each of the Delineator's 10 columns contains a set of four words. Students "assign a score ranging from 4 to 1 for each word in each column." Students rank the word most reflecting themselves a 4 and the word least like themselves a 1. Total scores are then calculated for each of four learning styles. The highest scored section indicates the "predominant learning style" (p. 386).

Wells and Higgs (Nov., 1990, p. 387) found the two predominant learning styles of both first and fourth semester students were Abstract Random and Concrete Sequential. According to Gregorc, (1982a, p. 385), these learning styles are on the opposite poles in relation to perceiving and ordering information."

To determine learning preference, the researchers used Wells' Learning Preference Survey, a Likert-type scale, based on Gregorc's description of learning activities found to be consistent with four types of learning styles (Gregorc, 1984). They asked students to respond to 12 learning methods: slide/filmstrip with audiotapes; games; drill and practice; group discussion; supplemental readings; independent study; lectures; open-ended problem solving; short lecture with question and answer period; television/movies; workbook; and computer-assisted instruction (pp. 386-387). The most preferred method

of learning of all subjects was drill and practice (p. 387). However, compared with nursing students from the other group being evaluated, these results occurred: "First semester nursing students had a significantly higher preference for lecture . . . and group discussion, and fourth semester students had a statistically significant preference for games . . ." (p. 387).

Wells and Higgs also found "a person's learning style remains fairly constant throughout that person's life" (p. 388). They state that "learning styles and preferences affect the way in which students respond to a curriculum, both in terms of their attitudes about the program and the ease with which they master the program's objectives" (p. 385). As a result of their research, they conclude that "Faculty may need to create learning options based on the four learning styles . . ." (p. 389).

Wierda (1989, p. 12) discusses a group of B.S.N. students, who, using the following principles/concepts of adult education theory, designed their own clinical experience to reduce "reality shock":

1. "Learning is an active vs. passive phenomenon."

2. "Adults learn more . . . when they . . . control . . . what is to be learned and how and when."

3. "Adults learn best when they perceive an immediate and practical application of that learning . . . ."

4. "A learner is encouraged . . . by a teacher who inspires trust and encourages openness . . . ."

From this experience, Wierda lists these positive results for students and teacher:

1. Student pairs used "each other for problem solving."

2. A "team" was established and "team work" began.

3. The "experience made [students] feel more independent."

4. The team members "coordinated [their] learning needs" and expertise.

5. Each team member had an "immediate resource person."

6. The experience "facilitated . . . confidence."

7. Team members "were able to test and reinforce each other."

8. "The best thing . . . was the sharing . . ." of inadequacies, insecurities, doubts,

   feelings to discover "they were not alone."

9. "Students developed . . . organizational skills" . . . prioritizing and delegating

   tasks.

10. For the instructor the amount of supervision did not change; the type did, with

    more observing and less talking.

The author concluded that this activity "did . . . reduce students' . . . reality shock" while

it promoted students' "biculturalism." It accomplished this by helping students to achieve

"competence in the new subculture (work)," but also to retain "values from the old

subculture (school)."

The above examples demonstrate the active research being conducted by nursing

educators at the baccalaureate level. They also illustrate the breadth and variety of

studies able to be accommodated within a comprehensive plan for assessing nursing

outcomes.

Though not limiting their remarks to nursing, Johnson et al. (1991, p. 3:15) also point out benefits of active learning and of cooperative learning. They list five elements of cooperative groups:

1. The group must have "clear, positive interdependence."

2. Members must "promote each other's learning and success face-to-face."

3. They must hold each group member individually accountable to do his/her "fair share of the work."

4. Each must appropriately use the necessary interpersonal and small-group skills to be successful.

5. The group must "process the effectiveness" of their work together.

Associate Degree Nursing

The goal of Associate Degree Nursing education, as with its counterparts (diploma, baccalaureate, and master's programs), is to prepare registered nurses. According to the National League for Nursing's Council of Associate Degree Programs' document "Educational Outcomes of Associate Degree Nursing Programs: Roles and Competencies" (1990, p. 1), Montag (1952) and Matheney (1972) describe most functions of the registered nurse as falling in a "middle range between job categories more circumscribed on the one hand and more expansive on the other." This document further states that A.D.N. curricula have been and continue to be "planned, developed, and studied systematically in light of this belief."

Though receiving preparation to provide direct patient care for patients across the life span (from birth to death), the majority of A.D.N. graduates find employment in settings focusing on the care of adult clients, often in acute care settings such as hospitals. Currently the Council (p. 1) has identified three roles basic to Associate Degree Nursing practice: provider of care, manager of care, and member within the discipline of nursing. Under each role the Council periodically updates educational outcomes or competencies appropriate for A.D.N.s: (1) at graduation from the program, and (2) following six months of practice as a registered nurse. Each competency statement describes behavior demonstrating that graduates have the "knowledge, skills, and attitudes inherent in the three roles" (p. 1).

The Council's identified educational outcomes have been accepted nationally by A.D.N. programs as the standard to reach for in developing high-quality nursing programs. Faculty in Associate Degree Nursing programs have long been involved in conscientious efforts to promote and measure student attainment of these competencies. Reasons for these efforts, on the part of faculty, include: (1) their interest in safe, effective care for patients; (2) their motivation to produce competent, caring graduates; (3) their desire that graduates receive satisfaction from their work; (4) their wish for a good reputation for the program where they teach; (5) their hope that all students pass the NCLEX-RN examination; and (6) their aspiration, if their program is NLN-accredited, to retain that accreditation.

Given that Associate Degree Nursing faculty have for some time been engaged in measurement of students' achievement of competencies identified by such prestigious

agencies as the NLN, what factors indicate the need for further work in this area? Four examples will suffice to illustrate the types of evaluation dilemmas facing nursing faculty:

1. Though the competencies as listed by the NLN state important functions for A.D.N. graduates, some are listed in broad terms not easily measured. For example, one outcome listed under the role "Provider of Care" states that the competent graduate "promotes an environment conducive to maintenance or restoration of the client's ability to carry out activities of daily living" (p. 3). No faculty member would disagree this is an important behavior for an A.D.N. graduate. But exactly how can it be measured? As Keith asks (p. 2), "How do we know?" if (and when) a student has become competent enough for it to be said that she/he can carry out this responsibility satisfactorily? Even a more concrete behavior, such as "provides for physical safety of the client" (p. 3) can be difficult to evaluate. How many medication errors, for example, should a student be allowed to make to still be considered "safe" enough to practice?

2. A second difficulty in evaluating student achievement involves the application of academic knowledge to the clinical setting. Such practicalities as which patients are present on a given clinical day (or rotation) may never offer the opportunity for students to perform a particular skill with an actual patient before graduation or to care for a client with a particular diagnosis. Who, if anyone, determines what patient experiences are adequate to substitute for the opportunities students are not able to have? How are these judgments made?

3. A third reality is that the "left hand may not always know what the right hand

is doing." Information about borderline performance on the part of a student in

the freshman year may not be shared with sophomore faculty--either through

oversight or the belief that such data will prejudice the new instructor and

prevent objective student treatment and evaluations. The clinical experiences a

student has had in previous rotations, and previous classroom and pre- and

postconference content and activities may also be unknown to ensuing

instructors, resulting in either "overkill" in some topics or deficiencies in

student learning.

4. Finally, there is the challenge of measuring affective outcomes. How do we

tell if a student is honest, caring, and committed to nursing as a profession?

The experience of many nursing faculty is that, unless some blatant offense is

committed by a student (such as outright lying or a violation of patient

confidentiality), some important student values may be overlooked because of

the difficulty of assessing them.

The review of the literature on the Associate Degree level of nursing education

reveals considerably less published research regarding assessment of learning than on the

B.S.N. level. This may be due to the fact that Associate Degree Nursing programs are

often located in community colleges where, as opposed to research, teaching (to a large

degree) and community service (to a lesser degree) are stressed. Moreover, since

community college faculty are much less affected by the "publish or perish" onus, what

classroom research is conducted by community college instructors is less likely to be

published. However, descriptions of studies already completed (though still sparse), as well as proposals for future action and research, have begun to enter the literature.

One such study examined how measures of learning in two areas may serve as predictors of success in a third measure of learning. Stating that "little has been published on associate degree graduates and success in the NCLEX-RN" (p. 164), Lengacher and Keller (1990) examined records of 146 associate degree graduates. They found that the best predictors for performance on the NCLEX-RN were "[high school] exit GPA (R = .71) and ACT composite scores (R = .75)."

Implications of their findings for nursing programs and educators, according to these researchers (p. 169), are that students at risk for NCLEX-RN failure could be identified early in the program. Support could then be offered these students in the form of "assistance with test-taking, independent learning activities, such as computer-assisted instruction, small support group seminars, and relaxation programs for testing." The authors urge further research on the associate degree student population because, as they point out, this is the "largest student body in nursing education taking the NCLEX-RN examination."

Brooks and Shepherd (1990) investigated the relationship between clinical decision-making skills in nursing and critical thinking abilities of senior nursing students in four types of nursing education programs: generic baccalaureate, associate, diploma, and the upper division baccalaureate (specifically R.N. completion) program. Clinical decision-making in nursing was measured by the Nursing Performance Simulation Instrument. General critical thinking abilities were determined by the Watson-Glaser Critical

Thinking Appraisal (WGCTA). The WGCTA rates "superior" in test criteria described as

essential in the Standards for Educational and Psychological Tests (American

Psychological Association, 1974, p. 396). A weak though significant positive correlation

(R = 0.249) between clinical decision-making and critical thinking throughout the four

types of programs was found (p. 391).

Brooks and Shepherd (1990) list two instruments used to analyze the level of

clinical decision-making ability in nursing: the Nursing Performance Simulation

Instrument (Gover, 1971, 1972, 1975) and the Clinical Decision-Making in Nursing

Instrument (Jenkins, 1985a; 1985b). "In this study, clinical decision-making in nursing

was measured using the Nursing Performance Simulation Instrument (NPSI)" (p. 394).

Although critical thinking scores of generic students were higher than the associate

or diploma students, the clinical decision-making skills in nursing were identical. The

researchers note that "It does not appear that a higher level of inherent critical thinking

ability (as evidenced in the generic sample) transfers to the more specific decision-

making skills in nursing."

The nursing programs which have done the longest and most extensive

implementation of, and research about, outcomes assessment are those at Regents College

(RC), available through the University of the State of New York (USNY). Lenburg and

Mitchell (1991) note that Regents College was ahead of its time in designing "the only

existing national nursing programs based solely on assessment of [student] knowledge

and competence" (versus assessment of teacher instruction). This process occurred in the

B.S.N. and A.D.N. programs, which now provide "unparalleled examples and experience" as the nursing profession focuses on outcomes evaluation (p. 69).

Nursing faculty developed the initial versions of Regents College's associate and baccalaureate degree written and performance examinations between 1972 and 1979. The clinical competencies of more than 8,000 nurses completing a degree from Regents College have been documented using the performance examinations. Carrying out this documentation has involved the use of approximately 40,000 actual hospital patient care situations; 3,000 clinic health assessments and client teaching situations; and 40,000 video simulation examinations. All 250 examiners, functioning at 19 performance test sites, have completed a comprehensive training program at centers in New York, New Jersey, Georgia, Wisconsin, and California.

Lenburg and Mitchell (p. 70) summarize the philosophy of Regents College's assessment process: "*Competence* is *documented* (not assumed) by using summative *performance* as well as theory *examinations* based on specified *learning* that is best achieved through maximum student involvement and flexibility in the learning process." This foundation, integrated with ten essential concepts, forms the conceptual framework for "designing a competency-based performance assessment system."

These ten concepts are described and explained in Lenburg's Performance Assessment Model (Lenburg, 1979, pp. 70-71). They include: clinical examination; areas of care; critical elements; sampling; level of acceptability; rules for comparability; objectivity; consistency; flexibility; and systematized conditions.

The ten concepts are used to design various types of performance examinations ranging on a continuum from actual patients to total simulations. Four examples include (pp. 71-72):

1. Real clinical situations. (Actual patients are used).

2. Quasi-clinical situations. (This uses a real clinic setting and real people, but adults from the community are programmed to play their roles in compliance with prescribed protocols. This type of situation is used to examine patient assessment performance and patient teaching performance.)

3. Clinical laboratory simulations. (Students perform skills in a laboratory setting using mannequins.)

4. Clinical video simulations. (This uses linear videotapes or interactive videodisk (IVD) technology.) "Using total simulation, all students receive identical visual and auditory cues, have equal testing time, and are held accountable for the same conditions and criteria" (p. 72).

Lenburg and Mitchell (p. 73) report that a number of assessment attempts, based on Lenburg's model, have been initiated. According to these authors, some have resulted in instruments and procedures that are "more valid and reliable than those of the past" while others lack one or more of the ten concepts. Currently, two longitudinal follow-up studies involving "15 years of A.D.N., and ten years of B.S.N. external degree graduates, supervisors, and faculty," are in progress. In these authors' view, "this research will determine the long-term effectiveness of these performance examinations and assessment programs" (p. 74).

A call to future action is made by Waters (1990, p. 324), who summarizes the

history of the development of Associate Degree Nursing programs as follows:

-- 1950s: decade of innovation

-- 1960s: decade of expansion

-- 1970s: decade of consolidation

-- 1980s: decade of isolation and institutionalization

She raises two questions:

1. Will the A.D.N. level remain as a feasible alternative to students entering the

   nursing profession in spite of efforts by some to push toward the baccalaureate

   degree as the only level of entry into nursing practice (Waters, 1989)?

2. Will the reforms called for in the current "curriculum revolution" in nursing

   (including outcomes assessment) apply only to B.S. and M.S. programs or to

   A.D.N. programs, too (p. 322)?

Waters answers these questions in the affirmative. She believes that "demographic

and economic forces . . . will preserve the present pluralistic system" of nursing education

because "we can advance the system" (i.e., A.D.N. education) to satisfy the highest

standards of quality, clarity, and equity" (p. 324).

Waters (p. 324) does cite possible future Associate Degree Nursing program

changes which may be advantageous:

1. Curricula that "value and instruct for the practice of nursing" in long-term care

   settings as well as acute care settings.

2. "Scaling down instructional time allocated to . . . maternity and pediatric patients" (based on Kane et al. 1986).

3. "Accommodating a student population of ever-increasing diversity (of age, ethnicity, native language, academic background, and other learning-linked student characteristics)."

To achieve the viability of Associate Degree Nursing programs (and the standards which will sustain them), will require, in Waters' view (p. 324), a "major change in nursing education dialogues, who talks with whom, and how the topics of common interest are framed. More than anything else, [she] . . . hope[s] the revolution will bring baccalaureate, graduate, and associate degree educators to a common forum for discussing educational change."

Outcomes Assessment at North Iowa Area Community College

Overall

North Iowa Area Community College has historically enjoyed a reputation as being a progressive, high-quality, and accessible institution within its local area and statewide. Part of this is due to the willingness of the Board of Trustees, administration, student and support services, and faculty to be receptive to new ideas and aware of national developments.

In keeping with this history and cognizant of forthcoming North Central Association of Colleges and Schools (NCA) accreditation requirements, North Iowa Area Community College is currently undertaking a comprehensive, college-wide assessment

of institutional effectiveness. Plans for reaccreditation began in 1990 with initial goals

presented to the college's Administrative Cabinet in June of that year. In September

1990 more complete plans were explained to faculty members, and their cooperation was

elicited. Two faculty members serve as coordinators--one as director of the self-study

process and one as author of the report of findings. Key administrative officials offer

continuous input, stimulus, guidance, and encouragement to faculty, almost all of whom

serve on one or more subcommittees chaired by faculty. (See Mission of the College,

Appendix A and Institutional Effectiveness Indicators, Appendix B.)

North Iowa Area Community College is also presently taking part in a nationwide

research project of the National Center of Postsecondary Teaching, Learning, and

Assessment at Pennsylvania State University. Starting in the fall of 1992 approximately

300 NIACC students were invited to participate voluntarily in the study, which entails a

series of written tests concentrating on four areas: how college influences student

learning, cognitive development, attitudes toward learning, and persistence in college.

For the next three years students are being tested when they enter college in the fall

and again each spring, in order to monitor changes in their behavior, attitude, and ability

to learn. NIACC was one of four two-year colleges in the U.S. chosen for the study and,

along with Drake University, one of two Iowa institutions of higher education selected for

participation in this research project. Altogether approximately 5000 students from 22

U.S. colleges are targeted to participate in the project.

North Iowa Area Community College's Independent Study Lab (ISL) is an example

of the college's ongoing commitment to assessing and enhancing student achievement.

The ISL provides student assistance in several ways, including student assessment, offering study skills classes, helping with basic skills such as reading and math, and individual tutoring.

Associate Degree Nursing

The Associate Degree Nursing program at North Iowa Area Community College comprises part of the college's Health-Related division. The present enrollment in both the freshman and sophomore class is approximately 80 students. Faculty of the A.D.N. program have been involved in the current college-wide institutional effectiveness assessment. In addition, ongoing evaluations have been part of this program's makeup throughout its history.

Examples of assessment measures employed in the Associate Degree Nursing program include:

1. Standardized National League for Nursing (NLN) test taken at the completion of various content areas (pediatrics, maternity nursing, and psychiatric nursing).

2. Standardized NLN Comprehensive Examination taken as a pretest (beginning of the program) and posttest (completion of the program).

3. Ongoing clinical evaluations by instructors each week and at the completion of each semester course, using course objectives and competencies (formative and summative evaluations).

4. Student self-evaluation (end-of-rotation and end-of-course).

5. Faculty assessment of student written work (nursing care plans, process recordings, and evaluations/reports of observational experiences).

6. Unit tests and final semester examinations.

7. Advisory committee input.

8. Annual survey of graduates.

9. Annual survey of employers (published in NIACC Placement Report). See Appendix C, 1992 Career Placement Report.

10. Approval/accreditation by various bodies:

   a. National League for Nursing (NLN)

   b. Health Occupations Education (HOE)

   c. Iowa Department of Education (DE)

   d. Iowa Board of Nursing

11. Student and faculty input at monthly faculty meetings.

12. Annual freshman and sophomore student-faculty curriculum meeting.

13. NCLEX-RN licensure examination.

In addition to the above measures, involving the program as a whole, individual Associate Degree Nursing faculty members are conducting various research projects as part of their work toward receiving advanced degrees. The faculty, as a whole, is also currently beginning a major curriculum revision, in keeping with the national "curriculum revolution" movement in nursing. The concepts of "caring" in nursing and increased emphasis on the geriatric client will be areas of special study.

Facets of Outcomes Assessment

The debate

The assessment movement appears to be establishing itself as an integral

component of higher education. Indeed, Parnell (1990, p. 163) predicts that by the year

2000 "analysis of student performance" . . . will "have led to many faculty-initiated

changes in curriculum structure, course content, and teaching approaches." But

assessment will not have been without controversy. What is it that is so different between

(1) the previous postsecondary *modus operandi*; and (2) outcomes assessment that causes

the assessment concept to, as Hutchings and Marchese (1990) put it, run "against the

grain"? These authors suggest four ways in which traditional beliefs and practices

contrast with those of assessment (pp. 26-28):

1. Teaching vs. Learning - Traditionally, faculty have seen their role as concerned

   with *teaching* (mastering the material, delivering good lectures, assigning

   grades, and keeping office hours). Most saw *learning* as the students'

   responsibility, and often even those who disagreed were not clear as to how to

   promote and measure learning.

   Assessment emphasizes student *learning* as the focal point of teacher

   activity with faculty and students sharing responsibility to see that it occurs.

2. Individual Autonomy vs. Collective Responsibility - Under the cherished name

   of "academic freedom" faculty have historically seen themselves as having the

   privilege of individual domain over their segment of academe but with little

responsibility for determining how that segment fit in with other segments or into the whole.

Assessment advocates still prize academic freedom; but in addition, they encourage what Keith (1991, p. 2) calls "conversation about teaching and learning." They propose that collective discussion ought to take place not only about individual courses, but also about the curriculum as a whole.

3. Clear-cut Reward Systems vs. Uncertain Pay-offs - For decades, publicity, promotions, prestige, and money have amply rewarded individual faculty and the universities they represent for research and publication, successful athletic teams, and enrollment growth (though rarely for good teaching).

Assessment initiatives currently vie with numerous other mandates for faculty and institutional time and funds. Uncertainty prevails as to if, and how, individuals and institutions committed to comprehensive assessment and gains in learning will be rewarded.

4. Internal Campus Agendas vs. External Constituencies' Agendas - Though always affected by groups "outside" the institution to some degree, traditionally higher education institutions and faculty have been free to conduct college business with a large degree of self-determination. Recent criticisms of colleges and universities by external groups, however, have alleged that educators are not doing their job (helping students to learn!) with resulting cries for increased accountability.

Institutions and faculty perceive the present trend toward assessment as an intrusion

on their "turf" and expertise. Proponents, on the other hand, envision a needed and long

overdue "housecleaning" and redirection of goals and activity to achieve the real purpose

of colleges and faculty.

In their comprehensive and perceptive discussion on this subject, Lenburg and

Mitchell (1991, p. 70) include five similar contrasts between traditional evaluation

practices and the more "objective and consistent" assessment of outcomes: (1) teaching

versus learning, (2) theory versus performance, (3) evaluation versus examination, (4)

assumption versus documentation, and (5) completion versus competence.

Hutchings and Marchese (1990, p. 15) also help to delineate the differences

between the "old" way of evaluating quality in higher education, and the "new." They

succinctly summarize Astin's argument that "quality as a function of *resources* (high

student SATs, faculty Ph.Ds, endowment, library holdings) or even of right *processes*

(such as rich curricula and good advisement) told too little, misled even; that the real

measure of quality was found in a college's results, its contribution to student learning,

and the value-added from the experiences it provided. Outcomes mattered in this view,

as did attainments over time, and *evidence* of the two--an agenda for assessment--was

advanced as a necessity."

Devising and implementing an assessment plan

In spite of discussion, debate, and controversy, the effort for assessment moves on.

As quoted by Lenburg (1991, p. 40), Robert Kirkwood noted in 1981 that, "Assessment

has seldom been tried and found difficult; rather it has been found difficult and seldom

tried." Today, only a decade later, though still amusing and thought-provoking,

Kirkwood's comment is no longer true. As colleges and universities have attempted to

implement assessment recommendations, numerous models and methods toward this end

have materialized.

Before setting up an institutional assessment plan, a set of principles to guide the

procedure is useful. Schlossberg et al. suggest the following:

1. "Use multiple methods and gather different types of information.
2. Obtain qualitative, as well as quantitative, data. Remember that three or four powerful flesh-and-blood vignettes are more persuasive than mountains of statistics.
3. Combine hard numbers and human interest to increase the chances of significant follow-through.
4. Be alert to 'unobtrusive measures.'
5. Find out what kinds of data are already available in the files, and consider what kinds of analyses of existing information might yield insights . . . .
6. A final important principle is to use standardized instruments that have been field-tested and debugged, rather than homegrown alternatives."

<div align="right">(Schlossberg et al., 1989, pp. 235-236)</div>

Two standardized instruments recommended by these authors are the ACE Adult

Learner Assessment and Planning Guide (created by the Commission on Higher

Education and the Adult Learner and available from the American Council on

Education), and the Adult Learner Needs Assessment Survey (marketed by the American

College Testing Program). The authors describe the ACE Adult Learner Assessment and

planning Guide as the "best single instrument currently available" (p. 236). One

advantage of this guide is that it need not be used as a whole; selected portions can be

used as appropriate. It also can be adapted to individual institutions, using consultants to

help "local professionals create adaptations in light of experiences accumulated

elsewhere." The Adult Learner Needs Assessment Survey is described as "another instrument that provides useful basic data concerning adult learners" (p. 236). This also can be adapted to specific institutional needs since it provides space for "local options."

Nettles (1987, p. 14) points out that institutions of higher education have a variety of approaches they may choose from in designing a plan for outcomes assessments. Regardless of which plan is chosen, however, he recommends following a set of guiding principles: (1) college assessment policies should be multidimensional; (2) cognitive development is only one component; (3) do more than assessing basic skills and minimum competence; (4) have realistic expectations of fulfilling the stated goals; (5) include provisions for analysis of the effects of the assessment upon students, institutions, and the teaching and learning process; (6) yield dividends that justify the state or institution's investment.

Boyer (1987) adds a final guideline to the assessment process. He believes that evaluating student progress should be a two-fold attempt: measuring not only courses completed and credits earned, but also the student's overall academic achievement <u>and</u> "commitment to the community" (p. 263).

<u>Varied assessment methods: using the "tried and true" and introducing "new blood"</u>
First, a word of caution is in order. As early as the late 1970s, Knefelkamp et al. (1978) called for sensitivity in recognizing the increasing diversity of students on college campuses and the corresponding need to use a variety of assessment techniques. They state:

> "Lastly, the new student and our need to respond serves as a reminder that college and university population is becoming more diversified every year.

We need to be in a posture of flexibility to students' needs and of upholding
standards of performance and excellence that represent higher education.
But we need to be open to the possibilities of alternative ways of
demonstrating skills and competencies, to the fact that cognitive skills
cannot be separated from other areas of a student's life, and that higher
education has flourished in this country because it has been able to respond
to the changing needs and challenges of its citizens" (p. 114).

Justiz (1990, p. 24) also cautions against using assessment tools as "barriers to
minority access to higher education." He states "assessment can measure academic
achievement for teacher certification programs," but if it is only "used for selection of
teacher candidates based on traditional standards of 'sameness,' then it must be
reexamined" (Justiz and Kameen, 1988, cited in Justiz, 1990, p. 24).

As the assessment movement has matured, however, several initial apprehensions
on the part of at least some educators have been alleviated. Much of this is due to the fact
that, though some examples of externally imposed standards and testing methods have
materialized, in the majority of instances of assessment, this has not occurred. As
assessment plans around the country have been implemented, the opportunity for teacher
input into choosing the kinds of ways they want to use to assess student growth and
learning has decreased faculty fears and resulted in a myriad of assessment techniques.

Parnell's prediction (1990, p. 162) that by the end of this decade "there will not be
one set of indicators that will fit all of higher education institutions any more than one
suit of clothes will fit all sizes and shapes of individuals" has already come true. He goes
on to surmise that "different sets of effectiveness indicators will be developed for
different types of colleges" . . ., that "student outcome assessment practices will be
separated in the assessment debate from institutional effectiveness indicators" . . ., and

student outcomes/success measures will be surveyed and analyzed as students enter college, pass through and graduate from it, and after they leave (via follow-up studies).

In fact, as creativity has begun to replace apprehension, a large and varied number of assessment techniques has appeared during the evolvement of the outcomes assessment movement. Hutchings and Marchese (1990, pp. 21 and 23) list some of these: the "external examiner, new standardized instruments, computer-adaptive testing, basic skills approaches, and assessment center methods." They report that "standardized tests are still in use but typically as part of a larger package of 'closer to the classroom' approaches" including "home-grown instruments tailored to a campus goals statement" (Hutchings and Marchese, 1990, p. 23).

Along with the above are portfolio analyses of student work over time, interviews (individual and group), case studies, ethnography, story collecting, focus groups, capstone courses with senior projects, classroom research, faculty study of "indicators" (such as student transcripts, term papers, persistence rates, GRE and licensing-exam scores), surveys of student satisfaction, motivation, and effort, and alumni follow-up. Interestingly, several of these assessment methods are similar to those traditionally used in Honors Programs to assess gifted or high-achieving students.

Another suggestion by student Evelyn Wegienka, enrolled at Yuba College in Woodland, California, proposes that "a realistic criterion for evaluating teachers is that [they] have *learned something significant* from the act of teaching." She suggests that the best way to carry out this evaluation is by having teachers write an essay entitled "What I Have Learned from Teaching (course name and number) during (semester and year)."

Wegienka submits that much could be learned from this project--both by the teacher writing it and those evaluating it. Gains to be made include observing otherwise unnoticed details, becoming aware of what does and doesn't work, paying closer attention to factors such as the level of classroom enthusiasm, and the teacher's commitment to teaching, enthusiasm for the job, organizational skills, and style of expression (p. 2).

"Learning about learning isn't easy," according to Hutchings and Marchese (1990, p. 23). "What's needed, campus experience suggests, is a variety of methods used over time . . . ."

Assessing teaching/learning strategies   Creamer (1986, p. 78) notes that one potential measure of the effectiveness of teaching/learning strategies is that of student satisfaction. However, he warns against using this assessment tool as a "single indicator" of effect, but instead as a "capstone." He suggests that questions about student satisfaction be related to student goals and focus on the effects on the individual, e.g., "Were you satisfied with your goals and the manner in which the organization enhanced your achievements?"

The above samples illustrate the variety of ways faculty can employ innovative strategies in an attempt to increase student learning. They also suggest how outcomes of these strategies may be assessed.

Student and other stakeholder participants   One valuable tool for meaningful assessment affirmed by many involved in the process is that of student participation. Schlossberg et al. (1989, p. 231) point out that a key guideline, among those analyzed by Peters and Waterman (1982) as characteristic of successful companies and programs, is

that of staying "close to the customer, learning from the people they serve, and getting some of their best ideas from their clients. They listen intently and regularly."

Lenburg (1991, p. 48) also stresses the need for student participation. She states "the client of education (the student), like the client of health care (the patient), must become an active partner and incorporated into the process of change itself."

A much broader form of participation, described by Bevil (1991, p. 62), involves the concept of "stakeholder." As defined by Guba and Lincoln (1989), a stakeholder is "any person or group who uses program evaluation data and who, therefore, might be put at some risk by program evaluation."

Guba and Lincoln identified three groups of stakeholders:

1. Agents (persons who sponsor, produce, or implement the program), such as administrators, faculty, funding agencies, accreditors, alumni, and staff.

2. Beneficiaries (individuals who are targets for the program), such as students, parents, employers, and patients.

3. Victims (individuals affected negatively . . . sometimes unknowingly . . . by the program).

Bevil agrees it may be impossible to incorporate opinions of all of the above groups into an evaluation plan, but proposes that "the views of major stakeholders can be identified and considered." She lists faculty, students, administrators, alumni, employers, clients, funding agencies, and accreditors (and other reviewers) as being "especially important."

An assessment plan for nursing education   Bevil (1991) describes the steps

involved in planning and implementing a comprehensive program evaluation plan at

Thomas Jefferson University's School of Nursing. She believes four characteristics must

be present in such a plan (p. 55):

1. Practicality (the plan must be feasible and useable).

2. Utility (the plan should provide information about the program's effectiveness,

    while also helping develop and improve the program).

3. Propriety (the plan's methods, instruments, and procedures must adhere to

    legal and ethical standards).

4. Technical adequacy (the plan's instruments and procedures must be valid and

    reliable).

In addition, Bevil (p. 56) recommends three broad strategies used by her nursing

department in developing its evaluation plan: using a theoretical base (selected elements

of an "eclectic" model are given in Table 3-1, Bevil, p. 57); tailoring activities to existing

structure and governance; and capitalizing on existing human and material resources.

Garbin (Spring, 1992, p. 4) cites the need for nurse educators to evaluate affective

outcomes of students, such as empathy, leadership characteristics, self-knowledge,

interpersonal skills, "and the ability to handle challenging situations, such as ethical

dilemmas." She states that "this emphasis represents a renewed desire to assess how

students have grown in a holistic way." Affective outcomes may be difficult to measure,

but they can be assessed using such methods as journals, student portfolios (containing

papers students write describing what they think about clinical situations they have

experienced), and focused interviews of individuals, groups of students, or recent graduates. In the latter approach, Garbin explains, "students are encouraged to share their own stories about experiences during the educational program that helped or hindered their growth."

Adding to this repertoire is Lenburg (1991), who postulates that without changes in teachers' competence and roles, "little will be gained from outcomes assessment." Changing from the role of "sage on the stage" to that of "guide on the side" will require a diversity of teaching strategies to accommodate the considerable diversity of present and future students. Lenburg's litany includes: peer teaching and learning, stories to connect new learning with familiar structures, discussions rather than lectures, critical thinking exercises, and classroom research to improve teaching and learning.

Borrowing an idea from Cross (1989, p. 5), Valiga (1992) suggests the use of the "minute paper" to allow students to give input to and receive help from the instructor on an individual basis. This involves each student's writing briefly on three topics concerning the class on a given day: the most important topic covered that day; any area(s) the student is confused about; and subjects the student would like to know more about. The teacher can use these to locate problem areas in student understanding as well as areas of additional class interest.

Other possible evaluative activities and projects on the part of students include writing poetry, a novel, other piece of literature, or a "news" article; designing and sewing a quilt; creating a sculpture; painting or drawing; composing a musical piece; performing a dance or in drama; and others limited only by the student's imagination. Using case

studies, interviews, and discussions vs. only lecture can increase students' problem-solving and critical thinking ability. She urges spending more time teaching process than content, so students learn to compare, contrast, and to apply known principles to new situations.

Davis (1990) of the University of Wales conducted research on how nurses learn and how to improve the learning environment. She discusses her findings under four categories:

1. Learning Styles - Teachers need to assess and match teaching styles to learners' learning styles (p. 406).

2. Integration of Theory and Practice - It is important for students to see teachers practicing nursing (p. 406).

3. Socialization - Students preferred staff to teachers as a "significant other" (i.e., someone to pattern themselves after) (p. 407). They chose the significant other because:

    a. they worked with the person(s)

    b. they liked the person(s)

    c. they saw the person(s) participating in patient care

    d. they found the person(s) to be accessible

4. Clinical Learning Environment (Other aspects influencing learning, besides staff nurses) (pp. 408-409).

    a. nursing process used along with individualized care plans

    b. primary nursing being used

c. psycho-physical and psycho-social skills being used

d. adequate, suitable equipment for students (e.g., sterile gloves)

e. information resources available--human, documentary, computer

f. well-qualified teachers

g. appropriate learning areas (workshops, labs)

h. chance to mix with students from other areas (general education courses)

Harvey and Vaughan (1990) researched student nurse attitudes toward ten different

teaching/learning methods using the Osgood semantic differential scale. An ANOVA

showed no difference in student attitudes based on various data, e.g., gender, age, and

type of nursing program; the nurses were considered a homogeneous group.

Findings were that (1) "students did not have a favorable attitude toward lecture

(p.184); and (2) student-centered, group activities generated more favorable attitudes

(p.185). Since students learn from "practical clinical activities, by observing role models,

and by interacting with people" (p. 184), recommendations were to use a wider range of

teaching strategies, e.g., games, case studies, and teaching aids, and less lecture (p. 185).

Assessment of the case study method as a teaching strategy was conducted by

Maltby and Andrusyszyn (1990), who, in part, used student evaluation to rate the

effectiveness of using the case study approach to teach decision-making. Students were

helped to analyze how decisions are derived; to look at processes used (vs. only the

product generated); and to explore several creative solutions. Faculty evaluations of this

method concluded that it draws on students' experiential, intuitive, and knowledge bases

through sharing and discussion; and it facilitates integration of critical thinking skills.

Another technique used to teach decision-making was that of "structured

controversy." Lengacher et al. (1990) employed this tool to teach ethical decision-

making. Their purpose was to help students learn "content and skills" to deal with

difficult ethical decisions and to deal constructively with conflict. Assessment of the

outcomes of this experience were written by students. All were not positive. The authors

concluded that (p. 156) "faculty members must help students make the transition from

passive learning to interactive learning" . . . and to "take responsibility for preparing for

class and contributing to their own and their peer's classroom learning."

And what of nursing education and its role in outcomes assessment? If anything,

nursing faculty may (perhaps justifiably at times) be accused of "evaluating to death"

their students, activities, programs, curriculum, clinical experiences, and themselves.

Mention has already been made of long-standing attempts by Associate Degree Nursing

faculty to assess student achievement of educational outcomes established by the NLN's

Council of Associate Degree programs. It is now up to the profession to look critically at

what questions to ask and how to ask them, to concentrate as much on students as on

teachers, as much on outcomes as on process, and as much on results as on facilities.

Lenburg (1991), the scholar/trail-blazer in the use of objective, innovative, but

always meticulous outcomes assessment methods, is, characteristically, able to see the big

picture. She reminds us (pp. 31-32) that:

> "assessment, per se, is not the goal, [but] rather its philosophy and methods
> force educators to set goals, determine specific plans and activities to
> accomplish goals, and specify mechanisms for documenting attainment of
> goals. Its . . . purposes are to improve quality of learning and instruction, to
> increase satisfaction of the learners, and to ensure that graduates are
> competent to meet the needs of the society in which they will work and live."

Implications/Benefits for:
Institutions, Programs, Classrooms, Teachers, and Students

The task of assessing outcomes is a major one. It involves a significant outlay of human and material resources. It is only prudent, therefore, to ask whether or not the benefits to be accrued will be worth the effort. Boyer (1987, p. 262) argues they can be if the findings achieved through assessment are utilized to make changes to increase student learning. He opines that "In the end, excellence in education will be achieved not simply through better testing but through better teaching." He foresees that course-by-course evaluation will "remain the primary means of quality control." As Boyer sees it, "Talk about external measures is simply a diversion if it assumes that quality is to be achieved by bypassing the professors and their classrooms."

Hutchings and Marchese (1990, pp. 36-37) echo these sentiments. More important than using "technically correct" assessment methods, they assert, is having the right "mindset"--one that believes "undergraduate improvement is possible, necessary, and a priority." Summed up in one college administrator's words: "Ya gotta wanna," this attitude can help campuses achieve improvement, quality, and increased student learning. Alverno College, for example, has long been a pioneer in applying outcomes findings to enhance the student experience. This institution holds and practices a philosophy potentially useful to all: assessment is the "necessary adjunct to a larger goal, the life-long learning of every student."

Summary

The review of the literature on outcomes assessment showed much activity in this pursuit nationally, in both higher education in general and in nursing education, especially at the baccalaureate level. With the notable exception of Lenburg and her colleagues at Regents college, less research was found at the Associate Degree level. In particular few qualitative studies have been done and even fewer combining qualitative and quantitative research.

Thus the literature review showed a need for further research at the Associate Degree level of nursing education. The effective cognitive, psychomotor, and affective preparation/education of nurses is vital to a healthy society. Research which contributes to a greater understanding of how to best help nursing students achieve these developmental goals is necessary and helpful. This study had as its purpose that accomplishment. In addition to sources cited in this document, other references on this topic are listed in the bibliography.

CHAPTER III. RESEARCH DESIGN AND METHODOLOGY

Research Questions

The study addressed student, instructor, and program factors associated with student

success in an Associate Degree Nursing program. It explored student perceptions

concerning student inputs, instructor behaviors, and program characteristics which

enhanced student success and/or satisfaction in the Associate Degree Nursing program.

The research questions also examined student demographic and personal data related to

student success. The research questions comprised the following:

1. *What correlations exist between student success, as measured by "value-added" gain between scores earned on the NLN (National League for Nursing) pre- and posttest, and six selected demographic and personal characteristics: (1) age, (2) marital status, (3) annual income, (4) average number of hours study time per week, (5) average number of hours employed per week, and (6) average number of hours per week spent in outside class activities other than employment (e.g., community, church, and local school activities)?*

2. *Who/what do students perceive as the prime motivator/motivation to encourage student learning/performance at its highest potential?*

3. *How do perceptions of high-achieving students compare with those of low-achieving students regarding which student behaviors (attendance, community activities, and study habits) contribute most to student learning?*

4. *What program inputs (clinical/class experiences and teacher behaviors) are most effective in the view of high- and low-achieving students, in promoting student learning in the cognitive, psychomotor, and affective domains?*

5. *What is the general satisfaction level of Associate Degree Nursing students with their education, both as to general education courses and to nursing theory and clinical course work?*

Research Design

Population

 The population involved all sophomore Associate Degree Nursing students at North

Iowa Area Community College (NIACC) throughout the years. The Associate Degree

Nursing program at NIACC is designed to be able to be completed by students in two

years. However, many students choose to take three years to finish the program, using

the first year to complete prerequisite and/or required general education courses. They

may do this for two reasons.

 First, because of a waiting list to get into the Associate Degree nursing program,

some students may not be able to begin the program until a year later than they would

have preferred. They use this year of waiting to take some or all of their support courses.

Second, some students decide, for personal reasons, to spread their course work out over

three years. By completing their general education courses the first year, they have only

the nursing courses to take in the remaining two years, thus easing somewhat the study

burden on themselves during those two years.

Sample (also known as subject pool or *n)*

 The sample included only the sophomore class in the North Iowa Area Community

College Associate Degree Nursing program, which enrolled in the second semester of the

1991-1992 school year. The study involved administration of a researcher-written

questionnaire to 68 of 70 sophomore students, and an in-depth, oral, tape-recorded

interview of approximately one hour in length, involving researcher-written open and

closed questions, to the ten highest-achieving and the ten lowest-achieving sophomore

students.

Data-gathering procedures

Data gathering involved administration of three instruments. First, a National

League for Nursing (NLN) pre- and posttest measured cognitive learning. Second, a

researcher-designed written questionnaire gathered student information regarding (1)

demographic, biographical, and personal data; (2) behaviors (e.g., attendance, community

activities, and study habits); (3) perceptions regarding student motivation; and (4)

satisfaction levels with the North Iowa Area Community College Associate Degree

Nursing educational experience.

The third facet of the data-gathering process was that of conducting an in-depth,

oral, tape-recorded personal interview of approximately one hour in length with each of

the ten highest-achieving and ten lowest-achieving students in the sophomore Associate

Degree Nursing class. The interviews were held in spring 1992 at the end of the second

semester. The purpose of the interviews was to assess and compare student perceptions

as to various student and program influences (e.g., student inputs, clinical and classroom

experiences, and teacher behaviors) on student cognitive, psychomotor, and affective

learning.

Treatment and data analysis

Pearson product-moment correlations were conducted between each of five

demographic/personal data and student success as measured by students' "value-added"

gain between their scores on the NLN Comprehensive Nursing Achievement Test given

as a pretest and later as a posttest. These five demographic data were: age, annual income, average number of hours study time per week, average number of hours employed per week, and average number of hours per week spent in outside class activities (community, church, school). Mean "value-added" scores were also compiled according to marital status (single, married, and divorced). To test the hypothesis that the population means of the three categories are the same, t tests were performed.

Descriptive comparisons were made between perceptions of high-achieving students and those of low-achieving students. Arrangement of student responses in the taped personal interviews was made in clusters/trends/patterns. They were grouped according to percentage of students agreeing on a response, by lowest- vs. highest-achieving students, by a demographic characteristic (e.g., by age), or by other groupings as they evolved during the researcher-student interactions.

Consisting primarily of open inquiries, the interview questions were arranged under the five research questions listed above. The interview questions solicited factual information concerning student behaviors (e.g., study habits) as well as student feelings and perceptions about their personal situation, choices, and satisfaction level during their Associate Degree nursing experience.

Instruments Used

Three instruments were used. These included a researcher-designed written questionnaire, the NLN Comprehensive Nursing Achievement Test, and a tape-recorded, in-depth personal interview.

Researcher-designed written questionnaire

This questionnaire, designed by the investigator, was administered to 68 of the 70 sophomore students enrolled in the second semester of the 1991-1992 school year. One student declined to participate. The questionnaire was given to the class on April 24, 1992. For students who were absent on April 24, make-up administrations of the questionnaire were conducted individually during the following week. One of the absent students did not complete the questionnaire. (See A.D.N. Graduate Survey, Appendix D.)

NLN Comprehensive Nursing Achievement Test

A matrix/grid exists linking each test question in the NLN Comprehensive Nursing Achievement Test to one or more of these four client needs:

1. a safe, effective care environment

2. physiological integrity

3. psychological integrity

4. health promotion and maintenance

In addition, every test question in the NLN Comprehensive Test is coded both in terms of a step of the Nursing Process as well as a client need.

Item writers are selected through a similar process to that of the NCLEX-RN item writers selection process, with an attempt to obtain a cross-section of faculty from across the country--both with geographic representation and different types of programs. Experimental administration of new test items is carried out before they become part of the actual test.

65

The number of students in each of the three types of nursing education programs

using the National League for Nursing (NLN) Comprehensive Examination # 3011

(available as of April 1991) from April 1991 to the present was as follows, according to

Dr. Carole Kingsbury, NLN Test Consultant (personal communication, August 6, 1992):

In Iowa:

Baccalaureate Programs:	none
Diploma Programs	57
Associate Degree Programs	179*
*1 North Iowa Area Community College	(146)
*2 Southeastern Area Community College	(33)
	Total: 236

In the United States:

Baccalaureate Programs:	1460
Diploma Programs:	1467
Associate Degree Programs:	6600
	Total: 9527

For additional information concerning the NLN Comprehensive Nursing Achievement

Test see Appendix E. (Also see Sample NLN Test Questions, Appendix F, and

Permission Letter from NLN Acting Director, Appendix G.)

Tape-recorded in-depth personal interview

This comprised a combination of open and closed inquiries. It was designed by the

researcher and administered over approximately one hour's time. Prior to conducting the

interviews the questions to be included in them were shared with Dr. Charles Kniker,

professor of qualitative research at Iowa State University, for his input. All interviews

66

were taped and near word-for-word written transcriptions made of the tape-recorded interviews. (See Grid: Research questions and in-depth interview questions, Appendix H.)

Variables

Independent variables included student input (also known as student incoming characteristics), program environment (also known as program resources), and student behaviors. Dependent variables included student outcomes, measured as to the following three domains: cognitive, involving knowledge of nursing practice; psychomotor, involving performance of manual nursing skills; and affective, involving student motivation and student values.

Summary

Chapter III outlines the five research questions to be studied and explains the research design, including population, sample, data-gathering procedures and treatment, and data analysis. The three instruments used in the study are described, and dependent and independent variables are identified. This research was approved by the Iowa State University Human Subjects Review Committee in June of 1992. (See Information for Review of Research Involving Human Subjects, Iowa State University, Appendix I).

CHAPTER IV. RESEARCH RESULTS

Quantitative Results

The quantitative study was designed to involve one Associate Degree Nursing class enrolled as sophomores in January 1992 at North Iowa Area Community College. The study focused on the relationship between specific student behaviors/demographic data and "value-added" gain as measured by a pre- and posttest. A total of 70 sophomore students, four male and 66 female, began the second semester of the 1991-1992 school year. One student was black and 69 were white. Of the 70 sophomore Associate Degree Nursing students enrolled second semester, a reduced sample size was available for calculating "value-added" gain between the pre- and posttests due to the following:

a. Eight students were licensed practical nurses, therefore not entering the program with the other students and thus not having taken the pretest.

b. One student chose not to fill out the questionnaire.

c. Four students were absent on the date of the pretest.

d. Three students were absent on the date of the posttest.

e. Three students completed the first semester of the freshman year in the fall of 1989. The pretest was given to only a part of the class that year and these three students were not among those taking it. (One of these students was also absent the day the questionnaire was given and did not complete it at a later date.)

This made a total of 19 students whose data was incomplete and 51 remaining students with all or most data complete. In the group of 51 participants, students ranged in age from 19 through 50. In the age range 19 through 26 there were 19 students, and in the age range 27 through 34 there were 17 students. In the age range 35 through 42 there were ten and in the age range 43 through 50 there were five.

Population

The population involves sophomore Associate Degree Nursing students. They are enrolled at North Iowa Area Community College (NIACC) in Mason City, Iowa.

Sample (also known as subject pool or *n)*

The sample included one North Iowa Area Community College Associate Degree Nursing class, enrolled as sophomores in January of 1992. A researcher-written questionnaire was administered to all but two of the 70 sophomore students. One student declined to participate in the survey, and one was absent the day the questionnaire was administered and did not complete it at a later date.

Data-gathering procedures

Data gathering involved administration of the National League for Nursing (NLN) Comprehensive Nursing Achievement Test as a pretest to the 51 students at the beginning of the first semester of their freshman year (fall 1990) to measure cognitive learning. It was also given as a posttest at the end of the students' second semester of their sophomore year (spring 1992) using an updated version available in April 1991.

Data gathering also included administering a researcher-designed written questionnaire in order to gather demographic, biographical, and personal data; student

69

perceptions regarding student and program influences on student learning; and

information regarding student satisfaction levels with the North Iowa Area Community

College Associate Degree Nursing educational experience.

Treatment and data analysis

Pearson product-moment correlations between each of five demographic/ personal

data and student success as measured by "value-added" gain were conducted. "Value-

added" gain, the dependent variable, is the NLN pretest score subtracted from the NLN

posttest score. These five demographic data, acting as independent variables, were age,

annual income, average number of hours study time per week, average number of hours

employed per week, and average number of hours per week that students spent in outside

class activities other than employment (community, church, local school) (see Table 1).

Surprisingly, a high negative correlation of -.4112 was found between the first

independent variable, student age, and the dependent variable, "value-added" gain. This

would indicate that older students seemed to increase their knowledge less than younger

ones during the Associate Degree Nursing program.

To gain further information a correlation between age and pretest scores was run.

The result was a fairly high positive correlation between pretest and age (.4863). This

would indicate that the older students tended to have a higher degree of initial knowledge

than did the younger. This may be due to knowledge acquired over the years from

sources such as TV documentaries, prior work in health-associated fields, and reading

books and magazines containing health-related articles.

Table 1. Correlation Coefficients

Independent Variables	Dependent Variables	Correlation Coefficients
Student Age	Value-Added Gain[1]	-.4112
Income Code[2]	Value-Added Gain	.0887
Study Time[3]	Value-Added Gain	.1041
Time Employed[3]	Value-Added Gain	.0674
Community Service[3]	Value-Added Gain	-.0421
Student Age	Pretest Scores	.4863
1st Semester Scores[4]	Value-Added Gain	.0987
2nd Semester Scores[4]	Value-Added Gain	.1900
1st Semester Scores[4]	Posttest Scores	.5454
2nd Semester Scores[4]	Posttest Scores	.4224
Student Age	Posttest Scores	.1935

[1]Value Added Gain: The pretest scores subtracted from the posttest scores. The difference theoretically indicates an increase in knowledge.

[2] Income Code:

	Less than $10,000	1
	$10,000 - $15,000	2
	$16,000 - $20,000	3
	$21,000 - $25,000	4
	$26,000 - $40,000	5
	More than $40,000	6

[3]These times are in hours per week. Study times are the total of time studied alone and time studied with one or more others.

[4]Semester scores indicate the total number of points achieved during a semester.

In addition, a correlation between age and posttest scores was run. The resulting correlation (.1935) would indicate that, though older students' "value-added" gains were less than those of younger students, both their pretest scores and posttest scores tended to be higher than those of younger students. A possible explanation for these results may be

that the younger students were able to "catch up" somewhat to the older students during their nursing education program, so that they ended the Associate Degree Nursing program being closer to the same level as the older students than when they started.

As indicated in the table of Correlation Coefficients, Table 1, the four remaining independent variables of income, study time, time employed, and time spent in community service showed low correlations with the dependent variable of "value-added" gain. Correlations were also run between first semester scores and "value-added" gain (.0987) and between second semester scores and "value-added" gain (.1900). As is evident, these scores showed fairly low positive correlations. This indicates there was little relationship between "value-added" gain and first and second semester scores.

Finally, additional correlations were run between first semester scores and posttest scores (.5454) and second semester scores and posttest scores (.4224). This may indicate that Associate Degree Nursing students doing well at North Iowa Area Community College were well prepared for the posttest (and perhaps for the licensing examination).

Mean "value-added" scores were compiled according to an additional demographic factor, marital status (single, married, and divorced). The 12 single students had a mean "value-added" gain of 43.67. The 36 married students' mean "value-added" gain was 41.28. The three divorced students showed a mean "value-added" score of 29.00. A data analysis of "value-added" gain arranged by marital status is shown in Table 2. (For the raw data used in this analysis, see Table K1, "Value-added" gain arranged by marital status.)

Table 2. Data analysis of "value-added" gain arranged by marital status

	Single Students	Married Students	Divorced Students
Sample Size	12	36	3
Mean "Value-added" gain	43.67	41.28	29.00
Standard Deviation (N-1)	16.80	12.92	7.55

Results: $t = .5139$

Degrees of freedom $= 12 + 36 - 2 = 46$[a]

Note. To test the hypothesis that the population means of the single and married student groups are equal, a t test for independent samples was run. Since the divorced group was so small, it was omitted.

[a]The critical value of t for 46 degrees of freedom at the .05 significance level is 1.688. Therefore, the hypothesis is not rejected.

As noted in Table 2, a t test for independent samples was done to test the hypothesis that the single and married student groups' population means are equal. This hypothesis was not rejected, as explained in Table 2. (The divorced student group was not included, since there were only three students in this group.)

All correlations are summarized in Table 1. See Appendix K for a set of additional tables as follows:

Table K2   Correlation data table: sorted by age

Table K3   Correlation data table: sorted by income code

Table K4   Correlation data table: sorted by employment time

Table K5   Correlation data table: sorted by study time

Qualitative Results

The qualitative part of the study involved the researcher's conducting in-depth

interviews of approximately one hour in length. Although the primary purpose of the

interviews was to elicit qualitative data, such as student feelings and perceptions

regarding their Associate Degree Nursing educational experience, some factual or

quantitative data was also gained through interview questions. The interviews were held

with the top and bottom ten students in the sophomore Associate Degree Nursing class

enrolled in the 1991-1992 school year.

At the beginning of the fall semester, 1991, 75 students enrolled in the sophomore

class. Three of these students dropped the class during the first few weeks of the

semester, leaving 72 students. Of these 72, two students failed the course that semester.

From the 70 students who completed the semester a top and bottom group (of ten students

each) were chosen, according to the number of total points students had earned by the end

of that semester (i.e., the first semester of their sophomore year). The first semester rank

was chosen to determine the top and bottom groups, as opposed to second semester, due to the fact that the interviewer wished to begin conducting the interviews before data concerning the second semester ranks would be available.

It should be noted that class rank of students varied somewhat among different semesters. Therefore, at the end of the second semester, although all 20 students included in these interviews remained close to the same end of the grade spectrum as they were on first semester, they did not necessarily remain in the bottom or top ten group or, if they did, retain their same order in the group. Students in the two groups differed by as much as 135 points (between the highest student in the top group who earned 730 points and the lowest student in the bottom group, who earned 595 points).

Of the ten students in the top group who were interviewed, only six were included in the 51 students receiving a "value-added" gain in the quantitative study. Of the four who were not included, two entered the Associate Degree Nursing program as licensed practical nurses (thus not taking the pretest), and two did not take the posttest. Of the ten students in the bottom group who were interviewed, seven were in the group of 51 participants involved in the quantitative study. One of the three students not participating was a licensed practical nurse, one was in the practical nursing program at the time of the pretest, and one was absent the day of the pretest.

"Value-added" scores were not used during the interviews for two reasons. First, these scores were not available for all 20 students. As explained above, only 13 of the 20 interviewees had "value-added" scores. Second, the "value-added" scores were not available to the researcher at the time of the interviews.

Nineteen of the 20 interviews were conducted between April 27, 1992, and May 18, 1992. One was not held until June 18, 1992, due to the student's unavailability. One one-hour interview was held with each student. Interviews were tape-recorded at the time of the interview in order to enhance accuracy of reporting of student responses. Near word-for-word transcripts were later made of these recordings.

Of the 70 students who had enrolled in the second semester of the sophomore year of the Associate Degree Nursing program in January of 1992, five failed the semester, making a total of 65 graduates in the class of 1992. One of these five who failed, declined to be interviewed. Since the remaining four students were included in the bottom ten students at the end of the first semester, they were a part of the bottom group interviewed. These four students reenrolled in the program in the second semester of 1993. The fifth student who failed chose not to reenroll in 1993. (Students are given one chance to make up a previously-failed semester.) Thus of the 75 students who started the fall semester of the sophomore year, 65 graduated, and ten either dropped out or failed. Of the bottom group of ten, six students graduated; four did not.

Demographics of sex and age in the top and bottom student groups were similar. All ten in the top group were female; one male and nine females comprised the bottom group. (In all, four males were in the 1992 Associate Degree Nursing class.) Ages in the top group ranged from 21 to 44 and in the bottom from 21 to 49. Three high-achievers were in their twenties, five in their thirties, and two in their forties; there were four lower-achievers in their twenties, three in their thirties, and three in their forties.

Means for five demographic factors were calculated for the top and bottom groups.

Top and bottom group means were similar for age, income, study time, and community

service and dissimilar for hours employed weekly (top group: 11.3 and bottom: 24.0) (see

Table 3).

Table 3. Mean and standard deviation analysis of the top ten group and the bottom ten
group

Demographic Factor	Group	Sample Size	Mean	Standard Dev. (n-1)
Age	Top Ten	10	33.3	7.69
Age	Bottom Ten	10	33.8	9.30
Income Range Code	Top Ten	10	3.4	1.71
Income Range Code	Bottom Ten	10	2.8	1.40
Hours Employed/Wk	Top Ten	10	11.3	9.36
Hours Employed/Wk	Bottom Ten	9	24.0	7.76
Total Study Time	Top Ten	10	12.7	8.59
Total Study Time	Bottom Ten	10	13.2	5.85
Community Service	Top Ten	10	1.9	1.60
Community Service	Bottom Ten	10	1.7	1.77

A t test for independent samples was then run to test the null hypothesis that the

population means of both the top ten group and the bottom ten group are the same for

each demographic factor. The alternative hypothesis was that the population means are

not equal. In the case of the four factors of age, income, study time, and community

service the null hypothesis was not rejected. However, the null hypothesis was rejected

for one of the five factors being examined (the number of hours that students were

employed per week) since the calculated t value of -3.1978 exceeded the nondirectional

critical t value (-2.110) at the .05 level of significance. Refer to Table 4.

Table 4. T test analysis of demographic factors of the top ten group and the bottom ten
group

Demographic Factor	Calculated t Value	Degrees of Freedom	$t_{.05}$	Hypothesis Decision
Age	-.1311	18	-2.101	Do not reject
Income Range Code	.8581	18	2.101	Do not reject
Hours Employed/Wk	-3.1978	17	-2.110	Reject hypothesis
Total Study Time	-.1522	18	-2.101	Do not reject
Community Service	.2657	18	2.101	Do not reject

An additional t test was then calculated for the demographic factor of student

employment hours. For this test the same null hypothesis was used, i.e., that the

population means of the top ten group and the bottom ten group are equal. This second t

test's alternative hypothesis stated that the bottom ten group of students has a greater

mean than the top ten. This null hypothesis was also rejected since the calculated t value

for employment (-3.1978) again exceeded the one directional value of t at the .05 level of

significance (-1.740). (See Table 4.) (Also see Demographic data of the top ten group

and the bottom ten group, Table K12, for raw data.)

In regard to family income, data from the questionnaire showed that two top

students and two low students reported an income of less than $10,000; one top student

and three low students between $10,000 and $15,000; two top and one lower student

between $16,000 and $20,000; two top and three lower between $21,000 and $25,000;

and two top and one lower student reported an annual family income of more than

$40,000 per year. These figures indicate the similarities between the incomes of high-

and low-achieving students. Also related to the demographic factors of income and

number of student employment hours is receipt of financial aid. Similar numbers of

students received financial aid in the two groups, with eight high achievers and nine low-

achievers receiving financial aid.

Researcher-written interview questions consisted of primarily open inquiries. The

researcher defined open inquiries as questions beginning with "How?" or "What?" or

"Why?" or statements encouraging students to "tell" or "describe" their thoughts or

feelings about a particular issue. Interspersed with these more general open inquiries

were other, somewhat more definitive questions, begun by words such as, "Who?" or

"Which?" or "How many?" or "Where?" Rarely used were closed inquiries, defined as

questions presenting the respondent with an either/or choice, such as, "Would you

rather . . . ?" or "Do you prefer . . . ?"

These basic questions addressed a number of student, instructor, and program

factors potentially impacting student performance in a positive or negative way.

Questions were grouped under the research question to which they most closely related. Interview questions were arranged in a progression which seemed, in the researcher's view, to flow most naturally. (See Appendix H.)

Although each interview was begun using the basic format and intent of the questions listed in the matrix cited in Appendix H, the interviewer often intentionally changed the wording of the questions slightly to adapt them more "comfortably" to the student being interviewed, and sometimes questions were added spontaneously in order to allow for following a unique or particularly interesting tack of the interview. At times questions were repeated and/or rephrased in order to pin down an answer from a student who misinterpreted the question or who wasn't giving as complete an answer as the researcher desired.

There were several reasons for choosing the time frame of one hour for carrying out the interviews. One was to allow enough time to gather data about a wide variety of possible influences on student achievement and the importance of each in the eyes of those being interviewed. A second purpose was to give students, to the extent possible, the feeling of an unhurried and unintimidating atmosphere . . . one in which they could speak openly and freely about any of the points being discussed. A third goal, related to but different from the second, was to allow enough time for each student to sense that the interviewer had time to listen and was really interested in what he or she had to say, e.g., by following up on a comment that seemed particularly important to the student or "hearing him or her out" on a subject about which the student was especially passionate.

An unexpected benefit resulting from the hour-or-more-long time frame was that it gave students adequate time to think through, develop, and re-evaluate their answers while they were speaking (and listening to themselves speak). Several times answers were revised or even reversed by students during the course of their reply.

The researcher also concluded, however, that extending the interviews for much more than an hour was not useful. New content in student answers decreased if the interchange exceeded this time. This is understandable, because giving thoughtful answers to a continuous series of questions of this type requires hard work on the part of the interviewee. In addition, students' lives are very full. They are busy people, and giving more than an hour's time to an "extra" project such as this is not realistic or feasible for most of them.

Conducting in-depth interviews with high- and low-achieving students was done with multiple purposes. The first was to determine the amount of agreement between top and bottom groups of students regarding various topics discussed. Examples of items on which the top and bottom groups agreed included the high amount of stress associated with being a nursing student (and the resulting importance of and need for emotional and physical support from family/friends), the valuable learning opportunities available to nursing students by working in a health-care job (such as a nurse's aide), and seeing oneself as the prime motivator for student achievement.

Second, the study involved determining how issues differed for the high-achieving and low-achieving groups. Examples of these differences included slightly higher incomes, on average, for higher-achieving students and better study habits. In addition,

the top group expressed more self-confidence in the use of therapeutic communication techniques than did the bottom group, and described having to spend less time and energy on family problems.

Third, the researcher wanted to learn the amount of consensus among students within each group. Examples of this were the agreement within the top group of the importance of attendance (and all but one stating their own attendance was very good). In the lower group (and the higher) there was general consensus that instructors are a very important factor in determining student success.

Fourth, the researcher hoped to get a greater sense of what kinds of issues affecting their performance students have to confront. Representative of concerns cited by students were having to work long hours to earn enough money for their families, fatigue, and a feeling of geographical isolation from peers by students living a long way from campus. Other problems included family responsibilities such as child care (especially ill-child care for students with young children) and varied "teenage" worries for students with older children.

The fifth goal was to learn what factors related to learning were under student control and how they might modify these to increase learning. The following sample topics were mentioned by students: the need to be firm in saying "No" to employers who ask students to put in extra work hours, the necessity of not procrastinating with studying, the opportunity to apply for student aid, the importance of classroom and clinical attendance, and limiting time spent in community activities while a student.

In a similar vein, the sixth goal was to study what program and instructor policies, tools, and behaviors could be changed to help students attain their maximum potential as nursing students. Examples listed by students included caring, organized instructors; high performance standards for students; varied class activities promoting active/hands-on learning; observation of/participation in many nursing settings; speakers; and textbooks written at a level appropriate for Associate Degree Nursing students.

Seventh, the researcher sought to know more about student satisfaction levels. These included judging, by students, of their own performance in achieving critical self-competencies, such as knowledge application, problem-solving, use of therapeutic communication techniques, and assertiveness. Overall, high-performing students felt more prepared than low-performing students in all four areas. All ten top students felt generally ready to apply knowledge, problem-solve, and use therapeutic communication techniques. Nine stated they practiced assertiveness. About half the bottom students felt prepared with applying knowledge, problem-solving, and communicating therapeutically. Only three said they were skilled at using assertiveness effectively.

Eighth, the study involved evaluation of overall student satisfaction with the Associate Degree Nursing program. Most students in both groups said they were generally satisfied with the nursing theory and clinical courses and with the program as a whole. A wide range of opinions was shared regarding the merit of different general education support courses. Anatomy and Physiology and Nutrition were named as the most useful.

Perceptions of the 20 interviewees discussed in this study are summarized under five categories. These correspond to the five research questions: demographic characteristics, student motivation, student behaviors, clinical/class/instructor/program behaviors/policies, and student satisfaction.

In the case of certain interview questions, the investigator made an arbitrary decision regarding under which category to include replies. For example, some interview questions which relate to demographic data could also be conceived as relating to student behaviors, since many personal choices determine one's demographics (e.g., if one is married, has a job, etc.). The researcher used the criteria of time and numbers to determine whether interview questions would be summarized under demographic data or student behaviors (i.e., if the majority of the interviewees had made the behavior choice in the past or recent present).

For example, having borne children was considered a past decision. Therefore, this data was categorized under Demographic Characteristics. Where one chose to study was considered a current behavior. Thus this response was placed in the Student Behaviors category. Some questions, e.g., if a student married during the program, might be considered to legitimately fall into either category. However, since the majority of students stayed with their past decision to remain single or married, marriage choice, for the purposes of this study, was considered to be a demographic characteristic.

<u>Demographic characteristics</u>

The first research question studied the relationship between student success and student demographic/personal data. As described above, this question was explored in the quantitative portion of the study. However, it seemed useful to include questions related to it in the interviews as well, in order to learn more about opinions of students as to what and/or how demographic and personal characteristics helped or hindered their learning. Three demographic characteristics were discussed: (1) family/living situation, (2) family financial circumstances, and (3) job status.

<u>Family/living situation</u>   Although the interviewer rarely asked specifically if students were married or had children, this information often was volunteered by students when asked to describe how they felt about their family and living situation. Most students in both the top and bottom ten groups were married with either preschool, grade-school, or teenage children. A couple of students were newly married with no children. Three were single students, two of whom lived with and cared for children by themselves. One of these students was in the top group and one in the bottom. Significant differences in their situations, however, were that the children of the top student, "Jane," (all names used are fictitious) were older and she had no financial worries during the duration of the program. The third single mother, divorced during the program and now dating another man, stated that she and her boyfriend were "not ready to be married yet," but they were "trying to build on" their relationship.

Of the 20 students, 18 (ten from the top group and eight from the bottom) described their family and living situation as having a number of positives. Most commonly

mentioned was the encouragement they received from family members. Over and over students described their parents, children, and especially their spouses as "very" or "really" supportive. Typical of comments made by many students about their spouse were "he helps a lot" or "he took over." One student, who had many difficult problems and challenges during her course of study, told how her husband stood by her, doing what he could to help, stating "my husband tried to pitch in with housework and . . . to keep the little ones out of my hair, so I could study."

One young male student referred to his wife, who had previously completed the same Associate Degree Nursing program he was now in, as "the nucleus of what carried me through." An older student said of her family: "They were so supportive of me, and anytime [I] needed studying done, I could just drop everything and study. They helped me with whatever they needed to help me with." Some mothers and mothers-in-law were mentioned, particularly for helping with baby-sitting. One student praised her young children, ages nine and five, noting, "My kids were really good. They helped me out. They tried to be quiet . . . ."

Another young mother, who was candid in admitting that her relationship with her spouse wasn't always perfect, nevertheless had nothing but good to say about how he helped her with practical household tasks. Comparing her husband to those of some of her friends, she said, "He was there! . . . . Mine was always there. I could come home and say, 'Hey, I'm sorry; I need to study,' and he'd let me go. I didn't have to find someone to baby-sit. And he knew when I was stressed out. The dishes were done. The house

was clean. Supper was ready. [Our daughter] was washed and bathed and to bed . . . .
He did a nice job."

Similarly, and not unexpectedly, most (though not all) students in the top group and
all students in the lower group experienced at least some negative feelings associated
with their family/living situations during their years as a student. The differences
between the two groups lay in the number and severity of stressors. The lower group had
more numerous and more difficult family problems, including difficulties related to
finances, disciplining teenage children, and long employment hours.

Dissatisfactions expressed by one top student included feeling "a little bad" about
not being "able to spend as much time helping with homework" and, on the part of
another, feeling "real guilty . . . because . . . I filled the role of student to the best of my
ability, but I really slacked off in the area of mom and wife." Another high-achieving
student commented about finding it hard to study in a "real tiny apartment," and a
farmer's wife cited her husband's being "real busy" in the spring and fall. In
compensation, however, she also noted that "he is not real busy in the winter time" and
therefore "he helps me out a lot at home."

Not all top students received the physical help they felt they needed in order to
cope. One student describes the contrast between the support she thought family
members had implied before she returned to school and the amount she actually received
once she entered the program: "I'm married and have two preschoolers. I did have a lot
of emotional support from my husband and his family that all live close here. They were
all real supportive in me going back to school and helping me out, but actual help and

time wise . . . . I don't really feel like I got as much help as I needed. Taking care of the kids and the house and meals and all [those] things, so I felt like I had to do all the things that I had to do before, plus the student load, even though before I started the program they all said, 'Oh, yeah, yeah . . .' Cuz I said, 'I'm gonna need a lot of help, you know.' 'Oh, yeah, I know.' I didn't get help unless I was near the breaking point, and almost into a rage, before I got the help that I needed."

Though students in both groups had their challenges, it was in the lower group that problems tended to be long-standing, severe, and emotionally and physically draining. These varied for each individual and encompassed a wide variety of issues, such as financial and marital problems, long work hours, fatigue, illness of the student or a family member, problems with teenage children (including involvement with the law or drugs, unwed motherhood, and running away from home). Contributing to these burdens in at least one student's case was an admitted lack of planning ahead before entering the program.

"Eleanor," a middle-aged student in the lower-achieving group, also confided her wish that some family members had been more helpful. "I could have used more support from my spouse and my oldest son. When my daughters came home to visit then they'd always help me out." Eleanor went on to divulge her suspicion as to why this had been the case. ". . . My husband . . . I don't think he wanted me to go on, and I just found that out, just within the last maybe six weeks or so. Probably because I'm going to earn more money than he does."

In reference to any changes they could have made in their family and living situation in order to have enhanced their academic performance, three from each group said they would not have changed anything. All six of these students expressed contentment with things just as they were in their home situation, and one felt that even the difficult things she had experienced earlier in the nursing program were useful in her development. When asked if she would make any changes, she replied, "Not really, because everything that happened to me made me grow as a person and made me who I am right now, and I'm pretty happy with who I am . . . ."

Some students felt, however, that were they to repeat the experience they could effect some changes which would have lightened their load. A few half-jokingly stated they could have waited to have their children until they were through with the program. Most said this with reservations, though, reflecting the thought of one student who stated, "I guess I could have probably not gotten pregnant and had a baby. I'm not sure I would have changed that either, 'cause I'm not sure I would have wanted to wait another two years before I had the baby."

An older student, reflecting perhaps some long-held values of her generation, decided notwithstanding, that it was time for change. Commenting on this she said, "One thing that I think I could have done was to have bought more foods that were boxed. I did not. I'm one of these 'scratch' people and I needed to let that go, and I didn't until the last half of this last semester." And then, in response to the interviewer's comment, "Anything else that you could have done?," she revealed another break with tradition.

She stated, "I did finally make a schedule for my son to do the laundry. I sorted it, but he did it. And that did help."

Other student suggestions as to how they might have benefitted from change involved working fewer hours or not at all, studying somewhere other than at home, hiring more babysitting help, and even changing their attitude. In reference to the latter, one student confessed that "I didn't have to get those A's . . . if I just would have gotten a B or a C to start out with . . . but every A I got just made me think I had to keep it up since I'd gotten that far, and I'd say, 'Well, I put all that work into that, why just blow it now?'"

Another student, who also identified herself as a victim of self-set high standards, described what change she might make. "Probably my attitude about myself and . . . I don't think anything really could have been different but just the way I felt about being the best mom or the best housekeeper and being able to let the house go, and not having to clean up first before I start studying. I had a hard time with that."

The complexity of family problems facing some students was poignantly illustrated by "Jennifer," a female student who had "three toddlers and two teenagers" and who understatedly reported that she also "had a few problems with those teenagers." She went on to say that in addition "we had some financial problems, so I had to work . . . I was working 32 hours a week all of first semester and at least half of second semester."

Describing the problems with her teenage children in more detail, Jennifer explained, ". . . my son felt neglected. I guess I should have spent a little more time with him. He started getting into a lot of trouble with the law, and resentful of having to help

with household chores." Jennifer went on to say: ". . . when my daughter left, she left her daughter, and my son didn't want me getting guardianship of her . . . he didn't feel that she was my responsibility, and he didn't want another . . . quote 'little sister.' One more thing to take me away from him."

But Jennifer and her husband did seek, and get, guardianship of their granddaughter, adding to their family responsibilities. In addition, during the course of the year, Jennifer developed a significant health problem, requiring a major part of her energy and attention. As instructors work with students who have problems of the magnitude of those Jennifer and her family faced, the question no longer becomes, "Why didn't she do better?" Instead one asks, "How did she manage to cope as well as she did?"

Family financial circumstances   Because of the personal nature of questions about family and living situations, students were advised at the time of their interview that they were under no obligation to answer any question, if they preferred not to do so. In addition, the open-ended nature of the questions allowed students to give as much or as little information as they chose. In spite of these two factors, no student declined to answer any of the questions asked. On the contrary, many seemed almost anxious to talk about the challenges and problems they faced and glad to have someone to listen and rejoice with them in their success in overcoming many of these difficulties. The same was true in regard to a particularly personal question--"How do you feel about the effect of your family's financial situation on your college performance?"

Students in both groups ranged from "not hav[ing] to worry about money" to its being a major daily concern. A number of students had government or other loans and grants. "Ailene" was one of these, and though she was grateful for the financial support, she confided that at the same time "it makes me feel bad. I work weekends so I can put back into the state what the state is doing for me." Several students spoke of their (or their spouses') needing to work lots of hours in order to make ends meet, contributing to added fatigue and/or decreased study time for many of them.

One student told of the havoc raised with her family's budget by an unexpected medical emergency. In addition to a decreased income due to her working fewer hours so she could go to school, and expenses for a child requiring in-patient counseling, her husband had undergone a serious operation, costing several thousand dollars. When discussing her family's resulting financial status, "Barbara" commented: "My husband had major surgery last summer, and we're still paying on that, but I think if we hadn't had the extra medical expenses, it wouldn't have been so bad. It was harder this second semester than it was first semester . . . starting about Christmas time actually, because I wasn't even sure we were gonna be able to buy Christmas presents at one point."

On the other hand many students seemed able to adjust to a decreased income with little difficulty. One stated that family finances were "not a problem" and her family was "getting by fine" though they didn't have "a lot of extras." Others used words such as "a little tight" to describe their situation or being satisfied with having "a roof over my head." Others also took a philosophical approach. One stated about her family: "We were probably no worse off; we adjusted." Another, newly-married, said, "We don't need

to spend a lot of money. It had no bearing really." Still others had "saved ahead," and one student said her family "went into it knowing it was going to be a tough year, but it wasn't as bad as I thought." Even those who had no financial problems were aware of their favored circumstance. One in this group described herself as "very lucky."

Job status   Closely tied, of course, to family financial circumstances, are student choices about work. Three students from the top academic group currently had no job, though one of them had worked her freshman year. All of the 17 other students worked outside their homes. The amount of time employed ranged from that of one student who worked "mostly summers and holidays" to those of others who put in up to 24, 30, or 32 hours a week.

Interestingly, all of the students worked in health-related jobs. Eleven of these (six in the lower group of students and five in the higher) were employed as nurse's aides in either a hospital or nursing home setting. Two worked as receptionists in a doctors' office or clinic, and two were licensed practical nurses (who had returned to school to get the needed additional educational preparation to become registered nurses). One student was a phlebotomist, one a psychiatric technician, and one an employee of a facility located in a neighboring town which cared for and housed handicapped adults. When asked what her position there had been she responded: "Oh, all different . . . I worked in recreation. I worked as a job coach. I took 'em out in the community and they cleaned and I supervised. I worked in a classroom; I taught them. I was a secretary at one time. I've done pretty much everything but be in the cottage."

Some students had become nurse's aides after entering the nursing program. They had done so, either on their own volition or at the suggestion of one of their nursing instructors, in order to, as one student put it, "get some experience" caring for patients. In contrast, other students had started out in health care jobs. Several had worked for a number of years as a nurse's aide, licensed practical nurse, or in other positions, before deciding they did not want to remain there permanently. Some spoke of reaching personal or career plateaus and a resulting longing to do more. Thus they had returned to school to begin the Associate Degree Nursing program.

"Marge," a single mother in her mid-twenties, volunteered this explanation for her choosing to become a registered nurse: "But I had reached what I thought was my own personal growth. So then it was time to move on. So that kinda pushed me to realize that I had to do a little extra effort to get through the nursing so I could accomplish my goals, in growing, and my career." This same need for self-fulfillment was alluded to by another student. A former graduate of North Iowa Area Community College's Practical Nursing program, she expressed her frustration and self-confidence by stating, "I like to learn. I feel stuck! I feel like there's more to learn and I want to learn. I . . . think the main thing for me is I feel that I can do more than I'm doing. I feel that I'm capable and have the ability to do more than I can do as a licensed practical nurse."

Added income was a common reason why students worked during the nursing program. Another was insurance benefits. In regard to this, one student, who had quit a waitressing job to become a nurse's aide, acknowledged that for her family, "there was a problem with insurance, and this way when I work at the hospital, with insurance it's

better." She went on to say, "It's a load off my mind . . . that was the main reason . . . was the insurance."

Students identified a number of other tangible positives received from their jobs. Their observations were perceptive and varied. One student, describing herself as being "more reserved," felt the most helpful thing she gained as a nurse's aide in a nursing home was "not a lot of technical skills but just [practice in] approaching a client." Other students spoke of the opportunity to become more familiar with medical terminology, develop better time management skills, or gain "insight into different nursing positions available."

A mother of teenagers, "Betty" confided that she had wanted to go into nursing "right out of high school," but she had put her goal "on the back burner" when she married her high school sweetheart and raised a family. Now enrolled in the Associate Degree Nursing program and at last realizing her "dream deferred," Betty found that a part-time job as a hospital aide was a "good mix," providing her with not only "good training," but also some "time away from class."

A younger student, equally enthusiastic about her aide job, astutely commented, "I think, in fact, that anybody going into the nursing program, even before you start . . . I'd recommend being any type of an aide . . . because it gives you a good feel for the position that you're going to be working into . . . because then you know. Sometimes when you start things you may think they're different than what they might be, so then you know."

Additional job-related plusses cited by individual students were the opportunity to "work with people," support from coworkers, lik[ing] the residents, increased knowledge

about patient diagnoses and medications, time to study at work, and greater likelihood of being hired as an R.N. upon graduation. One student, a long-time employee of a care center, had double praise for her employer, stating, "the facility . . . was really good about allowing me to cut back as many hours as I could and still retain full-time status, so that was a real big help for me." She noted that, in addition, "the place where I worked . . . kicked in and paid for my education." The trade-off, in her view, was minimal. "I have to give them a year in return. Well, a year's nothing when you've already got seniority there anyway."

Both groups of students listed similar undesirable aspects of working while going to school. The major problems addressed were decreased time to spend with family or to study and experiencing added stress and fatigue. Two students told of nights when they worked all night and then were too tired to come to class the next day. A fellow student, with a similar work schedule, came to class and did her clinical rotations in the hospital anyway. In this interaction between herself and the interviewer, she described what it was like:

Student: "I worked from ten at night till six in the morning. So some days at clinical, I would have worked the night before and had no sleep when I got there. I just had time for a shower before I went to clinical. I don't feel it hurt my performance in the clinical area, but I think I might have done a little better with some sleep."

Interviewer: "Seems highly probable, doesn't it? Certainly you would have . . . enjoyed it more."

This student went on to say that to supplement her note-taking in class, she taped the lectures. However, because of her excessive work hours, she then had little time to listen to the tapes.

Only two students, however, in the high-achieving group said they would change anything about their work situation. One would have decreased the number of hours worked and one would "get rid of a few on-call nights." Students in the bottom group often expressed the feeling that there was little they could do to better their job conditions while in school. One, however, who did not successfully complete the second semester's work in the nursing program, planned to repeat it the succeeding year, and had made plans to change her work hours from evenings to days.

Another student, frustrated because he ended up in the bottom group, felt he had the potential to do much better had his supervisor at work not over-scheduled him for so many extra hours. Speaking of the emotional discomfort this caused him, he stated, "Adding on the additional hours with work, it put me under so much stress. I was sick a lot. There were days I had to take off just to keep in control . . . . I just felt like I was constantly under pressure. I had no time to just relax and . . . keep my own peace of mind." Looking back, he decided that he should have taken a firmer stand with his employer and refused to accept the additional work assignments not originally agreed upon when he took the job. He expressed his thoughts in this way: "I guess I should have looked at the big picture sooner, as far as my work load . . . . When . . . I got more aggressive, I started to get some results . . . . I think if I had put my foot down a little bit harder . . . I would have got better results."

Student motivation

The second research question asked students who/what they viewed as the prime

motivator/motivation to encourage their highest potential learning/performance. The

question was divided into two parts:

1. Who is the prime motivator?, and

2. What is the prime motivation?

Who is the prime motivator?   On no issue was there more agreement among

students than on that of the prime person motivating them to achieve. Though some

mentioned other persons as well, all but two (i.e., 18 of the 20 students interviewed)

answered, "myself," when asked this question. Others listed by students as those who

motivated them included family members (spouse, "my kids," parents, and siblings),

peers in the program, or good friends who had gone into nursing before them. Surprising

to the researcher was that in spite of frequently using words like "helpful," "encouraging,"

and "supportive" to describe faculty, none of the students mentioned an instructor as their

single or main motivator to do well. The two students who did not see themselves in the

role of chief self motivator, were both from the low-achieving group, and both identified

their husbands as being the prime person to motivate them.

Many community college students represent the first generation in their families to

seek a degree beyond high school. One older student in this study explained how this

reality in her own family had affected her and delayed her education. "I wanted to go into

nursing, but I didn't have any role model . . . . I didn't have any friend that was in

nursing."

The place of role models also came up during an interview with another class member, a student of color, when the following conversation took place:

Interviewer: "Digressing just a bit, is there a family role model you have that has completed college and done what you are doing? Or are you the first in your family?"

Student: "My sister has completed college and is doing real well for herself. However, I didn't get to spend much time with her while she was in college. She was away from home, so I didn't really get to see what she went through, so I guess her college years didn't affect me very much. We weren't around each other. Her end result . . . I've seen that, and it makes me happy, but I feel it's more what I see around me--my immediate environment that would motivate me to do more."

An interesting phenomenon took place from time to time during the interviews. This was the gradual about-face which occasionally occurred as students talked through and expressed their opinions. An example is that involving "Maggie," who first names her husband and others as her chief motivators, but gradually comes to a different conclusion.

Maggie: "My husband is a pretty good motivator. He's really good. And my family . . . are a great support, so they're motivators too. And . . . especially the first year when you're comin' in and everything's new and you don't really know what to expect, there's a lot of really good instructors that were very good motivators . . . there really were. And then in the second year too, so that really helps to have good instructors and everything. For the most part, I thought that this was a pretty good program; there was a

lot of good instructors. And then my spiritual belief and everything. God . . . is a good

motivator."

Interviewer: "Who's the greatest of these? If you had to pick the prime motivator?

Maggie: "Tough question."

Interviewer: "Maybe there is no one . . . ."

Maggie: "Maybe there is no one. They're kind of like all combined into one to

motivate myself. Maybe I'm my greatest motivator. 'Cause I like to . . . my personality,

I'm an achiever. Because of all these good support systems, then I can really motivate

myself."

What is the prime motivation?   Because so many students felt their greatest

motivation came either partly or primarily from within, a follow-up question seemed in

order: What is the prime motivation for you to learn or perform at your highest potential?

In other words, why do you want to learn? A host of answers ensued, ranging across the

spectrum from the very pragmatic "to get good grades," "to pass the course," and "so I

can take Boards," to the more esoteric "to be the best nurse I can." Again the reasons

were very personal.

One married mother of two, who ranked near the top of her class, admitted that her

first attempt at college had not been so successful. She described part of her motivation

for wanting to do better this time around. ". . .It's also, I guess, since my kids are older

and they're saying 'How're ya doing, mom?' I do want to do good to prove to them I can

do good, I guess, and that they can do it too if they try. And also because I . . . the first

time I went to junior college when I was eighteen (actually I was seventeen), I really

goofed off and didn't do well and so I want to prove to my parents . . . make 'em proud this time, I guess."

Another top student cited responsibility for others as a chief motivation for her to put forth her best effort. "I felt that if I'm going to be a nurse, I've gotta know what I'm doin' and I've got other people's lives to think about. This isn't something that doesn't have consequences behind it. I wanted to know." Later, her words beautifully described the feelings of awe she experienced at what she was learning: ". . . I guess to me this health profession is almost like uncovering some mystery that God has, that you can only get this way. And being able to understand all these miracles that go on in your body and see how the disease works. And I've always kind of thought that it was . . . Well, I was very surprised that this nursing program is what it is. I feel we know almost a lot of what the physicians know. I had no idea we were going to get this in-depth physiology and disease. And I really love that, and that's a motivator in itself to learn all of these things and understand what's going on."

Students in the lower-achieving group were equally articulate in expressing what motivated them. One recently-married student gave the following reasons for wanting to learn: "I believe it's for my own well-being. Just the feeling of accomplishing something. It's created from wanting that. I think I have felt a different impact on what I want to learn since I've gotten married. I have to look at the future as far as providing for a family . . . ." And another student, a young single parent, said of her motivation to achieve, "Well, this is my dream. I want to succeed . . . plus I think being a nurse is right up there and the best profession a person can be in."

101

<u>Student behaviors</u>

The third research question dealt with how perceptions of high- and low-achieving students compared as to which student behaviors contribute most to student learning. These behaviors included (1) attendance, (2) community activities, and (3) study habits.

<u>Attendance</u>   Findings concerning class and clinical attendance were generally similar in the two groups of students with the exception that students in the lower group, on the whole, missed or were late a few more days than their peers in the top group. Only one student in the high group described her attendance as "not very good" or "at least not as good as I wanted it to be." The primary reason for her absences was sickness of her children. During the first year of the program, her husband assisted in the children's care when they were ill, alternating with her in this by staying home from work every other day to care for them. However, he was not at home on weekdays the second year, she could not send them to the baby-sitter if they were sick, and she had no one else to care for them in or out of her home. Thus, her only alternative, as she saw it, was to miss school to stay home and take care of them herself.

One lower-achieving student had a self-described attendance/tardiness pattern that was "horrible," having come late to or missed many days of class. The student blamed this on a far too busy work schedule, yet was not able or willing to insist on fewer hours or accept the less comfortable living standard that giving up work altogether would have brought about.

The most significant finding related to attendance, however, was that almost to a person, students professed, and backed up with their behavior, their belief that punctuality

and attendance were "very important." This was true, they felt, in both the classroom and their hospital work, but especially the latter. Although most students felt that "you missed valuable information" by not coming to class, at least in that instance they could borrow class notes, have someone tape the lecture, and gather handouts for them. In the clinical setting it was, in their view, a different story. The opportunity to care for a patient with a particular diagnosis, practice a new hand-skill, or observe a particular test or procedure might not present itself again during their nursing program.

A couple of student comments will suffice to show, however, that students in both the high and low groups recognized that good attendance alone was not enough to insure learning. One bright student, with an excellent attendance record and overall positive attitude was critical of some classes. She stated, "Some of the lectures I felt were a waste of my time. I had to drive 45 minutes to get here and I could have stayed home and read the book and better utilized my time." By the same token, one student from the lower group had learned by the time the interview was being conducted, that she had not passed the course. When discussing with the interviewer the importance of her almost flawless attendance, she remarked wistfully, "It didn't help me at all."

Most students had valid reasons for being late or absent. Bad weather, illness of the students or their family members, extreme fatigue from an excessive work load, or the death of a loved one comprised the major reasons for students missing class.

Community activities   Volunteerism is strong in the north Iowa area, as it is in much of rural America. Thus it seemed fitting to inquire of students how much participation in community activities had been a part of their lives during the years they

were enrolled in the Associate Degree Nursing program. As to the average number of hours spent in local school, church, and other community events, there seemed to be few differences between the two groups of students. These usually varied from "an hour or so" to "three, maybe four" in the lower group, up to "four or five" in the top group.

However, there were exceptions to this norm. One of these was a student in the high group who estimated that she spent much more time than this in community activities. In this segment of her interview she explained why.

Interviewer: "About how many hours per week did you spend, on the average, in community activities?"

Student: "Oh . . . I'm not sure."

Interviewer: "Ballpark figure."

Student: "Oh, maybe ten."

Interviewer: "How did you feel about that . . . ? You've already mentioned it was a balance for you. Almost recreation."

Student: "Well, I think it's something I oughta continue. I don't want to give it up. We were in a . . . We started a Bible study group . . . last Christmas, and it's excellent. I would hate to give that up. It meets weekly. And of course our [children's school] ball games . . . ."

Interviewer: "And I would guess that in addition to the personal satisfaction, that of doing something you like to do, is the satisfaction of knowing you're supporting your children. Am I right?"

Student: "Yes, you are."

Overall, the two groups were also similar in the feelings shared by students regarding the kinds and amount of their participation. A number of students in both groups expressed regret at not having been able to participate as much or as fully as they would have liked in church events, school activities of their children, and community projects.

One student, though, maintained an amazingly active role in her church during her years in the Associate Degree Nursing program. In addition, she held a full-time outside job and also fulfilled the role of wife and mother. She did relinquish some church activities while she was a student, but explained that after graduation she planned to resume them. She stated, "I gave up my [women's] group at church. So I will be going back to that. Because I do really miss that. I need that tie . . . that fellowship, and that time for meditation . . . Bible study."

Elaborating on the church responsibilities she had retained, and why, she explained, "But I did not give up choir practice. I did not give up Sunday School teaching. I am Sunday School superintendent. And I guess I felt that those were things that I had taken on and the Lord had been good to me, so why should I say, 'Sorry, Lord, you're on hold. I'm gonna do this for me now.'" Even in view of all she was accomplishing, she remarkably, and in a sense not too atypically of her classmates, still commented, in regard to the amount of time she was giving to her church, "I should probably have spent more."

"Marna," married with one young child, was also representative of her peers when she lamented, "I wish I could spend more time in the community . . . ." Giving the following example of her frustration, she explained ". . . and they've asked me, I don't

know how many times, to help with the Bloodmobile. I can't. And I feel really bad saying 'No,' but I can't do anything else."

Though wishing they could do more, many students were in agreement, too, with Mama's last comment. Several had resolved this dilemma for themselves, by recognizing that in spite of wanting to be more active, they must come to terms with the fact that it simply wasn't possible or realistic for them to take on any additional responsibilities at this time. In response to the question about her involvement in the community, "Adriana," in her early twenties, married, and pregnant with her first child, explained her viewpoint.

Adriana: "Well, I had to work Saturday and Sunday, so I would say not even church. It will be nice to get back into that."

Interviewer: "How did you feel about that?"

Adriana: "I guess it was something that couldn't be helped, because financially I had to work, so . . . there's nothing that we could have done differently."

Interviewer: "So, no regrets?"

Adriana: "Regrets about church, but as far as school activities, it just had to be that way."

Interviewer: "You just didn't have time."

Adriana: "No."

Although resigned to the belief that the time they were spending in community affairs was, in the words of one student, "about right" for their present situation, many students did express a hope to become more involved later on, when the time was more

appropriate. A young mother commented on the past and outlined her plan for the future. "It was okay for right now, but I plan on . . . as soon as I can, with my kids . . . because right now they're my priority, until they get to an age where they don't want to be with Mom anymore. Then that's when Mom's going to go out . . . I plan on doing some . . . a lot of volunteer work, especially at [a shelter for battered women], and with [emotionally disturbed] children. I think that's my calling. I really do."

Study habits   A behavior which the researcher predicted would play a significant part in student success was that of study habits. The three aspects of this discussed with students were the number of hours they spent on the average per week studying, with whom they studied, and where. It was enlightening for the designer of the study to learn that in general there was not that much difference in the amount of time spent studying between the higher and the lower student groups.

Ten to fifteen hours of studying per week was about average for the bottom group of students. Though the averages for the top students did not stray greatly from those of the bottom group, one noticeable difference was the range of study hours of the top group. One high-achieving student described her study time as "not a lot," whereas two others reported 28 and 30 hours respectively as the number of hours they studied weekly. Knowing these two students, it was not surprising to the researcher that they studied as much as they did. What was revealing was that students in the bottom group spent as much time studying as they did.

One finding that was somewhat humbling to this instructor was that the student in the high-achieving group who stated she didn't do a "lot" of studying also said that she

did about 75% of her studying at work and that she "very rarely read the book." She

added, "the majority of my learning comes from my in-class notes." For a faculty who

recommends students follow a rule of thumb of spending two hours of outside study time

for each hour of class, her comments have a number of implications, in the view of the

researcher, especially in regard to textbook assignments, how class time is spent, and test

design.

There was also little difference between the two groups of students as to where they

studied and with whom. All 20 students studied either exclusively, mainly, (or in the

case of one student at least half of the time) alone and at home. This was at least in part

due to their living situations and location. None of the students interviewed lived in the

college dormitories or apartments, and all of them were either married and/or had one or

more children living at home. Thus, as is typical with community colleges, several of the

students drove a fair distance to their class and clinical facilities, and it was not

convenient for them to study with someone else.

A comment by one of the top-achieving students addressed this issue. In pondering

what changes she might make, were she to repeat her study experience, she suggested,

"Well, I think it might be beneficial to study with people, like in study groups and that.

Due to my job and having a family, I just didn't feel I wanted to sacrifice any more hours

away from home." This feeling was reiterated by one of the low-achieving students we'll

call "Deb," as she spoke with the interviewer about possible changes in her study habits.

Deb: "I guess it would have been nice to have somebody to study with. Seeing I

live so far from everybody else, it wasn't something I could do very easy. And I guess I

felt that I'd rather be home with my family in case I had to do something there rather than stay here in [town] and study."

Interviewer: "How do you think that would have helped you?"

Deb: "You would have got some ideas from people. Maybe they would have given you some hints that would have helped you remember things. And if I had it to do over again, maybe I would have tried to do a little bit more with other people. I had to decide what was best for me . . . ."

One finding relating to changes students said they might make was the fact that four of the top-achieving students said they would make no changes. Adopting an "If it ain't broke, don't fix it" approach, these four students' outlook was summed up by one of them who planned to continue her education by completing work on her Bachelor of Science in Nursing degree. Her reply to the questioner's inquiry about changes in study habits was, "I don't think I'll change anything, 'cause it's working."

In addition to studying with someone else, some top students did suggest other possible changes they felt might have been helpful, such as studying more from outlined class objectives, studying a "little . . . at a time instead of cramming," setting time aside each day to study, and taking a speed reading course.

An obvious difference in the changes listed by low-achieving students was in the number and variety that were suggested. It seems logical, however, that students with low class rankings, sometimes in danger of or actually failing, would give serious time and thought to ways they could improve their performance. Conclusions they reached, in addition to those already cited by top students, included studying at a library vs. at home,

reviewing class notes and tapes more carefully, changing work shifts, or decreasing work hours to allow a better time to study or additional time to do so, disciplining oneself to spend more time studying, studying in the morning vs. late at night, not worrying about competing with others for grades, and studying in shorter blocks of time.

"Tiffany," a student from the lower group who did not pass the second semester, discussed her study habits with the researcher. Tiffany typified the frustrations of her peers who had not done well, but also their determination to do better another year.

Interviewer: ". . . During the time you were in the Associate Degree Nursing program, about how many hours did you study a week? On the average?"

Tiffany: "Oh, I'd say probably maybe ten. It depended on whether there was a test or not. And about how familiar I was with the material. Some stuff came easy, and other stuff didn't come as easy and I'd spend more time. I'd say ten hours a week. Oh, probably more than that 'cause on weekends I always studied."

Interviewer: "Did you study alone or with someone else?"

Tiffany: "Alone."

Interviewer: "Where did you study?"

Tiffany: "At home. Mostly at home. Sometimes I'd study here [i.e., at NIACC], but like I said, paying a baby-sitter, we just couldn't afford that."

Interviewer: "So one of the things you might have changed about that would have been where you studied, if you could have."

Tiffany: "Maybe that might have been more help, to have somebody to study with. My husband would try to ask me questions, but he didn't know how to pronounce the

words and I'd be trying to figure out what he was trying to say, rather than trying to

answer the questions. But he would try to quiz me on stuff."

Interviewer: "Did you ever try getting together with somebody else to study?"

Tiffany: "Yeah, but it was because of the hours I worked. For the final, Alicia and

Betty and I studied."

Interviewer: "So you think one of the things that might help you would be to study

with others, if they were the right people."

Tiffany: "Uh huh. I think I need to study by myself, like I did. I studied for about

two weeks, off and on, not real heavy, and then we got together to quiz each other. That

worked better."

Interviewer: "'Cause then you'd done the preliminary . . . Can you think of any

way, if that seems useful to you, to plan that into your program of study . . . another

time?"

Tiffany: "With my job now it should be easier. Before, like I said, I never knew

exactly when I'd get off. Late at night, I'm tired, and they have families too."

Interviewer: "As far as the baby-sitting, could they come to your house maybe?"

Tiffany: "My kids would distract me."

Interviewer: "If your husband were home . . . ."

Tiffany: "That doesn't work very good 'cause they'd be running up the stairs. And

it's kinda hard to say, 'Go away.'"

Interviewer: "So you'd almost have to leave? Do you see that as feasible in the

future, that he could baby-sit in the evening, and you could get a couple hours to . . . ."

Tiffany: "During the year it should be. Toward the end of May [with spring farmwork] it wouldn't be . . . ."

Interviewer: "But if you had a good solid . . . ."

Tiffany: "That should be better."

Interviewer: "Have you thought about that for next year at all? Maybe try to increase the amount of time studying with other people, at least in the review time?"

Tiffany: "I think it'll be better 'cause I'll be done at 5:00 . . . ."

Related to changes they might make to increase their learning, the researcher asked students to consider what factors they thought contributed to their success in a course. The purpose of this question was two-fold: to raise student awareness of their ability and responsibility in their achievement in courses they took, and to learn what instructor/class/program behaviors, activities, and policies, in the view of students, most significantly influenced their learning outcomes.

To gain this information the interviewer first asked an open inquiry soliciting from students what factors they deemed most important. If/when they seemed at a loss to generate these, a list of possible factors was enumerated for the students' consideration, with the hope that, if they did not find the suggestions appropriate, they might be stimulated to think of additional more relevant factors.

A mix of answers resulted, with students citing the need for an approximately equal balance of student and instructor effort. Students in both groups described the role and responsibilities of students with words such as "keep[ing] priorities straight," personal effort, determination, and wanting "to get the most out of it." They also mentioned the

"time [spent] studying," the "willing[ness] to put in the effort and . . . time to learn," and a desire to succeed. One top student even mentioned the time of year, explaining, "'cause about this time of the year [i.e., spring], I start slacking off a little bit."

Other points listed, though not necessarily under the student's control, were work experience (as a nurse's aide or in a doctor's office), the amount of interest a student had in the course, and one's "natural ability." The latter is a major factor, but not one included within the scope of this study. However, comments from high- and low-achieving students indicated that students in both groups are at least somewhat aware of how "able" they are in relation to ease in learning.

During her sophomore year, "Caroline" worked part-time, completed the Associate Degree Nursing program, and managed the care of her two pre-schoolers by herself, after her husband moved to another city to accept a new job. In addition, she made a number of trips to the new community during that time to seek employment for herself, assist with the purchase of a home, and carry out other tasks associated with moving a family to another community. When asked to describe herself as a student, she noted: "I'm able to concentrate. I think that's why I can do quite a bit in a relatively short amount of time, because I really concentrate on the material and work everything out through my head. I can block out everything else."

In contrast, a student from the lower group, referring to her need for several hours study time per week, observed, "I know I have to study because it's not easy for me to learn things. So I have to really try hard."

Many students indicated they believe the instructor plays a big part in assuring a successful course experience for them. Responsibilities of instructors included being well-prepared and organized (including being easy to follow in a lecture), having a good knowledge base, teaching ability, presentation, and personality.

Admittedly, the researcher included one of the choices in this question, "how well the instructor likes you," as an almost tongue-in-cheek response, out of curiosity to see if any students felt this was significant in their ability to achieve in a course. When the interviewer read this choice to one student in the top group, the student's reaction was immediate and definitive as she quickly dismissed that choice with, "Oh, I don't think that's related to . . . ."

Another top student, however, did refer to this as a factor, but associated it more with instructor respect and competence. Her comment was that "instructor approval does have a big factor in there and the respect that you have for that instructor in the first place, which you get by what their knowledge is and how well they relate in lecture." She went on: "That's real important for me. That's what motivates you . . . if you have interesting lectures and a motivating instructor to begin with, that really helps you become successful, and I try harder."

With her response, one other student, this time from the bottom group, alluded to the sometimes contradictory nature of her interdependence with and independence from instructors. She stated that, "I guess I would like it if all the instructors like me. It's not that important to me. I'm me. And that's just me. And I'm not gonna put an air on for anyone."

Building on previous questions was one asking students to list their study characteristics, i.e., to describe themselves as students. This self-assessment was hard for some, but with the encouragement of the interviewer all were able to accomplish it.

All of the adjectives selected by top students to describe themselves were positive, with the possible exception of "perfectionist," used by two students. These adjectives included "persistent," "hard-working," "dedicated," "organized," "conscientious," "eager," "interested," "intelligent," "diligent," "able to prioritize," and "one who likes to get things done."

Interestingly, many students in the bottom group also used these same words to describe themselves. But scattered among these more positive descriptors were other less flattering ones, such as "not a good student," "sporadic," "tardy with assignments," and "undisciplined." Again, the purpose of including this question in the interview was to motivate students to probe what they had done or not done to effect success and likewise to identify these characteristics for instructors.

Clinical/class/instructor/program behaviors/policies

The fourth research question examined what program inputs were perceived by high- and low-achieving students as most effective in promoting student learning in the cognitive, psychomotor, and affective domains. The interview questions related to this research question sought to learn what actions and activities on the part of faculty and what class, clinical, course, and program policies were most helpful to students. Findings are categorized under three areas: (1) student learning styles (2) instructor behaviors, and (3) course/program characteristics.

<u>Student learning styles</u>   The first question asked students to tell what kind of learner they are (e.g., visual, auditory, experiential, etc.), i.e., to identify their most prominent learning style(s). Most students seemed to have thought about this before, because few hesitated long in answering. By far, the most common answers in both groups of students were "a combination" of methods and "experience."

Students stressed how helpful diagrams, models, and outlines were in increasing their understanding, so they could visualize concepts at the same time they were hearing a spoken explanation and writing down class notes. Both top and bottom students repeatedly told how important it was to their learning to have "hands-on" opportunities. Students in the low group especially commented on their need to see and do things vs. just reading or listening about a topic.

The words of one particularly able student expressed the opinion of the majority of her peers as she told what helps her learn. "Oh, I guess kind of everything. I like to see something and hear about it at the same time. As far as clinicals, I think you have to actually do something before you remember how to do it. We've talked about that, too. We've talked about it with my classmates and just learning the PCA [patient-controlled analgesia] pumps or learning any little procedure, you can have someone show you how to do it a thousand times, but until you actually have to push the buttons in the right order, or do the procedure, you don't remember it."

A second question asked each student to tell if s/he would rather figure something out by him/herself or have someone explain it. And, following this question, students were encouraged to tell, when they did receive explanations, if they preferred general

overviews or detailed instructions. Again, answers of low and high achievers were much alike in that both groups were quite evenly divided in their answers.

In addition, several students didn't want to be tied to an either/or response, answering that "it depends" on the situation. "Naomi," a straight-A student, opted for this middle ground in describing the type of instructions she liked to get. "That sort of depends on how the instructor relays it. If it gets nit-picky and too much detail, you can feel overwhelmed, and on the opposite extreme you may feel that they still didn't tell you anything . . . . So if you can get somebody halfway in between. Or, if they give you alternatives, [such as,] 'Some people do it this way; others do it this way.' And then you can pick which way is best for you."

One result which surprised the investigator was that many top students preferred explanations, whereas a fair number of lower-achieving students expressed a preference for figuring things out on their own. A conscientious top student remarked, "I'd rather have someone explain it to me. I guess especially with some of the kinds of things we do in clinical, I'm really afraid if I do something wrong that it could do something major . . . permanent." But a peer, in the bottom group of students, said she'd rather have "a little of both . . . . I want to try to figure it out for myself, and then if I'm stuck, have somebody explain it to me."

<u>Instructor behaviors</u>   Students were first asked to describe the effect they felt instructors had on their learning, i.e., how much of a difference instructors made. If no answer was forthcoming in a reasonable time, the researcher suggested these as sample

responses: "a big difference," "I learn mostly on my own," "They motivate me to learn mostly on my own," and "Their explanations are crucial to my understanding."

Overwhelmingly, students in both groups stated they believed instructors made a big, sometimes crucial, difference to student achievement. Even one confident, high-achieving student stated about instructors, "They make you or break you." She explained her comment: "If they aren't supportive and lose their objectivity and get down on you, you could get down on yourself. It can really break you. If they went the opposite way and were supportive and gave you a little TLC, you could just blossom."

One lower-achieving student felt that in her own case, the instructor's role was to motivate her to learn. To her credit, she said, "I don't want someone to give me the answer . . . . I want somebody to say, 'Look it up. We'll get together. Then we'll decide, and go from there.'" In relation to the same issue, that of students learning to think for themselves, was this statement of one of her peers. "They . . . tried to mold you to think for yourself." Meant to be complimentary to instructors, it seemed instead somewhat of an oxymoron. Some students did admit that they could learn without the instructor, especially the classroom material, if as one student put it, she could "find it in the book." Another agreed, stating she could learn on her own, but adding that if the learning was "enjoyable," it made the job "a lot easier."

Closely associated with the amount of effect instructors had on student accomplishments were instructor characteristics. These are some of the qualities of instructors which students said they found most helpful: "easy-going," "organized," "fair," "supportive," "knowledgeable," "open," "prepared," "patient," "caring,"

"interested," "empathic," "enthusiastic," "helpful," "available," "holding high standards,"
"respectful," "respected," "objective," "encouraging."

One finding which was particularly interesting to the researcher was that although
students certainly wanted their instructors to have a good knowledge base, more often
mentioned as important were characteristics dealing with the "affective" domain. In
addition to the above list, some of the following comments by students describing what
they like in faculty illustrated this point: "one that's easy to talk to and doesn't make you
feel, when you make a mistake, that it's the end of the world," "They look like they wanta
be there," "They expect a lot from you," and "I like instructors who are willing to share
their past experiences, too."

The differences and similarities of student answers are synthesized in the replies of
Betty. She shares her thoughts and feelings about instructors with the interviewer:

Interviewer: "Let's think about instructors now, and their input in helping you learn
or preventing you from learning. How big of an effect do instructors have on your
learning, from your point of view?"

Betty: "Big. A lot. They really do. They all have their own way of doing things
different, and you get a wide variety of personalities, so you pick a role model and say 'I
want to be like that instructor.' And they're not the same and they each have their own
unique qualities. They may do one area better than another. I'm glad I had a variety of
instructors. To me they've all been very good. I can't criticize anyone at all."

Interviewer: "How much of a difference do they make on your learning? Do they
make a big difference? Do you learn mostly on your own anyway? Is their effect mainly

to motivate you to learn on your own? Or are their explanations crucial to your learning? Kind of a spectrum there. Where do you see yourself placed on that?"

Betty: "Well, I think there are a couple . . . that motivate me more to learn. I think of two in particular . . . you probably don't want names . . . ."

Interviewer: "Probably not."

Betty: "Okay. They motivated me . . . they would always tell you the rationale why you did things that way. That was much better than just saying, 'You do this.'"

Interviewer: "You can remember it better for one thing."

Betty: "It just all makes more sense."

Interviewer: "In the classroom how much of an effect do instructors have on your learning?"

Betty: "Probably mediocre. There's some that do, and some not as much. A medium effect. Definitely some more than others."

Interviewer: "What characteristics of instructors make them more helpful to you? Personal characteristics?"

Betty: "Organized."

Interviewer: "And I'm talking both classroom and clinical here. Any other characteristics or qualities?"

Betty: "I think you need to have a voice that carries. That helps. Because if you can't hear it, you're not motivated. I like someone that's kind of astute. Maybe that's not the right word. You know . . . up front with me. Some people wouldn't like that; they would think they were too forward, but I would rather have it that way. And I've had a

couple of instructors that have been that way and I wanta know what I'm doing wrong and what I can do to improve. It doesn't bother me, but I know some people it probably does. But I like that."

Interviewer: "Any other personal characteristics that are important to you in instructors?"

Betty: "Fairness. Treat us as students. We are still learning."

The researcher was also interested in students' perceptions as to whether or not instructors valued students' opinions and ideas. All but two students answered "Yes" to this question, and those two students said, "some" instructors did. When asked to identify instructor behaviors which demonstrated respect for student opinions, students listed such things as listening (along with good eye contact and appropriate facial expression), allowing time for students to talk and give input, thanking them for their contributions, being open to new suggestions, and praising students with comments like "Good thought!"

It was revealing to the author of the study that no student mentioned any of the mechanisms built into the program to receive student suggestions (faculty-student curriculum committee, attendance of students at advisory committee meetings and nursing faculty meetings, faculty evaluations by students, etc.) as evidence of instructors' valuing of student opinion. This raises a question regarding if students perceive spontaneous personal interaction with instructors as carrying more "weight" than more formalized, structured or written opportunities. It was especially interesting, and perhaps a little ironic, that neither did any of the twenty students mention the interview they were

participating in at the time of this question, as evidence of faculty valuing of their opinions.

Course/program characteristics   A few questions were asked to solicit student opinion about the program as a whole. The first dealt with policies. All but two students from both groups stated that they had had ample notice of all policies ahead of time. These two students said they did of "most" or a "majority" of policies. One student pointed out that policies were also given out in "writing or orally" and "sometimes both." All students stated they felt policies were fair, but a few thought they "could be tougher."

The most student reaction (and resentment!) regarding policies arose in relation to attendance, which one student referred to as "my one big gripe." Several expressed the view that the attendance policy needed to be adhered to more strictly. This response on the part of students indicated that faculty should have explained the attendance policy to students more clearly. They could have clarified that though students can be required to attend on clinical days, the nursing program is obligated to follow college-wide policy regarding classroom attendance, which is not mandatory. This was not in keeping with the view of one student, however, who opined that attendance "should be mandatory."

"Well, they were high, but I think in the nursing profession you have to have high standards. Because if you don't, there's a lot of people you're dealing with, and their lives are at stake, and I think you have to have high standards." Thus one student defended her opinion regarding program standards, and most students in both groups agreed. A few thought they "could be higher." Another student took the opposite

viewpoint, calling the standards "high," but then adding, "but there's nothing wrong with that."

One student thought the student dress code for the clinical area was a "little strict." She explained her feelings this way. "I didn't like having to change who I was, with my hair back in a bun . . . it seems real vain, but you just feel differently about yourself when you look different than what you normally do . . . . I hated the hats and the aprons, and I know you needed something to easily distinguish yourself from everyone else there, but I thought it was kind of demeaning to me to have to wear that."

Another question asked students where, during their Associate Degree Nursing program, more emphasis was placed--on concepts and ideas or on facts and details. Most students in the top group said "concepts," but one agreed with several students in the lower group who thought it "depends on the instructor." The majority of students in both groups demonstrated a perceptive response to a question about how well the program fostered higher- vs. lower-order thinking skills in students. These terms had not been stressed, nor, to my knowledge, even introduced to the students during the program. Yet after hearing a brief explanation of them, several students in both groups recognized that they were asked to do this every day when applying the knowledge they learned in class to the care of patients in the clinical setting. One student summed it up well by concluding, "That's what [the] whole program is . . . all about."

A number of questions were directed to students about class activities. Since lecturing still constitutes a significant part of classroom activity in nursing classes, students were asked to describe what elements made a lecture useful for them. Several

students in both groups wanted it to be "organized" and didn't want the lecturer to, as one

student put it, "jump around" from one topic to the other. They wanted her to speak at a

rate that was " not too fast" and in a voice that "carries." One was adamant that

instructors know how to "pronounce and spell" words correctly and to "talk instead of

read to us." Another student expressed a "wish [that] there was more time for questions."

"More stories" and "specific examples" and "overheads" were suggested. One student

said that an "outline helps a lot" and, in keeping with individual differences, another

wanted "not so much outline."

Students had many positive comments on other types of class activities--games,

speakers, role play, panels, etc. They were enthusiastic about the benefits of "variety" in

the classroom, stating it "breaks the monotony." One called it "the best part" of class.

Though commenting that "we don't have that many" (of these kinds of events) she could

really "remember" the psychiatric theorists (played by students) on a panel held the year

before.

The tenor of student opinion regarding varied classroom activities was expressed

clearly by Jane in her comments on this subject to the interviewer:

Interviewer: "How about classroom activities, as far as how they aid or don't aid

your learning? Obviously lots of classes have lectures . . . I'll just throw these out, and

you can comment on whichever ones . . . games, discussions, role play, audiovisual, guest

speakers, panels, dramatizations, IV arm practice . . . ." (The latter entailed a simulation

of starting an intravenous infusion using a model arm in the clinical laboratory setting.)

Jane: "See I kinda like all that stuff. I liked the panel discussions. Yeah, it's good to have variety, I think. Just not to sit there through a lecture every day. And I even like the little articles you pass around every once in a while. I didn't spend . . . I didn't read the whole article, but I mean it just reinforces what you're talking about. And classroom discussion, of course, but what else was I thinking that I really liked? (Spends a couple of minutes thinking.) When you break into small groups . . . I like that. I like the role playing that some of the guest speakers did, for example, Mr. Smyth that day. I mean that just . . . . It was really neat how he brought out how this placator feels. Yeah, that was . . . that was good."

Interviewer: "Do you think we had enough variety?"

Jane: "I think you could increase it."

Interviewer: "Okay. Vary from the lectures a little more?"

Jane: "One instructor did a lot with her [course] last year. I mean she was always comin' up with something and even if it was nothing more than, 'Okay, you're going to be "environment" or something . . . and then 'Where would you . . .' I mean you had to go stand in certain areas of the room. I can't remember . . . ."

Interviewer: "If you agreed with . . . ?"

Jane: "Right."

Films and audiovisuals were praised, but instructors were chided to replace several which were "outdated." One student especially liked videos which showed how to do actual cares (e.g., for a burn patient). She didn't care for ones she called "those long story-type things." A student called a panel of nursing leaders "exciting" and another said

that after hearing guest speakers, "it stays with you." Most students liked role play, but some added, "if I don't have to do it." Small group activities were less popular, though one student conceded that she would enjoy them if they were "kept on track better."

Instructor-prepared study guides were described in glowing terms with words like "wonderful" and "real beneficial" and "excellent" and "very helpful." When asked if this was spoonfeeding, almost everyone thought it was not. One student said, "Oh, it might be . . . but . . . I think it's just reassuring. It's reaffirming what . . . you've heard it, you look it up, and you write it, and you've covered all three senses." Most students volunteered that instead of spoonfeeding them, study guides helped them to "focus" or "key in" on "things the instructor thought were important."

Additional questions about the classroom dealt with the length and sources of reading assignments. Most students thought they were too long. Others didn't like the fact that assignments about the same topic were made in different textbooks (for example their med-surg, pediatric, and pharmacology texts). But some students thought this was an advantage. One student weighed the pros and cons of this as she said, "I thought they were good, but sometimes they were redundant. There were a lot of repeats in different books . . . . Maybe it depends on the person; maybe you need a little redundance so they can pick out the book that's best for them . . . ."

Additional classroom assignments included outside readings and computer simulations. Several students said they did not do either, due to lack of time or to not being able to get one of the limited copies of journal articles or find a vacant spot in the

computer lab. Many felt these were optional experiences, valuable if one were interested in doing them and had the time, but not feasible for everyone.

A few questions briefly explored which textbooks students liked best. On some books there was completely or nearly unanimous agreement. Students found these texts to be either "excellent" or they rated them negatively as "a waste of money" or "above my head" and "too in-depth." Other texts had both their defenders and opponents. These questions were included so as to receive input from students on which texts they found useful or not helpful.

Additional questions were included regarding students' clinical experiences. Because faculty send students on a number of observational experiences to areas such as the dialysis unit, the operating room, the intensive care and cardiac care unit, Hospice, and Community Health Nursing, they miss a corresponding amount of time in patient care units. Thus their perceptions as to whether or not these are valuable experiences worth the time away from the clinical area are important to faculty. The overwhelming consensus was that they were. Students listed the following as samples of benefits gained during these experiences: It gave me a "broader view of nursing" and "It made me understand" and "It made a lot more sense."

Clinical assignments such as patient care plans, process recordings (verbatim records of patient-student interactions, with students using therapeutic communication techniques), and weekly role sheets are required for all students. They were asked to evaluate these as to their usefulness in helping students to learn. Students in both the low and high groups expressed the view that care plans are worthwhile. One student

described them as "lots of work, but worth it," stating that they "helped a lot." Another said that though she "hated" them they were "useful," and a third gave them credit for providing a "good foundation."

Process recordings were much less popular among students. One noted that it was "hard to write down a conversation." One freely expressed her belief that many students "make 'em up" but she thought even that was useful, since they still "had to sit and think and write it." She felt there was benefit to this, since then "it stays in there a lot more." Though students thought role sheets got "repetitive" by the end of the year, some thought they were "fine." One student, though, found them "interesting" and commented that "we don't realize what we've done [all day in the clinical area caring for patients] sometimes till we fill 'em out."

Students in both groups had positive comments on the frequency and type of student evaluations used. Many stated they liked to receive these on a weekly basis, so they knew "how [they] were doing" and what they "needed to change." One commented that there should be "no big surprises" at the end of the semester if students "read [their] weeklies." Students felt that peer evaluations, done only during the last five-week rotation of the second semester of the sophomore year, still had some bugs to be worked out and that doing them was "hard, but good experience."

In general, students in both the top and bottom group were very pleased with the facilities and areas of various hospitals and nursing homes where they did their clinical rotations. A few commented that they didn't feel one hospital had enough patients to make it worth the long drive it took to get there. But most students were enthusiastic

about their hospital and nursing home experiences, and one said, "I ended up liking everywhere I went."

Another area of the interview revolved around student testing, first in regard to the length of tests. Though there were a very few exceptions, most students expressed a preference for shorter tests (approximately 50 questions) given every week or week and a half. As to the length of the questions, however, one student had this comment: "Some of the questions were too long . . . one-half a page long. By the time I read the answers I forgot what the question was in the first place!"

In regard to the type of questions (primarily multiple choice) students generally liked them. One commented that she was "glad they were the way they were" and another that the "situations were good." Several did say they did not like the "multiple-multiples" (multiple choice questions with several answers within an answer). Most students thought that, overall, the tests were fair and that they covered the objectives and content that they were supposed to cover.

A very few interview questions addressed the logistics of class meeting times, length of class periods, and break times. Several students thought the two classes that met at 7:40 a.m. each week were "too early" (especially mothers with young children). A few liked the early class beginning time. Except for a three-hour class one day a week, which many students felt was "too long," the length of class was acceptable.

Some students, who lived long distances from the campus and couldn't go home easily, pointed out that they had a long time to wait on Mondays, when class was over at 9:50 a.m. and they couldn't go to get clinical assignments until 3:00 p.m. Most students

preferred one twenty-minute break during the three-hour class, but one would rather have had two ten-minute breaks. One said she would "just as soon skip the break and get out early."

Student satisfaction

The fifth research question evaluated the general satisfaction level of students with the Associate Degree Nursing program. Findings from three topics are discussed in the area of student satisfaction: (1) overall satisfaction, (2) satisfaction with support or general education courses, and (3) how well-prepared students felt.

Overall satisfaction   In spite of the fact that students were very candid in saying what they thought was wrong with the program, their satisfaction with the program as a whole was, in both the top and bottom groups, very high. Most said they were "very" or "real" satisfied, and one shared "I enjoyed the whole four semesters." Another called her nursing education "a real learning experience" and added, "I'm glad I did it."

"Tamara," a licensed practical nurse with several years' work experience, came back to school to complete the Associate Degree Nursing program. Her assessment of it was that "it's a well laid-out program. I know NIACC's got a good program. It's got a good reputation. I know if you go in, you'll get a good education." And many of us, upon completing a major educational achievement, can identify with the elation expressed by another student, who responded to the question about program satisfaction with the answer, "I'm satisfied! I'm done!" Asked if she would recommend NIACC's nursing program to other students, she replied, "I already have . . . recommended it to a lot of people. I think it's overall a good school."

Supporting these statements from interviews expressing overall satisfaction with the program, were answers from the 68 students who completed the written questionnaire. Regarding their nursing theory courses, 23 were very satisfied, 43 somewhat satisfied, one was not satisfied, and one did not answer this question. Related to their clinical experience, 33 were very satisfied, 32 somewhat satisfied and three not satisfied. As for general education courses, 42 were very satisfied, 23 somewhat satisfied, two were not satisfied and one did not answer this question.

General education courses   Student agreement on the value of Anatomy and Physiology as the support course most useful in preparing for the nursing program was unanimous. Nutrition also ranked very high. There was much less agreement about courses like Human Growth and Development, Microbiology, Communication Skills, Psychology, Sociology, Algebra, and Chemistry. Each course had one or more who thought it was helpful and about the same number who didn't. A few more top than bottom students thought all the courses were useful. In a couple of instances, students thought it was probably the instructor who made them think the course was not useful, instead of the course itself.

Personal preparation   In an effort to have students do outcomes assessments on themselves, the investigator asked four questions. Each question started with "As you go out into the real world of work, how well prepared do you feel to . . . ?" They finished with these endings:

1. apply theory in patient care?

2. problem-solve?

3. use therapeutic communication techniques?, and

4. practice assertiveness?

All of the students in the top theory group expressed feeling at least "pretty well prepared" or "fairly confident" about their ability to apply knowledge, although they were also realistic. One stated that some days she felt "well prepared" and other days she had "cold feet." Another had similar reservations, but stated, "For the most part . . . I feel confident."

A similar, and in the researcher's view, normal, new-graduate apprehension was revealed by a member of the lower-achieving group: "I feel really confident [yet] I'm really nervous about it." But other students from this group were less self-assured. One student who failed the semester offered that "[I] don't think I would have felt prepared." Another was more self-assured, but still reluctant. She stated, "I think that I can apply it."

In regard to problem-solving, the same student who described herself as unprepared to apply knowledge said she was "probably not" prepared to problem solve. "Not well at all. I would be doubting." All others in both groups felt they were at least conditionally ready. Some of the conditions they listed were, "if I have time," or "I have to stop and think," and "as well prepared as we could be."

Again top students expressed more confidence in their ability to use therapeutic techniques appropriately than did the bottom group. Sample comments of students with the higher grades were as follows: "I learned so much about that," and "I feel a lot more confident than I did," and "I feel pretty good about that." Two top students still expressed feelings that they were "prying" or "forcing" people to talk about very personal matters.

Several students from the bottom group admitted a lack of confidence in their ability in this area. Typical of their answers to this "How well prepared do you feel . . . ?" question were these: "not the best" and "I'm not very good at that" and "It's hard to convert over to . . . open-ended inquiries." Again the student who had failed said, "Probably not very well prepared."

In the area of assertiveness, both groups of students contained those who felt "confident" and "prepared" to be assertive. Both groups also comprised students who felt that, for them, this area "need[s] work."

Learning in the Three Domains

Students enumerated a number of factors which helped them to learn during their Associate Degree Nursing program. These factors are categorized as follows, under the three domains of cognitive, psychomotor, and affective learning.

Cognitive domain

A variety of experiences were listed as encouraging learning in the cognitive domain. Among those which students identified were well-organized and interesting lectures, experiencing a wide range of additional classroom teaching/learning strategies (to increase interest in and retention of the material covered), and getting the opportunity to apply the new knowledge in the patient care setting.

Psychomotor domain

According to students, their psychomotor learning was cemented by having the chance to perform skills in the clinical area. Some students wanted explanations and

demonstrations before proceeding. "Lindsay," one of the top ten students, preferred a different approach. In the ensuing interaction, she listed several ways instructors assisted her to increase her learning in the psychomotor domain:

Interviewer: "How about hands-on learning? Is that useful to you, or not so much?"

Lindsay: "Yes. Maybe watch it once by somebody else, but that doesn't help me to do it myself the first time. I still need somebody there. The next time for me to do it, but to walk me through it until I feel comfortable."

Interviewer: "For the type of learner that you are, what are some of the ways that enhance learning for your type of learner?"

Lindsay: "I need it to be said or done more than once, or reinforced a couple times. Yeah, I need to see it once done, and then I need to be able to do it myself to feel comfortable with it. And then you just need time to think it over, before you go on to the next thing."

Interviewer: "Soak it in a little bit?"

Lindsay: "Yeah."

Interviewer: "A related question . . . What kinds of activities, and you've touched on this, help enhance your learning? And you maybe don't have any more to say about that . . . ."

Lindsay: "Doing it myself."

134

Interviewer: "Would you rather figure something out for yourself or have someone explain it to you? I think you've addressed that, but any more you want to say about that?"

Lindsay: "I don't like lengthy explanations. I would rather just figure it out myself. It depends on the situation, I suppose."

Interviewer: "If you have it explained, do you prefer a general overview or detailed instructions?"

Lindsay: "General overviews."

Later, she describes to the interviewer the kind of instructor she finds "most helpful."

Lindsay: "Sometimes one that stays back a little bit. And gives you a little more responsibility. 'Cause then I feel more confident, and then I think I show more confidence. And I do things better."

Interviewer: "Kinda lets you fly on your own a little bit, but is there if you need 'em."

Lindsay: "Yeah. Right."

Betty, another student in the top group, expressed a similar preference when performing manual skills:

Betty: "I really like, when I have to do a procedure, like a catheterization, to talk through it first . . . the steps."

Interviewer: "Okay. Walk you through it verbally first."

Betty: "Especially if it's been quite a while since I've done it. I have to think about it for a while at first."

The importance of actually "doing" a psychomotor skill in order to learn it was also emphasized by Caroline: "And I guess in clinicals I liked being a little bit more on our own. You know, forced to actually do something. A lot of times I would think, 'Oh, I hope she doesn't choose me,' so I wouldn't have to do it, but when you have to do it, you remember it."

Affective domain

Students were not asked specifically what facets of the program increased their learning in the affective domain. However, they many times mentioned modeling of affective behaviors on the part of instructors. In this interchange Lindsay comments on two instructor behaviors--showing respect for students and holding them to high standards.

Lindsay: "They listened. They don't just blow off a comment, or they ask for input in conferences and in class. Just giving you time to talk."

Interviewer: "How would you describe the expectations and standards that instructors have for students overall? Too high, too low, about right?"

Lindsay: "I think they're high, but that's gonna affect how we work the rest of our lives."

Another student agreed that instructors demonstrated respect for student comments. In speaking of this she said, "Oh, they'd say, 'That's a good thought,' or 'That's a good comment.' Give you praise for something that they hadn't thought of."

This student disagreed with Lindsay's comment on standards held for students, however. In this regard she stated, "We need to have high standards. In certain things I

think the instructors are lacking or they should be pushing us more: our dress, or if we're coming late . . . things like that I don't like. It depends on the instructor."

The need for an instructor who she felt was "for" her was stressed by another student: "I think the instructors were so supportive . . . ." She added, "I feel like I have to have someone that's real supportive and willing to help us . . . ."

In addition to teaching significant affective attributes by serving as role models for students, the importance of compassion, empathy, and caring can be conveyed through vicarious experiences offered to students, e.g., films, stories, and role play. Commenting on the value of speakers who talked to the class about illnesses they experienced, one student had this to say: "Well, the guest speakers were very good, 'cause you could actually see how it affected them psychologically besides. You don't always get those issues . . . You'll always remember them--the guest speakers. You'll remember exactly what they had and the problems and what they were going up against . . . . To me they're more long-lasting memories than a lot of lectures will be. And if they're a good speaker (and I can't say any of them weren't), you'll learn a lot from them."

General Comments

The writer is reminded by these Associate Degree Nursing students of Spencer's research on contemporary women teachers (1985). Woerner's assessment of these women teachers (Summer, 1987, p. 246) is that they "display persistence, creativity, and dedication in performing a "triple day" of work: (1) a full teaching day, (2) cooking/ housework /childcare, and (3) homework in the evening."

One wonders if some nursing students (men and women alike) perform a "quadruple" day of work: (1) attending classes, (2) cooking/housework/childcare, (3) homework in the evening, and (4) full- or part-time jobs to help support their families. Nursing students merit great respect for their tenacity, sense of humor, and innovativeness, and their intuitive understanding of research-based truths about how students learn. They know from experience that active learning increases understanding and retention on their part. The findings that resulted from their thoughtful replies to innumerable questions will be useful in working with present and future nursing (and other) students.

For many years the Associate Degree Nursing program at North Iowa Area Community College has attempted to learn how it may better serve students. Since students differ a great deal, sometimes so do their answers as to what works best for them and how instructors may be most helpful in enhancing their learning. It was encouraging in this research to see that on many issues students were in a great deal of agreement, and even when they were not, their individual comments were enlightening.

Sometimes though, it is perplexing to know what to do when students differ so. What seems useful to one is not for another. This counsel from one of the students interviewed serves, I think, to keep the varying findings in perspective. After patiently answering all the questions I asked her, this was her final word of "advice" to me and to herself.

"I mean you're never gonna be able to make everybody happy, so you just gotta do what you have to do. And we gotta abide by it, 'cause this is what we students are.

We're followers at that time in our life. That's just part of it. That's just part of working. You've always got people who are above you. And you gotta abide by it."

Summary

Chapter IV reviewed four aspects of the research: (1) population, (2) sample, (3) data-gathering procedures, and (4) treatment and analysis of the data. Research results were then discussed. These were summarized under each of the two parts of the study: the quantitative and the qualitative.

Findings of the quantitative portion of the study were low Pearson product-moment correlations between "value-added" scores and four demographic data: family income, study time, time employed, and community service time. A high negative correlation of "value-added" gain with a fifth demographic characteristic, student age, showed less nursing knowledge increase for older than for younger students. Mean "value-added" gains of single and married students were similar.

The qualitative portion of the study compared perceptions of high- and low-achieving students related to the five research question areas. Sample findings in each area included the following:

1. Family/living situation

    a. Both groups agreed as to the importance of a stable, supportive family situation in promoting student achievement.

    b. Low-achieving students were employed more hours than high-achieving students.

2. Motivation

   a. Both groups of students were self-motivated.

   b. Goals of students in the high-achieving group were more abstract than
      concrete.

3. Student behaviors

   a. All high-achieving students had generally good attendance; a few low-
      achieving students did not.

   b. The time spent in and feelings about community service were similar for
      both groups.

   c. Disciplined study habits were more characteristic of the top group of
      students than of the bottom group.

4. Program inputs

   a. Both groups recommended varied learning strategies.

   b. Both groups wanted "organized" lectures.

5. Student satisfaction

   a. Both groups expressed overall satisfaction with their nursing education.

   b. More high- than low-achieving students felt adequately prepared to apply
      knowledge and skills.

A section on learning in the three domains followed. This summarized experiences

listed by students which aided their learning in each of the three domains: cognitive,

psychomotor, and affective.

General comments on the research project were included. These touched on the researcher's overall impressions and feelings generated by the study.

CHAPTER V. FINDINGS/CONCLUSIONS/IMPLICATIONS AND RECOMMENDATIONS

Chapter V comprises three sections. Part One includes an overview of the research. Part Two discusses the study's findings, conclusions, and resulting implications. Part Three offers recommendations for additional research.

Overview

The research consisted of a combined quantitative and qualitative study. The quantitative part of the study used two instruments. The first was a written questionnaire to elicit student demographic/personal data. The second was the National League for Nursing Comprehensive Nursing Achievement Test, given as a pre- and posttest. The dependent variable was the difference between pre- and posttest scores, defined as "value-added" gain. Correlations were run between the dependent variable and five demographic data (the independent variables), elicited by the written questionnaire. These included age, annual income, study time, time employed, and community service.

Since marital status does not correspond to a numerical value, correlations were not calculated between this sixth independent variable and "value-added" scores. Instead, mean "value-added" scores were computed according to marital status (single, married, or divorced). A t test for independent samples tested the hypothesis that the population means of "value-added" gain for the single and married student groups are equal. Due to its small size, the divorced student group was not included in the t test.

The second part of the research utilized a qualitative study. This part of the study used an hour-long interview with the ten highest-achieving and ten lowest-achieving students in the class. Using mostly open-ended questions, it offered an opportunity for students to answer by saying as much or as little as they wished in reply to the questions. This also provided a chance for the investigator to ask follow-up questions as was appropriate. Along with seeking out some factual data, the prime purpose of the interviews was to explore with students their thoughts and feelings related to the research questions examined in this study.

This study attempted to determine student, instructor, and program factors associated with student success in one Associate Degree Nursing program. The following five research questions were used to help make this determination. Listed under each are findings, conclusions, and implications which may be useful to students and faculty involved in Associate Degree Nursing education.

Findings-Conclusions-Implications of Research Question #1

What correlations or relationships exist between student success, as measured by "value-added" gain between scores earned on the NLN (National League for Nursing) pre- and posttest, and six selected demographic and personal characteristics: age, marital status, annual income, average number of hours study time per week, average number of hours employed per week, and average number of hours per week spent in outside class activities, other than employment (e.g., community, church, and local school activities)?

<u>Findings</u>

The quantitative portion of the study showed low correlations between the dependent variable, "value-added" gain, and four of the independent variables (annual

income, study time, hours employed, and community service). A high negative

correlation of -.4112 did occur between one independent variable, student age, and

"value-added" scores, indicating older students had a smaller increase in knowledge.

Further correlations of age vs. pretest (.4863) and age vs. posttest (.1935) showed older

students scored better on both the pretest and the posttest. Thus they began and ended

with higher test scores in nursing knowledge, possibly gained through media-produced

health-related information and/or personal experience.

It is the feeling of the researcher that the younger students did not know as much

before the course started. However, they were able to acquire the knowledge that the

older students had at the beginning of the course as well as additional knowledge

provided by the course. This does not indicate that the older students were not able to

learn but rather that they learned some of the initial content at an earlier time in their

lives, i.e., before enrolling in the Associate Degree Nursing program. By the end of the

program younger students appeared to be able to close the gap partially between their

own and older students' scores.

It is possible that a larger sample size might show a stronger correlation between

"value-added" gain and one or more of the other four independent variables listed above

as well. "Value-added" gain means were calculated by marital status for single, married,

and divorced students. Results for divorced students were a mean of 29.00, much lower

than the mean of single (43.67) or married (41.28) students. As explained above, the

hypothesis that the single and married groups' population means of "value-added" gain

are equal was not rejected. This outcome was based on results of a t test for independent

samples. Thus one may conclude that married students, as a group, can be as successful as single students in cognitive learning, and vice versa. Implications are that equally high standards should be set and adhered to for both groups of students. Due to there being only three divorced students, this marital group was not included in the t test.

In the qualitative part of the study interviews were carried out with the ten highest- and ten lowest-achieving students in the class, based on total points earned by students at the end of the first semester of their sophomore year. (Points contributing to the total were received for quizzes, care plans, process recordings, unit tests, and the semester final examination.) The interviews indicated several differences in perceptions of students in the low- vs. high-achieving groups of students.

Though these perceptions did not pertain specifically to "value-added" gain in the National League for Nursing pre- and posttest, they did relate to learning in general. In particular, the perceptions related to how students' own personal/demographic factors influenced their learning and achievement level during their Associate Degree Nursing education. Differences in how students perceived these demographic factors included more serious and numerous family and financial problems for students in the bottom group and, in some instances, longer hours spent at, and greater stress resulting from, an outside job.

Additionally some similarities resulted between the two groups. Both groups of students spoke of emotional support received from spouses/other family members and various positive effects, besides the added income generated, from working outside the home.

As stated previously, the criterion of academic performance, as measured by end-of-semester points earned, was used to determine the top and bottom groups of students. A wide difference of 135 points existed between students with the highest class rank and the lowest. Using information obtained from the written questionnaire, the top and bottom groups were found, however, to be similar in four demographic respects.

First, age demographics were much alike, with an age range of 21-44 for the top group and 21-49 for the bottom. The number of students in subcategories of ages were also comparable: in the twenties--three high and four low students, in the thirties--five high and three low students, and in the forties--two high and three low students. Mean ages of the two groups were extremely close. The mean age of the top group was 33.3 years and the mean age of the bottom group was 33.8.

Second, the composition of the two groups according to gender included ten females in the top group and one male and nine females in the bottom group. A total of four males graduated in the class of 1992. However, although top and bottom groups are similar as to gender composition, having only one male student in the bottom group of students and only four males in the entire class of 1992 makes for a limited sample. Thus a much larger sample size of male students is needed to determine what generalizations can accurately be made as to overall male academic performance in what has been a historically female profession. This is especially true in the light of many male students having previously successfully completed the Associate Degree Nursing program at North Iowa Area Community College.

According to Kathleen Sonnesyn, Director of the Health-Related division at North Iowa Area Community College, current figures show that approximately 10% of nursing students enrolled nationally are male, and about 6-7% are employed in nursing after graduation (personal communication, April 22, 1993). Although male nurses have, in the past, frequently sought employment in "critical care" areas of the hospital setting (such as coronary or intensive care units, emergency room, or operating room--often, in the latter, as nurse anesthetists), Sonnesyn states that "more and more" male registered nurses are now working in hospital medical-surgical areas. This is due in part to the need for nurses working in critical care areas to have a solid base of general medical-surgical nursing experience to build on before entering more specialized nursing areas.

Examination of a third demographic characteristic, family income, showed ranges earned by students in the top group were slightly higher than those in the bottom group, according to student replies on the written questionnaire. However, overall incomes of the two groups were much the same. Superficially one might conclude that students' incomes and their receiving financial aid do not affect their academic performance. However, more information is necessary to determine how these two characteristics influence student learning.

Fourth, the two student groups had almost the same number of students in each group who received financial aid, with one less in the top group. Eight of ten of the high-achievers and nine of the ten lower-achieving students received at least some financial aid. Dollar amounts of aid received were not asked for in the questionnaire.

Conclusions

1.1 Knowledge gain is not as great during the Associate Degree Nursing program for students as their age increases.

1.2 Older students tend to have a higher level of initial nursing knowledge than younger students, and they tend to maintain a somewhat higher level throughout the program.

1.3 Age characteristics of nursing students are similar for the top ten students in the class and the bottom ten (e.g., the age means and the number of students per each group in each age range).

1.4 Means of "value-added" gains for single and married students are similar, but considerably lower for the small group of divorced students in the sample.

1.5 Both high- and low-achieving students feel that a stable family situation with adequate emotional/physical support is extremely helpful in enhancing learning in an Associate Degree Nursing program.

1.6 Perceptions of both high- and low-achievers were that having an adequate (though not excessive) amount of income and/or financial aid to pay family and school expenses is important in promoting success for nursing students.

1.7 Low group students worked significantly more hours than the high group.

Implications

1.1 Faculties should incorporate techniques into the curriculum and classroom which may be more appropriate for older students, such as sharing life experiences, independent study projects, and collaborative assignments.

1.2 Older students had more nursing knowledge than younger students both at the beginning and end of the nursing program so were well prepared to enter and exit the nursing program.

1.3 Based on age alone, one may not predict student success in the North Iowa Area Community College Associate Degree Nursing program. Students in all of the age categories represented by this study's sample are capable of learning nursing content and achieving success in the cognitive learning aspects of the program. Individual assistance within programs, courses, or classrooms should be provided based on individuals' unique differences and problems, as opposed to factors such as age. Referrals to college tutorial services, such as NIACC's Independent Study Lab, should be made as necessary to provide students with one-on-one help. Pre- and post-conference sessions (held before and after clinical days and consisting of groups of eight to eleven students each), small-group activities in class, or all-class meeting times can be used to respond to needs of selected individuals, subgroups, or the total class.

1.4 Marital status does not appear to be a significant factor in Associate Degree nursing student success for single and married students. Conclusions in this regard, related to divorced students, are dependent on a larger sample size.

1.5 Adequate college or community counseling services should be made available to, recommended for, and utilized by nursing students needing them.

1.6 Financial aid and budget-planning services are potentially helpful services for colleges to provide students.

1.7 Nursing students should be counseled to seek alternative ways of satisfactory financial planning as opposed to working an excessive number of hours per week outside the home.

Findings-Conclusions-Implications of Research Question #2

Who/what do students perceive as the prime motivator/motivation to encourage student learning/performance at its highest potential?

Findings

There was a great deal of agreement among students in the two groups as to their source of motivation. All ten students in the top group and eight in the bottom cited themselves as their prime motivator; the remaining two students in the low group named their husbands.

Regarding what motivated them to study, top students tended more to list responses such as "responsibility for patients," "personal satisfaction," "grades," "liking to learn," and "wanting to feel comfortable" in and have "adequate knowledge" about their job. Though five of them mentioned factors such as to "be a good nurse," "increase their knowledge," a "feeling of accomplishing something," "interest," and "liking nursing," students in the lower group more commonly stated more "practical" considerations as prime motivations for them to do well in the program. These included "passing the course," "completing the program," "passing Boards," and "providing security for themselves and their family."

Conclusions

    2.1 Most students in both the top (high-achieving) and bottom (low-achieving)

        groups describe themselves as being "self-motivated."

    2.2 Students in the lower group tended to be motivated more by concrete vs.

        abstract goals.

Implications

    2.1 Faculty should foster self-motivation via activities which encourage students to

        "take ownership" of their own educational development, (such as through

        independent student projects, class discussion, and student-organized

        presentations).

    2.2 Class activities promoting moral and ethical development are recommended.

Findings-Conclusions-Implications of Research Question #3

How do perceptions of high-achieving students compare with those of low-achieving students regarding which student behaviors (attendance, community activities, and study habits) contribute most to student learning?

Findings

As for student behaviors which negatively or positively influenced their

performance, all twenty students interviewed agreed verbally that attendance was an

important factor in student success. Three students in the low group thought better

attendance on their part would have improved their performance. The other seven saw

their attendance as very good. Only one top student rated her attendance as less than she

would have desired, but felt her absences were unavoidable. All other students in the top group rated their attendance as highly satisfactory.

As to amount of time spent in community activities, student reporting between the top and bottom group was similar. This was true as far as number of hours spent in these activities and how students felt about them. Students in both groups consistently would have liked to do more, but felt it wasn't realistic during their time in the Associate Degree Nursing program.

In regard to study habits, students in the top and bottom group reported very similar practices as to the amount of time they studied, with whom, and where. Differences occurred in how they saw themselves as students. All top students were complimentary of their study habits as were seven of the bottom students. Three of the lower students, however, said they needed to have more characteristics like being "organized" or "responsible" in getting at their studying on time.

<u>Conclusions</u>

3.1 All students verbalized the importance of good class and clinical attendance.

3.2 Most top students backed up this expressed belief with their actions by practicing good attendance. Some lower-achieving students did not.

3.3 Most top and bottom students limited the number of hours they spent in community activities, while they were nursing students, but several felt regret at doing so.

3.4 The amount of time spent studying by top and bottom students was similar. The quality of study time varied between the two groups, however.

Implications

    3.1 Individual and group problem-solving sessions with faculty may help students

        to overcome barriers preventing better attendance.

    3.2 High performance standards in clinical attendance should be set and

        maintained. Clearly explaining the college-wide classroom attendance policy

        and the Associate Degree Nursing clinical attendance policy to students should

        be done verbally and in writing at the beginning of each class year. The policy

        should be reiterated during the year as a reminder to students. Giving

        unannounced short quizzes and including the number of absences from class,

        as well as clinical, on recommendations to prospective employers; shared

        research activities; and active learning should be implemented to encourage

        better attendance on the part of students.

    3.3 Peer counseling/discussion may help students resolve the issue of time spent in

        community service during the time they are students.

    3.4 Encouraging students to attend study skills sessions and group or one-on-one

        student discussions with other students, faculty, student services counselors,

        and/or Independent Study Lab personnel may help students to develop better

        study patterns.

Findings-Conclusions-Implications of Research Question #4

What program inputs (clinical/class experiences and teacher behaviors) are most effective, in the view of high- and low-achieving students, in promoting student learning in the cognitive, psychomotor, and affective domains?

Findings

A finding with practical ramifications in the classroom concerned individual students' perceptions of how they learn best. These varied from student to student, but answers by students in the top and bottom groups regarding their preferred learning style indicated that for both groups this involved a "combination" of styles (seeing, hearing, doing) and/or "hands-on" or "experience" in applying knowledge or performing skills. Students also agreed that the most helpful instructor characteristics involved being both "knowledgeable" and "caring." "Organized" lectures and a variety of teaching techniques were appreciated by students in both the top and bottom groups. Opinions about what that variety should consist of, however, varied with individuals (though not according to the group in which they were).

Students stated that though enjoyment was not essential to learning, it made learning a lot easier. "Higher" standards were suggested by three students in the top group and three from the bottom. One student from each group felt that how high standards were, "depended on the instructor."

Students report that they are uncomfortable with what they call "inconsistency" among instructors. One may conclude from these student responses, that they are not yet aware of the realities and potential benefits of having a repertoire of ways to accomplish a task, as opposed to only one.

Interestingly, in regard to "critical thinking" some students did not know what this term meant, nor, therefore, whether faculty encouraged it. Other students, however, were

aware of the meaning of this term and were able to cite examples of when the program required students to use this skill.

Most, if not all, nursing students do demonstrate caring and compassion toward the patients they care for in the hospital or nursing home. However, in regard to program inputs which promote affective learning, little mention was made by students during the in-depth interviews regarding their need to develop the affective domain. Nor were learning activities which were intended to promote development of this area (viewing audiovisuals, reading and/or telling stories, participating in role play and dramatizations, etc.) mentioned as doing so to any large degree.

One exception identified by students was instructor modeling of behaviors demonstrating positive affective characteristics, such as respect for students and caring. In addition, guest speakers were cited by students as helping to develop empathy on the part of the listeners/students. Such a gap on the part of nursing students in discussing the need for development in this important area is significant. Perhaps in this day when nursing leaders and organizations are urging nursing faculty to develop more curriculum content emphasizing caring, the findings of this study support this need and give it credence.

Conclusions

4.1 Many students in both the top and bottom groups expressed a need for varied learning activities and hands-on/experiential learning. Many said "experience" and "doing" are how they best learn and remember.

4.2 Some students (high and low) shared their frustration at class lectures which were disorganized.

4.3 An important additional element in student performance is their enjoyment of a classroom or clinical setting.

4.4 Some students felt some of the textbooks were not useful, because they were "above their head."

4.5 Students express discomfort with teaching and performance ambiguity among instructors.

4.6 Some students are not clear as to the meaning or ramifications of "critical thinking."

Implications

4.1 Incorporate a wide range of activities into class and clinical sessions since using a variety of teaching activities is appealing to a combination of student senses (vision, hearing, writing, doing). This is preferable to teaching techniques employing only one method of taking in information as it is more likely to accommodate the differences in students' learning styles. Incorporate active learning methods (as opposed to only passive listening) into classroom and clinical activities. Provide for student testing as to preferred learning style(s) and/or personality profiles. Encourage and provide training for faculty to familiarize themselves with ways to address effectively a number of learning styles.

4.2 Administrators should monitor teachers' performance, so ineffective teaching can be rectified as soon as possible. Peer instructors should share in the responsibility for the overall quality of instruction in the program. Students should be empowered to communicate to instructors which teaching strategies students find to be most useful and possible ways to improve those which are not as effective.

4.3 "Enjoyable" activities (humor, fun, music) should be incorporated into instructional plans.

4.4 Set up guidelines/criteria for selecting texts, to be done at a minimum of every two years.

4.5 Include class discussions concerning ramifications of choices, so students have an opportunity to explore situations where there may be more than one right solution or method. Identify and resolve discrepancies in teaching among instructors which are confusing to students and/or not based on sound research/nursing principles.

4.6 Define and explain clearly to students the term "critical thinking." Institute and employ curriculum activities to promote critical thinking.

Findings-Implications-Conclusions of Research Question #5

What is the general satisfaction level of Associate Degree Nursing students with their education, both as to general education courses and to nursing theory and clinical course work?

Findings

All students in the top group and nine from the bottom group expressed overall

satisfaction with their Associate Degree Nursing education. Six high-achieving students

either said they wouldn't cut any of the support courses or did not mention any with

which they were dissatisfied. Two students from the lower group found the general

education courses "all helpful and necessary." The remaining students in both groups

listed courses with which they were very satisfied and some they did not find as useful.

Generally one may conclude that, with a few exceptions, students are either somewhat or

very satisfied with their nursing theory, nursing clinical, and general education support

courses.

When speaking of their satisfaction level with their own personal preparation as a

nurse, all top students said they felt well-prepared to apply theory content in the clinical

area and quite well-prepared to problem-solve. Five students in the lower group felt

generally well-prepared to apply knowledge to the care of patients and to problem-solve.

(Four of the remaining five students in the low groups did not pass the semester's course

work; thus this may have affected their self confidence in these areas.)

The feelings of the ten top students in relation to their ability to practice therapeutic

communication techniques with patients ranged from "pretty good" to "very confident."

In contrast only three lower-achieving students expressed confidence in their ability to

utilize this nursing skill. Of the ten higher-performing students nine expressed that they

were either "prepared" to practice assertiveness or were making progress in this area.

One stated she still "need[s] work" with this. The lower group was about evenly divided

between students who felt confident with practicing assertiveness and those who felt "not very assertive."

Conclusions

5.1 Most students were adequately satisfied with the program.

5.2 Little mention was made by students during the interviews regarding affective behaviors and how they are learned.

5.3 Some students questioned the need for some support courses, e.g., algebra.

5.4 Several low-achievers stated they did not feel adequately prepared in some skills, such as assertiveness, use of therapeutic techniques, and problem-solving.

Implications

5.1 Broaden the base of input so as to learn what improvements could be made to make the program more satisfactory to all students. Informal or classroom discussion and/or written evaluations by students regarding various classroom activities or teacher competencies will give all students a chance for participation.

5.2 Additional activities fostering affective beliefs and skills would be useful.

5.3 In periodic curricular changes include time for evaluating courses which may no longer be necessary and useful.

5.4 Establish "in-person," simulation, or computer-aided instruction in areas where students feel personal deficiencies.

Recommendations

One recommendation is that of holding the type of interview used in this study early in the Associate Degree Nursing program (e.g., at the end of the first semester of the freshman year). This type of interview does what Cross speaks of related to "involving" students in their own learning. Several, during the interviews, said things such as "Maybe I should have ..." etc. Discussing issues in depth might have helped students to problem-solve or change course in a positive way early enough to have significantly affected their achievement in the program.

This study involved administering a written questionnaire to and conducting an in-depth interview with students on a one-time basis at the end of the second semester of their sophomore year. It also involved administering an NLN pre- and posttest at the beginning and end of their Associate Degree Nursing program. Much factual data was collected over a wide range of topics. The data gathered would be more current and accurate, however, if it were gathered more frequently than once a year. This is recommended for other researchers. In addition to the end of the first semester of the freshman year and the end of the second semester of the sophomore year, suggested times to conduct this series of interviews might include the end of the freshman year and/or at the end of the first semester of the sophomore year.

It is recommended that teacher-researchers ask their students more often than once every two years (e.g., at least each year and possibly several times per year) such questions as how many hours per week they studied; which classroom techniques helped them the most, and why; and/or what support systems were in place for them during the

time they were enrolled in the Associate Degree Nursing program. These mini-research projects provide an opportunity for the teacher to learn a great deal about students without investing excessive time and money. Special class needs can thus be determined by these frequent assessment techniques, using total-class and individual student input. Investigating one or two issues at a time, such as satisfaction with a particular learning/teaching strategy or confusion about a lecture topic, makes a research project feasible and timely for all teachers and students.

It is recommended that studies to evaluate other student competencies be carried out. These could include student achievement in attaining effective time management, interpersonal skills, and feelings of self esteem/self confidence.

Additional research as to barriers keeping older students from increasing their "value-added" gain more from pretest to posttest would be useful. Student interviews may shed light on this topic as students are given the opportunity to discuss what factors would contribute to greater gain on their part.

Some students did not know the meaning of the term "critical thinking" and/or were not familiar with ways to foster it. More research related to curricular efforts to promote development of this skill at the Associate Degree Nursing level is recommended.

Another recommendation is to conduct additional studies similar to the quantitative study discussed herein, but with a broader base of sample size. This could be done by using a variety of ways to expand the number of students being surveyed.

First, additional North Iowa Area Community College Associate Degree Nursing classes could be surveyed. Succeeding classes do seem to have their own personalities.

It would be valuable to learn how other classes' replies to the questionnaire and/or personal interview questions compared with the class which was studied in this current project. Also, correlating these additional students' "value-added" scores on the NLN Comprehensive Nursing Achievement Test with the same or other demographic data and/or student behaviors may be helpful in guiding faculty and students to activities which increase student learning.

Second, students enrolled in different types of nursing programs in part or all of Iowa could be included in the sample. This would increase the number of students from which data is being collected and provide a wider selection of students and opinions to use as raw data.

Third, including colleges located in additional geographical areas of the country may yield different results, since these may be composed of varied ethnic or racial students. This would add a richness to the data obtained, due to the varying backgrounds and experiences of these individuals.

Fourth, although a majority of nursing students has been and continues to be female, increasing numbers of male students are now making nursing their career choice. Therefore, further research is needed as to factors which enhance learning in all three domains for male students. Research may be helpful in predicting males' chances of success in nursing programs and thus be useful as a counseling tool. Research can also be used to assess learning needs unique to male students enrolled in Associate Degree Nursing programs as well as to identify the most effective ways to meet those needs. In addition, the nurturing/nursing role in our society has traditionally been left to females.

Thus research regarding male performance in the use of affective skills may be particularly important.

Fifth, a small number of divorced students were included in calculating mean "value-added" gain for this marital status group. Research using larger numbers of this subgroup is advised to determine if there are significant differences in achievement between divorced students and their single or married classmates.

Sixth, increasing the number of research projects with Associate Degree Nursing students would add much to the literature on an important part of American higher education. One important finding from this study's literature review is that, with some exceptions, there is a sparcity of research regarding outcomes assessment in Associate Degree Nursing programs. As a whole, community college instructors have not customarily been involved in research to a large degree. Thus more studies are needed on Associate Degree Nursing programs.

Compiling data from larger groups of students would allow the researcher to use more sophisticated statistical techniques, such as multiple regression when analyzing the data. These procedures could either be used alone or in conjunction with correlation procedures and/or other statistical methods.

Additionally, questionnaires and interviews could be administered using various sets of questions. This would tailor the test to the needs of the particular class or area. For example, an investigator may want to know how far students drive to their classwork and clinical work area each day or what major (or minor) health/illness problems and/or accidental injuries they have sustained.

This study found students in both the high- and low-achieving groups to have similar incomes and approximately equal numbers receiving financial aid. However, additional questions about the number of dependents, debts or major financial obligations, and the <u>amount</u> of financial aid received would paint a more complete picture of a student's overall financial status. Thus more research on the effect of these two factors on student achievement is recommended.

More questions, both on the written questionnaire and those used in the in-depth interview, could be selected which address promoting learning in the affective domain, The result would be a better balance in data obtained between all three learning domains. Therefore it is the recommendation of this researcher that additional studies be conducted to solicit affective data and to investigate classroom techniques which encourage Associate Degree Nursing students' moral and ethical development. In addition, research identifying <u>where</u> such strategies may be used most effectively (classrooms, acute or long-term care settings, pre- and post-conferences, etc.) may be especially useful.

Intentional efforts to assess student skills in the affective domain should include not only interviewing for student input, but "tacit" assessment methods such as journaling as well. Discussing with students the purpose of techniques to develop affective skills (via such classroom methods as viewing films, class discussion, and role play) may help to sensitize students to this important domain and motivate them to change behaviors related to it in a positive way.

Research related to where students in the highest- or lowest-achieving groups earned (or failed to earn) points, contributing to their cumulative end-of-semester total, is

also recommended. This would determine if most students in each group tend to earn or lose points on unit tests, the semester test, care plans, etc. Resulting adjustments/adaptations in these measurement methods may result in more fair and accurate tools to assess student performance.

It is also recommended when a two-part study like this one is undertaken, that students participating be selected who are eligible to be included in both parts of the research. The author of this study found that of the twenty students participating in the in-depth interviews, seven were excluded from the quantitative part of the study, because they had either missed taking the pretest or the posttest or both. This would allow for further integration of the quantitative and qualitative portions of the research, e.g., comparison of the mean "value-added" gain of the high-achievers with that of the low-achieving group.

Further, additional investigations using qualitative research should be undertaken to supplement the present research base. These may be undertaken either alone or in combination with quantitative studies.

It is increasingly recommended, in order to establish validity and reliability, that those carrying out qualitative research engage in specific practices to attain this "trustworthiness." These practices include the use of judges, utilizing peers, allowing interviewees to review transcripts of taped interviews and/or the report of research findings. For this study two measures were used. First, Dr. Charles R. Kniker, professor of qualitative research at Iowa State University reviewed and gave suggestions about the interview questions prior to the interviews. Secondly, the interviews were tape-recorded

with near word-for-word transcription. Recommendations for further qualitative research would be to maintain the above two measures. The use of the additional techniques as described above, i.e., the use of peers and judges, and sharing outcomes with subjects, giving them an opportunity to give input into additions, deletions, and changes in interpretation is recommended for further qualitative research studies on this topic.

Different pair groups could be the basis of further research, e.g., comparing younger (18-30 years old) and older (30 and above) students or students of differing ethnic, religious, and/or racial backgrounds. Another characteristic that is recommended for further research is student academic ability, as indicated by high school grade point average, aptitude tests, and SAT or ACT tests.

Although student responses to the written questionnaire were, by a large majority, generally positive as to the satisfaction level of students with their nursing theory, clinical work, and general education classes, it would be useful to know with which specific elements of the three categories students were dissatisfied. This information was not solicited in the written questionnaire used in this study. Including multiple choice or open inquiries as to student dissatisfaction would glean information which faculty and administrators could apply to improving nursing programs.

The type of research study described herein proved to be an excellent opportunity to seek and obtain data from those who know students best--themselves. They graciously, willingly, and enthusiastically shared this information, which will prove valuable in helping students develop self-understanding in order to increase their learning. In

addition, it offers a multitude of content which instructors may use to better their own teaching as well as to improve curricula, assignments, testing, and programs as a whole.

Summary

Lenburg (1991, p. 48) quotes Oliver Wendell Holmes as saying, "The mind once stretched with a new idea never regains its original dimensions." She cautions, however, that this "mind stretching" will require commitment and hard work on the part of nursing educators. She states, "If we are committed to these new reforms we also are obligated to deliberately learn to change the ways we perceive and implement our roles as educators, researchers, administrators, and clinicians" (p. 48).

Part of this commitment will involve an effort to gather information about students based on what the recipients of our educational labors, students themselves, perceive as helpful. This study engaged in such an effort.

Factors leading to student success were identified in this study. These included a negative correlation between "value-added" gain and student age. However, though gain is not as great during the Associate Degree Nursing program for students as their age increases, older students had higher pre- and posttest scores, and age characteristics of low- and high-achieving groups were similar. There was too small a sample size of males (only one in the two groups) to determine if sex is a factor in achieving success in the Associate Degree Nursing programs. Marital status, income, study time, time employed, and community service did not show associations with "value-added" gain. However,

two students from the lower group stated in interviews that, for them, working excessive hours was detrimental to their success.

Helpful student factors in enhancing learning were a stable family situation with adequate emotional and physical support; having enough money (via income and/or financial aid); self-motivation and "wanting to learn"; a good attendance record in class and clinical; being "organized" and "persistent"; and having "responsible" study habits.

Faculty behaviors aiding student success were providing learning activities promoting a "combination" of learning styles and "hands-on" learning opportunities; being organized in lectures, knowledgeable, and caring; using a variety of classroom techniques; and holding high standards for students.

Program areas needing additional work in order to promote student satisfaction are some theory classes' tendency toward "disorganization," helping students to develop more skills in using therapeutic communication techniques, and aiding them to learn to become more assertive.

This study attempted to combine the use of quantitative and qualitative techniques to determine student, instructor, and program factors leading to student success in an Associate Degree Nursing program at North Iowa Area Community College. The methods, findings, implications, and recommendations described herein provide a basis for further research toward this same goal.

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APPENDIX A

MISSION OF THE COLLEGE

Linking: Mission, Purposes, and Institutional Effectiveness Goals

Mission	Institutional Purposes	Institutional Effectiveness: College Goals
"The mission of the North Iowa Area Community College is to enhance the quality of life for people of North Iowa through comprehensive educational opportunities, progressive partnerships, exemplary service, and responsive leadership."	• Ensure that all citizens of the North Iowa region, regardless of their educational and socioeconomic backgrounds, geographic placement, or needs for special assistance, have both the opportunity and the necessary support to take advantage of postsecondary educational programs and other services offered by the College.	A. Access and Equity

	• Ensure that individuals have opportunities to prepare themselves for employment in occupations in demand in a global society.
	• Empower individuals by stimulating:
	  ° Curiosity about the natural and social universe.
	  ° Intellectual integrity, appreciation of diversity, informed ethical values, and the aspiration for the best for oneself, one's family, one's community, and the world.
	  ° Joy of learning and use of creative and critical thought, including skills of intellectual problem solving, effective reading, clear writing, and articulate speaking.
	  ° Willingness and ability to exercise personal leadership, creativity, and adaptability to change.
	  ° Constructive use of leisure time, participation in recreational activities, and development of physical and mental well-being.
	  ° Understanding, appreciation, and participation in the arts and humanities.
		B. Employment Preparation and Placement

	• Enable individuals to complete the first two years of a baccalaureate program within the region, and upon successful completion, to achieve efficient and effective transfer to senior colleges.
	• Empower individuals by stimulating:
	  ° Curiosity about the natural and social universe.
	  ° Intellectual integrity, appreciation of diversity, informed ethical values, and the aspiration for the best for oneself, one's family, one's community, and the world.
	  ° Joy of learning and use of creative and critical thought, including skills of intellectual problem solving, effective reading, clear writing, and articulate speaking.
	  ° Willingness and ability to exercise personal leadership, creativity, and adaptability to change.
	  ° Constructive use of leisure time, participation in recreational activities, and development of physical and mental well-being.
	  ° Understanding, appreciation, and participation in the arts and humanities.
		C. College/University Transfer

	• Ensure that individuals have opportunities to continue learning throughout their lifetimes.
	• Empower individuals by stimulating:
	  ° Curiosity about the natural and social universe.
	  ° Intellectual integrity, appreciation of diversity, informed ethical values, and the aspiration for the best for oneself, one's family, one's community, and the world.
	  ° Joy of learning and use of creative and critical thought, including skills of intellectual problem solving, effective reading, clear writing, and articulate speaking.
	  ° Willingness and ability to exercise personal leadership, creativity, and adaptability to change.
	  ° Constructive use of leisure time, participation in recreational activities, and development of physical and mental well-being.
	  ° Understanding, appreciation, and participation in the arts and humanities.
		D. Adult and Continuing Education

	• Ensure that employers have opportunities to develop and maintain competitive workforces.	E. Economic Development
	• Extend the reach of College resources through progressive partnerships with agencies and entities in communities served by the College.	F. College/Community Partnerships
	• Promote understanding, appreciation, and cooperation among the widest possible variety of cultures.	G. Cultural and Cross-Cultural Development
	• Instill confidence and pride in all who come into contact with the College by fostering a commitment to excellence in all College endeavors.	H. Quality Orientation and Trust

APPENDIX B

INSTITUTIONAL EFFECTIVENESS INDICATORS

College Goals	Indicators of Effectiveness								
A. Access and Equity	A-1 Existence and use of support services offered by the College and their relationship to recruitment and retention	A-2 Educational goal attainment by total student body population (Retention, equity)	A-3 Student tuition and fee increases vs. higher ed price index, tuition at public/private colleges, and availability of financial aid	A-4 Acceptance of transfer credits into NIACC	A-5 Educational goal progress by student population that is disadvantaged or at risk (including, ABE/GED, JTP)	A-6 NIACC credit received for nontraditional learning	A-7 Access via evening/distance learning programming	A-8 College is able to attract, support, and retain heterogeneous populations	
B. Employment Preparation and Placement	B-1 Placement of program completers in work-related jobs within reasonable amount of time	B-2 Program completers' satisfaction with technical skills preparation, general education component, placement support services, and employment related/not related to their career program	B-3 Employers' satisfaction with program completers' technical competence and satisfaction with competence of nontechnical skills	B-4 Completion of licensure/certificate exams by program completers	B-5 Program non-completers' satisfaction	B-6 Effective utilization of advisory committees and program evaluation processes and recommendations	B-7 Current student satisfaction with course /teacher	B-8 Student outcomes assessment	
C. College/ University Transfer	C-1 National Effective Transfer Consortium (NETC) transfer rate and effectiveness measures	C-2 Acceptance of associate degree/2-year college credits by selected senior institutions	C-3 NIACC transfer students' GPA vs. native students' GPA at Iowa Regent Universities	C-4 Baccalaureate degrees obtained by NIACC transfer students at the 3 Regents' Universities	C-5 Alumni institutional satisfaction measures	C-6 Current student satisfaction with course /teacher	C-7 Student outcomes assessment		
D. Adult/ Continuing Education	D-1 Adult clientele satisfaction and goal attainment	D-2 Employee satisfaction with customized/standard programs	D-3 Adult/Continuing education market penetration (contact hour per population analysis)	D-4 Participation in/and GED degrees earned in the service area	D-5 Noncredit student outcomes assessment				+
E. Economic Development	E-1 Use of College services by business personnel to start, improve, or expand their business	E-2 Economic development organization satisfaction with college services							+
F. College/ Community Partnerships	F-1 Quality and extent of partnerships and services provided through relationships between College and community entities	F-2 Community use of College resources	F-3 Participation by faculty, staff, students, and alumni in community service						+
G. Cultural and Cross-Cultural Development	G-1 Participation of credit students in cultural and cross-cultural activities of the College	G-2 Participation of faculty and staff in cultural and cross-cultural activities of the College	G-3 Participation of adult population of the service area in cultural and cross-cultural activities of the College	G-4 Existence and extent of opportunities to promote cultural/cross-cultural understanding	G-5 Evidence of quality of the cultural/cross-cultural experience				
H. Quality Orientation and Trust	H-1 College's ability to define and measure effectiveness of college programs and services	H-2 Public perception of the College	H-3 Awareness of, confidence in, and support for continuous quality improvement efforts	H-4 Utilization of effectiveness data for improvement	H-5 NCA review and findings	H-6 Discipline-specific accreditation review and findings	H-7 An organizational climate that encourages the entire staff to contribute ideas, develop effective procedures and operations and make decisions important to the College	H-8 Board effectiveness	H-9 Annual independent audit findings
	H-10 Department of Education review and findings								

National Alliance of Community and Technical Colleges; NIACC Revision: 7/2/90, 7/5/90, 7/16/90 , 8/3/90, 8/16/90 , 9/10/90, 11/20/90, 12/27/90, 6/14/91, 7/12/91, 7/18/91, 7/24/91, 8/6/91, 8/15/91, 8/21/91, 10/14/91, 12/6/91, 1/7/92 and 4/24/92 by Instructional Council, Student Services Council, Economic Development, Continuing Education Council, Steering Committee, and Administrative Cabinet

182

APPENDIX C

1992 CAREER PLACEMENT REPORT

North Iowa Area Community College
1992 CAREER PLACEMENT REPORT

PROGRAM	NUMBER OF GRADUATES	NUMBER RESPONDING TO SURVEY	* # NOT AVAIL FOR TRAINING RELATED EMP.	# AVAILABLE FOR TRAINING RELATED EMP.	NUMBER EMPLOYED	# EMPLOYED IN TRAINING RELATED JOBS	AVERAGE ANNUAL SALARY	IN IOWA	LOCATION OF TRAINING RELATED JOBS	OUT OF STATE
AGRICULTURAL TECHNOLOGY										
Ag Occupations	17	17	0	17	16	15	$17,200	15		0
SUBTOTALS	17	17	0	17	16	15		15		0
BUSINESS										
Accounting	5	5	1	4	4	4	$12,000	4		0
Accounting Clerk	12	11	2	9	4	4	$10,504	4		0
Clerical Occupations	13	11	3	8	8	6	$10,000	6		0
Fashion Merchandising	10	9	1	8	8	8	$11,167	8		0
General Business	11	11	4	7	7	6	$18,557	5		1
Retail Management	11	10	0	10	10	10	$11,320	8		2
Secretarial Occupations	20	19	6	13	13	13	$11,901	12		1
SUBTOTALS	82	76	17	59	54	51		47		4
HEALTH & PUBLIC SERVICES										
Associate Degree Nursing	65	61	2	59	59	59	$23,300	58		1
Law Enforcement	23	21	15	6	6	3	$20,000	2		1
Licensed Practical Nursing	24	24	4	20	15	15	$16,594	15		0
Medical Assistant/Clinical	17	14	0	14	13	12	$12,458	12		0
Optometric Assistant	9	9	0	9	8	7	$11,390	7		0
SUBTOTALS	138	129	21	108	101	96		94		2
INDUSTRIAL TECHNOLOGY										
Automated Systems Technology	6	5	0	5	5	4	$21,250	3		1
Automotive	10	10	3	7	7	7	$12,750	7		0
Building Trades	4	3	0	3	3	3	$20,000	3		0
Climate Control	7	7	2	5	5	5	$13,500	4		1
Electronics Engineering Tech.	7	5	2	3	3	3	$21,000	3		0
Mechanical Design	7	7	0	7	7	7	$16,980	5		2
Welding	2	2	1	1	1	1	$ ----	1		0
SUBTOTALS	43	39	8	31	31	30		26		4
GRAND TOTALS	280	261	46	215	202	192		182		10
PERCENTAGE OF PLACEMENT		93%			94%	89%		95%		5%

183

*Reasons not available include: Continuing Education, Military Service, Satisfactory Employment in Nontraining Related Job, Other

This data represents a summary of placement-related information gathered through a follow-up survey of graduates from the 1991-92 fiscal year. The information has been prepared primarily for prospective students who may have questions regarding which program might best suit their needs. Since hiring is ultimately the choice of the employer, it should be noted and understood that the college does not guarantee that a prospective student will be placed in employment upon graduation or that they will earn a specific salary.

The 1992 placement rates remain consistent with those over the last six years. Since 1987 the training related placement rate for NIACC Career graduates has ranged from 86% to 90%.

APPENDIX D

ADN GRADUATE SURVEY

ADN GRADUATE SURVEY

The Associate Degree Nursing faculty and North Iowa Area Community College want to improve the quality of education provided to students. Your thoughtful answers to this questionnaire will help achieve this goal. All answers will remain confidential. Thank you for your time.

Name: _____

Age: _____ 18-19 or younger _____ 20-22 _____ 23-27

_____ 28-39 _____ 40-55 _____ over 55

Marital status: _____ Single _____ Married _____ Separated _____ Divorced _____ Widowed

Number of Children: _____ Ages: _____, _____, _____, _____, _____, _____, _____

Previous college education: years attended: _____

Names of colleges/universities attended other than NIACC:

_____, _____, _____

Degree(s) Received: _____ AA _____ AS _____ AAS _____ BA _____ BS Other _____

The following questions pertain to the time you were enrolled in the ADN program:

1. My annual income was: _____ less than $10,000 _____ $10,000-$15,000 _____ $16,000-$20,000

   _____ $21,000-$25,000 _____ $26,000-$40,000 _____ more than $40,000

2. Average number of hours I was employed per week: _____

3. Average number of miles driven to attend: _____ class _____ clinical

4. Where did you live? (If you lived in more than one place, give the approximately amount of time lived in each.)

   _____ in my parents' home _____ in the NIACC dorms/apartments

   _____ in my own home or apartment

5. Who did you live with? (If you lived with different people, give the approximate amount of time lived with each.)

   _____ alone _____ with my spouse/significant other and/or child(ren)

   _____ with my parent(s) and/or sibling(s) _____ with my child(ren)

   _____ with my spouse/significant other _____ with one or more roommates

6. Average amount of time spent studying per week:

   _____ alone _____ with one or more other students

7. Where did you study? (Approximate percent of time spent in each):

   _____ in my own home _____ in a peer's or friend's home

   _____ in the NIACC library _____ in another library

   _____ elsewhere (Tell where: _____)

8. Average amount of time per semester spent in conference with one or more faculty:

   _____ less than one hour _____ 1 hour _____ 2-3 hours

   _____ 4-5 hours _____ more than 5 hours

9. Approximately how many times did you attend a student nursing organization activity/meeting:

   _____ IOOADN conference _____ ISNA conference

   _____ NIACC Nursing Club event or meeting

10. Approximately how many times did you attend, as a student representative, one of the following:

_____ Faculty meetings   _____ Faculty-Student Curriculum Committee

_____ Health Advisory Committee   _____ Other (List: _____)

11. Class officers or committee members: (Tell which.)

Freshman year: Class officer? _____

                Committee member? _____

Sophomore year: Class officer? _____

                Pinning committee? _____

                Other committee(s)? _____

12. Average number of hours (not including employment) spent per week in outside-class, community activities:

_____ local school (high school, junior high, elementary)

_____ church   _____ other community involvement

13. Approximately how many times a semester were you:

_____ absent from class?   _____ tardy for class?

_____ absent from clinical?

14. Who motivated you the most to learn and perform at your highest professional level?

_____ self   _____ faculty   _____ peers in ADN program

_____ hospital staff   _____ family   _____ friends

_____ other (If other, explain who: _____)

15. Did you receive financial aid? _____ yes _____ no

If yes, which type of financial aid? (Pell grant, JTPA, Promise, loans, scholarships, etc.)

List more than one, if applicable: _____ , _____ ,

_____ , _____ , _____

16. AS A WHOLE, how satisfied were you with your NIACC education?

A. ADN courses

Theory: _____ very satisfied _____ somewhat satisfied _____ not satisfied

Clinical: _____ very satisfied _____ somewhat satisfied _____ not satisfied

B. General Education Courses (e.g.; anatomy and physiology, sociology, nutrition, communication skills, microbiology, psychology, human growth and development, chemistry, etc.)

_____ very satisfied _____ somewhat satisfied _____ not satisfied

17. What additional degree, if any, do you hope to eventually obtain?

_____ not sure _____ not planning on obtaining any further degree

_____ B.S.N. _____ non-nursing Baccalaureate _____ M.S.N. _____ non-nursing Master's

_____ Ph.D. in nursing _____ non-nursing doctorate

Certification programs: (List) _____

18. What suggestions do you have to make the ADN program more useful and satisfying to future participants?

APPENDIX E

NLN COMPREHENSIVE NURSING ACHIEVEMENT TEST

NLN COMPREHENSIVE NURSING ACHIEVEMENT TEST

According to Dr. Carole Kingsbury, Test Consultant, National League for Nursing (NLN) (personal communication, April 17, 1992 and May 31, 1992) in regard to criteria used to develop the NLN examinations:

[1] Test questions are not patterned on Bloom's taxonomy.

[2] The questions do relate to the five steps of the nursing process (assessment, analyzing, planning, implementation, and evaluation), and 20 percent of test questions are included under each of these five steps.

[3] The questions are not based on the locus of decision-making (i.e., nurse, patient, or both).

[4] Instead, questions are related to four areas of client needs:

1. a safe, effective care environment
2. physiological integrity
3. psychological integrity
4. health promotion and maintenance

The above criteria follow those of the NCLEX-RN (National Council Licensing Examination for Registered Nurses) which is the examination graduates of all nursing programs must pass to receive their license. The NLN Comprehensive Examination uses the same test plan blueprint as the NCLEX-RN. A copy of this blueprint (the NCLEX-RN - Test Plan for the National Council Licensure Examination for Registered Nurses) may be obtained from the National Council of State Boards of Nursing, 625 North Michigan Avenue, Suite 1544, Chicago, Illinois 60611.

A more detailed copy of the test plan is also available as is a copy of the full study upon which the test plan is based (Kane, et al., 1986), called A Study of Nursing Practice and Role Delineation and Job Analysis of Entry-Level Performance of Registered Nurses. As indicated in the bibliography, Dr. Carole Kingsbury was one of the researchers involved in this study. In addition, part of Dr. Kingsbury's experience in research has involved spending two years working at the American College Testing (ACT) in Iowa City, Iowa.

Kingsbury states that the above study included both a job analysis as well as a role delineation study because "nursing practice is so diverse, and we have so many categories of personnel from assistants to (nurse) practitioners." She asserts that "when an occupation is complicated," it is important to look at all of the roles that go along with the target role. And our target role was entry-level practice."

Kingsbury describes the study's research process as follows: The authors selected random samples of newly-licensed nurses . . . a random sample of several different groups that had passed the licensing exam. Some had just recently taken the licensing exam, and others had taken it within the previous nine months or so. The researchers developed a questionnaire that asked the subjects to indicate how many times they performed specific

tasks (222 tasks in all), and, if they performed these tasks, how critical did they think they were with respect to clients. Based on the results of those analyses, the data was also subjected to factor analysis. Four major factors emerged, and those factors were identified as the four client needs.

For example, in the researchers' opinion, obstetrics and health promotion seem to be clearly linked together. Similarly, psychiatric and psychosocial fell together. Thus they concluded that the type of nursing that is practiced depends upon what kind of client the nurse is taking care of. Kingsbury states this is not surprising; "you don't expect on a med-surg unit to talk about delivering babies."

The other fact that became clear in terms of the weightings of those task statements and the weightings that were given to the four categories of client needs was that most nurses are working in medical-surgical units. So almost half of the licensing exam is based on the physiological, which includes both medical-surgical type clients as well as sick pediatrics patients. That is the general rationale for the weighting system.

Another question the researchers wanted to try to determine was "At what point are newly-licensed nurses comfortable in the role"? When do they require less guidance? They found that this occurs after approximately six months.

Using the task statements, the research team also examined whether there were any differences between graduates of associate, diploma, and baccalaureate programs. They found there were not. The study instrument was not specifically designed to measure/determine this, but there were no differences as measured by their study instrument in this regard. It was based on the responses of the random sample of newly-licensed nurses that participated. Both U.S.-educated newly-licensed nurses as well as foreign-educated nurses were included in the survey.

The study was conducted from 1984 to 1986, with publication of findings in 1986. The National Council of State Boards of Nursing updated the job analysis in 1989, and the most recent job analysis is currently being conducted. Questionnaires were distributed in July 1992, and the target date for completion and publication is July 1993, according to Carolyn Yokum, National Council of State Boards of Nursing (personal communication, March 3, 1993).

The NLN Test Catalog (1993) describes NLN test development (including item writing, norming and scoring, etc.). Faculty from all three types of nursing programs (associate, diploma, and baccalaureate) participate in the item writing process. The blueprint is followed closely during the item development procedure.

A validity study for NLN exams is updated every three years, following a blueprint based on empirical data gathered from nurses. Tests are changed every two years, during which two-year period the tests contain the same set of test questions. New tests are released in the month of April. From one test to the next, 30 to 40 percent of test items remain the same for equating purposes. A wide diversity of test writers is used. All answers must be able to be found in a current nursing textbook.

APPENDIX F

SAMPLE NLN TEST QUESTIONS

FREE TEST PREVIEW

NLN encourages you to preview our tests before ordering. This will give you a clear idea of the content areas covered and let you decide if and when it is appropriate to administer the test. For information on obtaining a preview copy of a test, call NLN Test Service at 1-800-669-1656 (in the New York City area, 212-989-9393).

SAMPLE TEST QUESTIONS

Most test questions are written in case situations within a nursing process format. In the following sample questions, correct answers are indicated with an asterisk.

Mr. George Engle, 75 years old, was diagnosed as having a cerebral vascular accident five days ago. Neurological deficits at this time include right hemiplegia, expressive aphasia, dysphagia, and right hemianopsia. He is being transferred to the medical unit to begin rehabilitative care.

1. The nurse would *best* demonstrate an understanding of Mr. Engle's visual deficit by
   a. placing food items on the right half of his tray.
   b. speaking to Mr. Engle prior to touching him on his left side.
   *c. placing the bedside table and personal items on his left side.
   d. standing on the right side of the bed while talking to Mr. Engle.

Since Mr. Engle is dysphagic, the physician prescribes placement of a nasogastric feeding tube. Initial feeding prescriptions are Osmolite 50 ml/hour continuously, hold for 2 hours if residual greater than 100 ml.

2. When inserting the nasogastric feeding tube, the nurse should place Mr. Engle in which of the following positions?
   *a. Fowler's
   b. left lateral
   c. dorsal recumbent
   d. supine

3. Which of the following should indicate to the nurse that the nasogastric tube is positioned correctly?
   a. bubbles surface when the distal end of the tube is placed under water.
   *b. injected air can be auscultated over the gastric area.
   c. Mr. Engle is coughing.
   d. Mr. Engle is unable to hum.

4. Once the feeding tube is correctly in place, which of the following instructions should the nurse write on the nursing care plan?
   a. check urine sugar and acetone qid and record
   *b. inspect and provide hygienic care for nares daily
   c. check gastric residual q a.m. and note amount on the care plan
   d. change feeding bag q five days and note date on the care plan

TEST DESCRIPTIONS

In the following test descriptions, we have included information on content, the appropriate point in your curriculum when a particular test is most useful, a list of the scores provided, the time required for administration and the scoring fees. Normative data—including the number of students in the sample, mean raw scores, standard deviation and reliability—are available upon request.

APPENDIX G

PERMISSION LETTER FROM NLN ACTING DIRECTOR

March 10, 1993

Mary Woerner
RR 2   Box 219
Clear Lake, IA   50428

Dear Ms. Woerner:

I am responding to your letter of March 1, 1993. You have our permission to print the four items from the 1993 NLN RN Test Catalog in the Appendix of your dissertation. I have enclosed a catalog and would ask that you use the items as printed there. Those items are similar, but not the same, as those in the NLN Comprehensive Nursing Achievement Test (93-3613). That test is <u>not</u> written in case sets, but is all individual items.

Congratulations on completion of your dissertation. We would appreciate it if you could send us a summary of your findings. We hope we can continue to assist you in any further research you do.

Sincerely,

Elaine Zimbler
Acting Director
NLN Test Service

APPENDIX H

GRID: RESEARCH QUESTIONS AND IN-DEPTH INTERVIEW QUESTIONS

GRID: RESEARCH QUESTIONS AND IN-DEPTH INTERVIEW QUESTIONS

Note: These interview questions are grouped under research questions to which they relate. (Research questions are in italics.) Some information asked by the research questions will be obtained via the written questionnaire (ADN Graduate Survey) vs. via these interview questions.

Preface with: "You have agreed voluntarily to participate in this series of in-depth interview questions. I want you to know that at any time you may choose not to answer a particular question or questions, and you may at any time choose not to continue the interview. Your answers will remain confidential, and, though they will be used as part of the data gathered, they will not be identified in any way with your name. Answers will be most useful if they are as thoughtful, honest, and complete as possible. Thank you for your participation."

1. *What correlations or relationships exist between student success, as measured by "value-added" gain between scores earned on the NLN (National League for Nursing) pre- and posttest and six selected demographic and personal characteristics:*

   1 *age*
   2 *marital status*
   3 *annual income*
   4 *average number of hours study time per week*
   5 *average number of hours employed per week*
   6 *average number of hours per week spent in outside class activities, other than employment (e.g., community, church, and local school activities)?*

Family/Living Situation:
-- How did you feel about your family/living situation during the time you were enrolled in the A.D.N. program?
-- What was helpful about your family/living situation during your time as a NIACC student?
-- What, if it could have been different, would have made your family/living situation better and therefore helped increased your learning or increased your satisfaction with the A.D.N. program?
-- What might you have done to change or improve your family situation or living arrangements so your learning would have been enhanced or it would have been a more positive experience for you?

Financial Status:
-- How did your financial status affect your overall achievement?
-- How did your job, if any, influence your college performance?
-- What was/were your reason(s) for working (increased income, increased learning, variety/"get out of the house," etc.)?

-- What feelings did you experience about having to work/working during the years of your A.D.N. program?

-- What, if anything, could you have done to change for the better the effect your job had on your learning/achievement (worked fewer hours, had a different schedule, etc.)?

2. *Who/what do students perceive as the prime motivator/motivation to encourage student learning/performance at its highest potential?*

-- Who is the greatest motivator for you to learn (self, faculty, peers, hospital staff, family, friends, someone else)?

-- What is the prime motivator for you to learn or perform at your highest potential? Why do you want to learn (grades/Dean's List/Hall of Fame, passing the NCLEX-RN test, satisfaction of learning, interest in the subject matter, interesting instructor/presentation, preparation for your career, etc.)?

3. *How do perceptions of high-achieving students compare with those of low-achieving students regarding which student behaviors (attendance, community activities, and study time) contribute most to student learning?*

-- During the time you were in the A.D.N. program, how many hours per week did you spend, on the average, in community activities (local school, church, other community activities)?

-- About how many hours on the average did you spend studying per week? How many alone? How many hours with someone else? Who?

-- Where did you do most of your studying (own home, NIACC Library/Independent Study Lab/Activity Center, nursing lab, city library, peer's/friend's home, other)?

-- Looking back on your A.D.N. years, what would you change about how you studied?

-- What other changes by you would have increased your learning/helped you to do better in the program?

-- What factor(s) seem(s) to be most important in determining your success in a course (your natural ability; how hard, long, and well you study; how well the instructor likes you; the instructor's knowledge, teaching ability, and personality; "hands-on" vs. "book-learning" activities; other factors)?

-- Which characteristics best describe your study and work habits (persistent/easily distracted, well-organized/so-so, idealistic/pragmatic, etc.)?

4. *What program inputs (clinical/class experiences and teacher behaviors) are most effective, in the view of high- and low-achieving students, in promoting student learning in the cognitive, psychomotor, and affective domains?*

Learning style/activities:
-- What kind of learner are you (visual, auditory, experiential, combination, don't know)?
-- What are some ways that enhance learning for the kind of learner you are?
-- What kinds of activities best help you learn? In the classroom? In the clinical area?
-- Would you rather figure something out by yourself or have someone explain it to you? Do you prefer general overviews or detailed instructions?
-- What other factors added to your success in the A.D.N. program (helpful staff, instructor input, variety of patients, etc.)?
-- What things could be changed by the program to increase student learning?

Instructors:
-- Describe the effect of instructors on your learning? How much of a difference do they make to your learning (make a big difference, I learn mostly on my own, their effect is mainly to motivate me to learn on my own, their explanations are crucial to my understanding)?
-- What characteristics of instructors made them most helpful to you (knowledgeable, caring, patient, etc.)?
-- What kinds of things did instructors do to enhance your learning during your A.D.N. program? What didn't they do that would have helped increase your learning?
-- What did instructors do (or not do) to make you feel they valued your ideas/opinions? What more c/should they do to accomplish this?
-- How would you describe the standards/expectations instructors held for you (too high, too low, about right, challenging/motivating)?
-- Where did instructors place more emphasis (mastering concepts and ideas; learning facts and details; both; depends on instructor)?
-- How did instructors encourage critical thinking (discussions, questions directed to students in the classroom or clinical area, test questions, study guides, case studies, other)?

Courses:
-- What support courses did you find most useful in preparing for/enhancing your nursing education? Why? Which were least useful? Why? Are there courses now required which should be removed from the curriculum? Should any be added? Give your rationale. Statistics tell us that Hispanics are the fastest-growing minority in the U.S. Should nurses be able to speak Spanish? Should Spanish be a requirement?
-- What did you like or dislike about classroom aspects of the nursing courses? (If time is short or "prompting" unnecessary, omit the following.)

Optional:
-- Reading assignments (length, sources [texts vs. journals], topics)
-- Other assignments (computer simulations, filmstrips, etc)
-- Classroom activities (lectures, games, discussions, role play, guest speakers, panels, dramatizations, IV arm practice . . .)

-- Study guides (both those completed out-of-class and in-class). Are these "spoon-feeding," or do they help you focus on key points?

-- Textbooks (Which were useful? readable? "keepers"? a waste of money?)

-- Tests (length, frequency, type of questions [multiple choice, T-F, completion], fair, covered outlined objectives and content)

-- Meeting times, class period length, break times

-- What did you like or dislike about the clinical aspects of nursing courses? (If time is short or "prompting" unnecessary, omit the following.)

Optional:

-- Observations/seminars: (CCU, cardiac cath, surgery, Public Health/Amicare, dialysis, specialty clinics . . .)

-- Assignments/reports: (home visits, CCU report, PHN/Amicare report, care plans, process recordings, role sheets . . .)

-- Evaluation: (weekly progress records, semester evaluations, mentor evaluations, peer evaluations during management)

-- Locations/floors/areas/hospitals used (optional: rate each facility/area [excellent-good-fair-poor] as to its value as a learning opportunity: Good Shepherd Care Center, North Iowa Medical Center, Floyd County Memorial Hospital, St. Joseph Mercy Hospital [6W, 5W, 4W, 4E, 3S, psych, peds, OB])

-- How did you feel about policies related to courses, e.g., attendance (well explained in advance and in writing, too strict/too lax, fair, adhered to consistently)?

-- How would you rate class and clinical activities/experiences in relation to encouraging higher order thinking skills, e.g., analyzing and interpreting vs. summarizing and reporting?

-- What factors helped you achieve that you didn't have control over (effective teaching, interesting material, supportive family, etc.)?

5. *What is the general satisfaction level of Associate Degree Nursing students with their education, both as to general education courses and to nursing theory and clinical course work?*

-- Overall, how satisfied are you with your A.D.N. program?

-- What parts of the A.D.N. student experience have you enjoyed the most? Which gave you the greatest satisfaction? What input did you have regarding these outcomes? What contributed to them that was outside of your control?

-- What experiences, if any, were disappointing for you? Explain.

-- How would you correlate how much you learned from an experience (class or clinical) with how enjoyable it was? Did you learn more from things you enjoyed doing? from things you didn't particularly enjoy? from both kinds of experiences? Can you think of specific examples of activities/experiences that you learned a lot from?

-- Tell me some of the things (big or small) that stand out in your mind as particularly enjoyable during the A.D.N. program (classroom, clinical, observational).

-- What attributes make an experience enjoyable for you (humor, fun, interest, competition, challenge, intellectual competition, the sense of learning from it [a new concept, skill, value], etc.)?
-- Now, at the end of your A.D.N. program, how well prepared do you feel you are to apply theory content to the clinical setting (i.e., to apply it to patient care)? to problem solve? to utilize written and spoken communication skills/therapeutic techniques? to practice assertiveness?

Optional questions, if time permits:
-- How do you feel overall about your academic performance during your time in the NIACC A.D.N. program?
-- What do you feel best about regarding your classroom achievements? Where do you think you really lived up to your full potential? Which classes? Which content areas, i.e., which topics?
-- What input did you have that contributed to this higher achievement (quality/quantity of study time, good attitude, etc.)?
-- How about in the application of learning? What clinical areas do you think you did the best in?
-- Why do you think you feel a sense of greater success in these areas (based on what criteria)?
-- What did you contribute that resulted in making these experiences more successful for you (better preparation, more enthusiastic, got more rest/sleep prior to coming, etc.)?
-- In what areas, if any, have you achieved below your potential? classroom? clinical?
-- Why do you think this was the case? What contributed to your working below your capacity?

APPENDIX I

INFORMATION FOR REVIEW OF RESEARCH INVOLVING HUMAN SUBJECTS

Information for Review of Research Involving Human Subjects
Iowa State University
(Please type and use the attached instructions for completing this form)

Student, Instructor, & Program Factors Associated with

1. Title of Project ___Student Success in an Associate Degree Nursing Program___

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Mary R. Furleigh Woerner	5-21-92	*Mary (R.) Woerner*
Typed Name of Principal Investigator	Date	Signature of Principal Investigator

Professional Studies in Education	N 243 Lagomarcino Hall	294-4143
Department	Campus Address	Campus Telephone

3. Signatures of other investigators   Date   Relationship to Principal Investigator

Daniel C. Robinson   5/26   *Major Prof.*

4. Principal Investigator(s) (check all that apply)
   ☐ Faculty   ☐ Staff   ☒ Graduate Student   ☐ Undergraduate Student

5. Project (check all that apply)
   ☒ Research   ☒ Thesis or dissertation   ☐ Class project   ☐ Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)
   _0_ # Adults, non-students   _0_ # ISU student   _0_ # minors under 14   _70_ other (explain) *
                                                    _0_ # minors 14 - 17

   *sophomore North Iowa Area Community College Associate Degree Nursing students

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)

   Factors associated with student success in an Associate Degree Nursing Program will be assessed via a research project combining quantitative and qualitative techniques.
   The quantitative study will determine Pearson Product Moment correlations between select student factors and student cognitive gains in nursing knowledge as measured by pre- and post- performance on the National League for Nursing's Comprehensive Nursing Achievement Test.
   The qualitative research will consist of two parts. Part One will involve administration of a written researcher-developed questionnaire to the entire North Iowa Area Community College 1992 sophomore Associate Degree Nursing class of seventy students. (See Addendum A., sample questionnaire). Students [continued on additional page]

   (Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent: ☐ Signed informed consent will be obtained. (Attach a copy of your form.)
                             ☒ Modified informed consent will be obtained. (See instructions, item 8.)
                             ☐ Not applicable to this project.

[See additional page.]

9. Confidentiality of Data: Describe below the methods to be used to ensure the confidentiality of data obtained. (See instructions, item 9.)

    Information gained from the questionnaires and taped interviews is to be kept confidential and within the domain of the researcher until the names are removed from the questionnaires and the tapes erased.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

    No risks or discomforts to subjects will accompany the study.

11. CHECK ALL of the following that apply to your research:
    - ☐ A. Medical clearance necessary before subjects can participate
    - ☐ B. Samples (Blood, tissue, etc.) from subjects
    - ☐ C. Administration of substances (foods, drugs, etc.) to subjects
    - ☐ D. Physical exercise or conditioning for subjects
    - ☐ E. Deception of subjects
    - ☐ F. Subjects under 14 years of age and/or   ☐ Subjects 14 - 17 years of age
    - ☐ G. Subjects in institutions (nursing homes, prisons, etc.)
    - ☐ H. Research must be approved by another institution or agency (Attach letters of approval)

    If you checked any of the items in 11, please complete the following in the space below (include any attachments):

    Items A - D   Describe the procedures and note the safety precautions being taken.

    Item E   Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

    Item F   For subjects under the age of 14, indicate how informed consent from parents or legally authorized representatives as well as from subjects will be obtained.

    Items G & H   Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.

Last Name of Principal Investigator_____Woerner_____

Checklist for Attachments and Time Schedule

The following are attached (please check):

12. ☒ Letter or written statement to subjects indicating clearly:
    a) purpose of the research
    b) the use of any identifier codes (names, #'s), how they will be used, and when they will be
       removed (see Item 17)
    c) an estimate of time needed for participation in the research and the place
    d) if applicable, location of the research activity
    e) how you will ensure confidentiality
    f) in a longitudinal study, note when and how you will contact subjects later
    g) participation is voluntary; nonparticipation will not affect evaluations of the subject

13. ☐ Consent form (if applicable)

14. ☐ Letter of approval for research from cooperating organizations or institutions (if applicable)

15. ☒ Data-gathering instruments

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16. Anticipated dates for contact with subjects:
    First Contact   **Last Contact**

      April 24, 1992   May 30, 1992
        Month / Day / Year   Month / Day / Year

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:
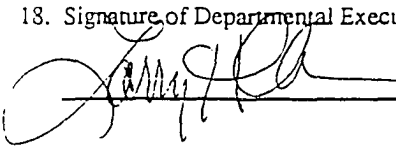
      September 1, 1992
        Month / Day / Year

18. Signature of Departmental Executive Officer   Date   Department or Administrative Unit

                         5/28/92

19. Decision of the University Human Subjects Review Committee:

    ☒ Project Approved   ___ Project Not Approved   ___ No Action Required

    Patricia M. Keith   6/4/92
    Name of Committee Chairperson   Date   Signature of Committee Chairperson

GC:1/90

Additional Page # 1

7 (continued)   Brief Description of Proposed Research

absent from class on the day the questionnaire is administered will be invited
to complete the questionnaire on an individual basis.

Part Two will entail individual researcher-conducted, tape-recorded oral
interviews of approximately one-hour's length with the class's top ten and bottom
ten students as measured by first semester sophomore grades. (See Addendum B.,
sample in-depth interview questions).

Student, faculty, and program profiles of characteristics/behaviors associated
with the most and least successful students will be generated.

North Iowa Area Community College and all of its divisions (including the
Health Related Division, of which the Associate Degree Nursing Program is one
component) are currently working to gain re-accreditation by the North Central
Association. A major part of the college's self-evaluation is directed at outcomes
assessment. Thus, the data involved in this research project are also being
gathered for use by NIACC as a part of this comprehensive college effort at
outcomes assessment.

8 (continued)   Modified Informed Consent:

This is implied by the subjects' completion of the survey instruments (filling
out the written questionnaire and orally answering the in-depth interview questions
on an individual basis).

Approximately one week prior to administration of the questionnaire a class
discussion on research was held. Included in this was an explanation of the
Nuremberg Code and its principles (Ellis and Hartley, pp. 302; 310), listed as
follows:

1. Voluntary consent of the human subject is essential.

2. Experiments should be so designed and based on the results of animal experi-
mentation and knowledge of the natural history of the disease or other problems
that the anticipated results will justify the experiment.

3. The degree of risk to be taken by the subject should never exceed the
potential humanitarian importance of the problem to be studied.

4. Through all stages of the experiment the highest degree of skill and care
should be required of those who conduct or engage in it, and the experiment should
be conducted only by scientifically qualified persons.

5. At any time during the course of the experiment, the human subject should
be at liberty to end participation in the experiment.

6. The scientist in charge must be prepared to terminate the experiment at
any stage if there is probable cause to believe that continuation of the experiment
is likely to result in injury, disability, or the death of the subject.

An assigned chapter in one of the students' textbooks formed the basis of this
discussion. See Ellis, Janice R. and Hartley, Celia L. (1991). Managing and
Coordinating Nursing Care. Philadelphia: Lippincott. (Chapter 13).

Prior to administration of the questionnaire the following paragraphs were read
to the students:

"During this last half hour we'd like to ask your help. As you know, your ADN
faculty and NIACC in general want to make your education the best it can be.
Therefore we would appreciate your helping us by filling out a questionnaire. All
information will be confidential. Although your name is included on the questionnaire,
this is only to determine who has completed a questionnaire. There will be no way
of identifying your answers in the data summary.

Participation in completing the questionnaire is voluntary, but if you are
willing, we would very much appreciate your participation. Please raise your hand
for clarification if any of the questions are not clear to you."

Additional Page # 2

8 (continued)   Modified Informed Consent:

When making an appointment to meet with individual students to conduct the oral interviews, I explained that the research was part of my doctoral dissertation and the purpose of the research was to improve the ADN program for future students. I stated the interview would take approximately one hour.

Prior to each oral interview with individual students the following statements were read:

"Have you agreed voluntarily to participate in this series of in-depth interview questions? (Student may answer 'yes' or 'no.') I want you to know that at any time you may choose not to answer a particular question or questions, and you may at any time choose not to continue the interview. Your answers will remain confidential and, though they will be used as part of the data gathered, they will not be identified in any way with your name. Answers will be most useful if they are as thoughtful, honest, and complete as possible. Thank you for your participation."

APPENDIX J

NIACC NURSING ASSOCIATE DEGREE

NURSING ASSOCIATE DEGREE

CAREER PROGRAMS

NORTH IOWA AREA COMMUNITY COLLEGE

Mason City, Iowa

NORTH IOWA AREA COMMUNITY COLLEGE
500 COLLEGE DRIVE
MASON CITY, IOWA 50401

CAREER PROGRAMS

North Iowa Area Community College is committed to the policy that all persons shall have access to its programs, facilities, and employment without discrimination based upon race, religion, color, creed, sex, national origin, age, physical or mental handicap. Any person having concerns with respect to rights under Section 504 of the Rehabilitation Act of 1973, and Title IX of the Education Amendments of 1972, please contact Dr. Jean Goodnow, Vice President for Student Services, in the Administration Building, Room 104B, telephone (515) 423-1264.

Whether or not you are interested in NIACC Career Programs, NIACC offers a variety of technical programs which prepare you quickly for the working world." This brochure explains the requirements and curriculum of the **Associate Degree Nursing** program.

For additional information about this program or other career opportunities, call NIACC at 421-1765 or 1-800-392-5685, Ext. 245.

Program Description

Associate Degree Nursing is designed to prepare men and women for general staff registered nursing positions which involve direct care of patients. There are two routes of entry into the program — one for beginning regular students and one for Licensed Practical Nurses. For beginning students entering in June, the program can be completed in one summer term and four academic terms.

Minimum standards for graduation are an overall grade point average of 2.00 (C) in the prescribed curriculum, a "C" in each nursing course, satisfactory achievement in clinical performance, and no more than four semester hours of "D" in required non-nursing courses.

Upon completion of the prescribed curriculum, the student is awarded an Associate in Applied Science Degree and is prepared to work in a beginning staff nurse position. Graduates are eligible to write the NCLEX-RN boards. After passing this examination, the graduate receives Registered Nurse status. The program is approved by the Iowa Board of Nursing and accredited by the National League for Nursing.

Entrance Requirements

The applicant must have a high school diploma or its equivalent and be in the upper half of the graduating class with a minimum of a 2.5 grade point average. However, evidence of equivalent academic achievement will be considered. The following courses are required with a grade of "C" or better: *Mathematics:* Program entry requires a minimum of four semesters of high school/college preparatory math (e.g., Algebra I, Algebra II, Geometry) or two semesters of college equivalent math. *Science:* Program entry requires two semesters of high school college preparatory chemistry or one semester of a college chemistry course and two semesters of high school/college preparatory biology or one semester of a college biology course.

It is recommended that 4-6 semesters of high school English and 4-6 semesters of social studies be taken. The ACT is required with a composite score of 20 or above for those who have graduated from high school less than 10 years ago. However, other academic achievements will be taken into consideration. An application, three completed reference forms, high school transcript or GED diploma, all college transcripts, and results of the ACT must be in the applicant's folder before the Admissions Committee takes action on acceptance into the Associate Degree Nursing program. Upon acceptance, a physical examination providing evidence of current immunization and sound physical and mental health is required.

The required related courses may be taken prior to enrolling or during the time the student is in the nursing program. However, the related course requirements scheduled for the freshman year must be fulfilled before the student can be enrolled as a sophomore.

Students who withdraw from the program must make formal application for re-entry and upon acceptance will be considered on a space available basis.

Suggested Schedule

FIRST TERM (SUMMER - 6 WEEKS)
70-109	Microbiology*	4 s.h.
30-101C	Communication Skills I*	3 s.h.
		7 s.h.

SECOND TERM (FALL)
70-250	Anatomy and Physiology I*	4 s.h.
80-239	Human Growth and Development*	3 s.h.
80-101	General Psychology*	3 s.h.
90-110	Nursing I	8 s.h.
		18 s.h.

THIRD TERM (SPRING)
70-251	Anatomy and Physiology II*	4 s.h.
70-209	Nutrition*	3 s.h.
90-111	Nursing II	10 s.h.
		17 s.h.

FOURTH TERM (FALL)
80-110	Sociology*	3 s.h.
90-210	Nursing III	12 s.h.
		15 s.h.

FIFTH TERM (SPRING)
30-102C	Communication Skills II*	3 s.h.
90-211	Nursing IV	12 s.h.
		15 s.h.

* Courses which may be taken prior to entering the nursing program.

NOTE: Prior to Nursing I, students are required to obtain CPR certification. They may select either Iowa Heart Association or American Red Cross classes to obtain this requirement.

NOTE: A separate brochure is available for LPNs wishing to enter the Associate Degree Nursing program.

APPENDIX K

ADDITIONAL TABLES

Table K1. "Value-added" gain arranged by marital status

	Single	Married	Divorced
	21	18	21
	30	19	30
	30	20	36
	31	23	
	33	23	
	34	29	
	40	29	
	50	30	
	56	31	
	58	33	
	70	35	
	71	38	
		38	
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		40	
		40	
		40	
		41	
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		56	
		58	
		60	
		61	
		61	
		64	
		65	

Table K2. Correlation data table: sorted by age

Student Age	Family Income Code	Employment Hrs/week	Total Study Time	Community Service Hrs/week	Pretest Score	Value Added Gain
50	4	0	14	8	104	39
46	5	8	21	0	84	45
46	2	20	15	0	103	30
45	6	10	14	7	112	29
44	5	24	10	0	134	33
42	1	16	11	3	126	21
41	2	20	30	4	101	58
41	4	20	10	1	111	19
39	6	8	16	0	108	44
38	5	32	14	2	97	61
38	2	0	10	8	115	35
38	4	12	12	4	116	45
36	2	25	7	3	125	18
36	6	4	8	4	109	40
35	1	30	16	3	114	30
34	2	20	4	0	115	34
34	2	16	28	2	128	40
33	4	40	13	1	124	29
32	5	0	12	5	97	38
32	1	0	18	5	140	23
32	2	32	15	0	89	41
31	5	30	5	0	98	41
31	1	20	10	1	101	30
31	6	0	28	2	127	30
30	-	0	30	4	78	51
30	-	0	30	1	108	20
29	1	0	8	3	110	36
29	3	0	18	3	113	38
29	3	8	6	2	82	61
29	1	13	5	2	110	23
27	1	0	9	4	126	31
27	1	15	13	2	100	21
26	2	12	14	1	87	41
26	3	18	12	0	100	44
25	3	0	12	0	88	64

Table K2 (continued)

Student Age	Family Income Code	Employment Hrs/week	Total Study Time	Community Service Hrs/week	Pretest Score	Value Added Gain
24	2	15	12	3	103	40
23	1	22	2	1	100	31
23	6	20	16	4	70	71
23	3	20	22	5	93	45
22	1	23	12	0	87	53
22	1	24	6	3	82	60
22	5	30	8	0	110	45
22	3	10	12	1	103	56
21	-	0	10	6	90	40
21	1	28	20	3	85	33
21	2	24	6	0	102	41
21	2	16	4	2	79	65
20	1	8	15	1	86	50
20	1	24	-	0	80	70
20	1	10	12	2	76	58
19	1	23	48	10	91	56

214

Table K3. Correlation data table: sorted by income code

Family Income Code	Student Age	Employment Hrs/wk	Total Study Time	Community Service Hrs/wk	Pretest Score	Value Added Gain
6	39	8	16	0	108	44
6	45	10	14	7	112	29
6	23	20	16	4	70	71
6	31	0	28	2	127	30
6	36	4	8	4	109	40
5	38	32	14	2	97	61
5	46	8	21	0	84	45
5	32	0	12	5	97	38
5	31	30	5	0	98	41
5	44	24	10	0	134	33
5	22	30	8	0	110	45
4	50	0	14	8	104	39
4	33	40	13	1	124	29
4	38	12	12	4	116	45
4	41	20	10	1	111	19
3	29	0	18	3	113	38
3	23	20	22	5	93	45
3	26	18	12	0	100	44
3	25	0	12	0	88	64
3	29	8	6	2	82	61
3	22	10	12	1	103	56
2	41	20	30	4	101	58
2	46	20	15	0	103	30
2	24	15	12	3	103	40
2	26	12	14	1	87	41
2	38	0	10	8	115	35
2	21	24	6	0	102	41
2	32	32	15	0	89	41
2	34	20	4	0	115	34
2	34	16	28	2	128	40
2	36	25	7	3	125	18
2	21	16	4	2	79	65
1	29	0	8	3	110	36
1	23	22	2	1	100	31

Table K3 (continued)

Family Income Code	Student Age	Employment Hrs/wk	Total Study Time	Community Service Hrs/wk	Pretest Score	Value Added Gain
1	21	28	20	3	85	33
1	27	0	9	4	126	31
1	19	23	48	10	91	56
1	22	23	12	0	87	53
1	35	30	16	3	114	30
1	32	0	18	5	140	23
1	22	24	6	3	82	60
1	20	8	15	1	86	50
1	31	20	10	1	101	30
1	20	24	-	0	80	70
1	42	16	11	3	126	21
1	29	13	5	2	110	23
1	20	10	12	2	76	58
1	27	15	13	2	100	21
	21	0	10	6	90	40
	30	0	30	4	78	51
	30	0	30	1	108	20

Table K4. Correlation data table: sorted by employment time

Employment Hrs/wk	Student Age	Family Income Code	Total Study Time	Community Service Hrs/wk	Pretest Score	Value Added Gain
40	33	4	13	1	124	29
32	38	5	14	2	97	61
32	32	2	15	0	89	41
30	35	1	16	3	114	30
30	31	5	5	0	98	41
30	22	5	8	0	110	45
28	21	1	20	3	85	33
25	36	2	7	3	125	18
24	21	2	6	0	102	41
24	22	1	6	3	82	60
24	44	5	10	0	134	33
24	20	1	-	0	80	70
23	19	1	48	10	91	56
23	22	1	12	0	87	53
22	23	1	2	1	100	31
20	41	2	30	4	101	58
20	46	2	15	0	103	30
20	23	6	16	4	70	71
20	31	1	10	1	101	30
20	34	2	4	0	115	34
20	23	3	22	5	93	45
20	41	4	10	1	111	19
18	26	3	12	0	100	44
16	34	2	28	2	128	40
16	42	1	11	3	126	21
16	21	2	4	2	79	65
15	24	2	12	3	103	40
15	27	1	13	2	100	21
13	29	1	5	2	110	23
12	26	2	14	1	87	41
12	38	4	12	4	116	45
10	45	6	14	7	112	29
10	20	1	12	2	76	58
10	22	3	12	1	103	56

Table K4 (continued)

Employment Hrs/wk	Student Age	Family Income Code	Total Study Time	Community Service Hrs/wk	Pretest Score	Value Added Gain
8	46	5	21	0	84	45
8	39	6	16	0	108	44
8	20	1	15	1	86	50
8	29	3	6	2	82	61
4	36	6	8	4	109	40
0	29	1	8	3	110	36
0	21	-	10	6	90	40
0	30	-	30	4	78	51
0	27	1	9	4	126	31
0	29	3	18	3	113	38
0	32	5	12	5	97	38
0	38	2	10	8	115	35
0	32	1	18	5	140	23
0	50	4	14	8	104	39
0	30	-	30	1	108	20
0	25	3	12	0	88	64
0	31	6	28	2	127	30

Table K5. Correlation data table: sorted by study time

Total Study Time	Student Age	Family Income Code	Employment Hrs/wk	Community Service Hrs/wk	Pretest Score	Value Added Gain
48	19	1	23	10	91	56
30	41	2	20	4	101	58
30	30	-	0	4	78	51
30	30	-	0	1	108	20
28	34	2	16	2	128	40
28	31	6	0	2	127	30
22	23	3	20	5	93	45
21	46	5	8	0	84	45
20	21	1	28	3	85	33
18	29	3	0	3	113	38
18	32	1	0	5	140	23
16	39	6	8	0	108	44
16	35	1	30	3	114	30
16	23	6	20	4	70	71
15	46	2	20	0	103	30
15	20	1	8	1	86	50
15	32	2	32	0	89	41
14	38	5	32	2	97	61
14	45	6	10	7	112	29
14	26	2	12	1	87	41
14	50	4	0	8	104	39
13	33	4	40	1	124	29
13	27	1	15	2	100	21
12	32	5	0	5	97	38
12	22	1	23	0	87	53
12	24	2	15	3	103	40
12	26	3	18	0	100	44
12	25	3	0	0	88	64
12	38	4	12	4	116	45
12	20	1	10	2	76	58
12	22	3	10	1	103	56
11	42	1	16	3	126	21
10	21	-	0	6	90	40
10	38	2	0	8	115	35

Table K5 (continued)

Total Study Time	Student Age	Family Income Code	Employment Hrs/wk	Community Service Hrs/wk	Pretest Score	Value Added Gain
10	44	5	24	0	134	33
10	31	1	20	1	101	30
10	41	4	20	1	111	19
9	27	1	0	4	126	31
8	29	1	0	3	110	36
8	22	5	30	0	110	45
8	36	6	4	4	109	40
7	36	2	25	3	125	18
6	21	2	24	0	102	41
6	22	1	24	3	82	60
6	29	3	8	2	82	61
5	31	5	30	0	98	41
5	29	1	13	2	110	23
4	34	2	20	0	115	34
4	21	2	16	2	79	65
2	23	1	22	1	100	31
-	20	1	24	0	80	70

Table K6. Correlation data table: sorted by community service

Community Service Hrs/wk	Student Age	Family Income Code	Employment Hrs/wk	Total Study Time	Pretest Score	Value Added Gain
10	19	1	23	48	91	56
8	38	2	0	10	115	35
8	50	4	0	14	104	39
7	45	6	10	14	112	29
6	21	-	0	10	90	40
5	32	5	0	12	97	38
5	32	1	0	18	140	23
5	23	3	20	22	93	45
4	41	2	20	30	101	58
4	30	-	0	30	78	51
4	27	1	0	9	126	31
4	23	6	20	16	70	71
4	36	6	4	8	109	40
4	38	4	12	12	116	45
3	29	1	0	8	110	36
3	21	1	28	20	85	33
3	29	3	0	18	113	38
3	35	1	30	16	114	30
3	24	2	15	12	103	40
3	22	1	24	6	82	60
3	36	2	25	7	125	18
3	42	1	16	11	126	21
2	38	5	32	14	97	61
2	34	2	16	28	128	40
2	31	6	0	28	127	30
2	29	3	8	6	82	61
2	29	1	13	5	110	23
2	21	2	16	4	79	65
2	20	1	10	12	76	58
2	27	1	15	13	100	21
1	23	1	22	2	100	31
1	26	2	12	14	87	41
1	20	1	8	15	86	50
1	20	1	8	15	86	50

Table K6 (continued)

Community Service Hrs/wk	Student Age	Family Income Code	Employment Hrs/wk	Total Study Time	Pretest Score	Value Added Gain
1	31	1	20	10	101	30
1	30	-	0	30	108	20
1	33	4	40	13	124	29
1	41	4	20	10	111	19
1	22	3	10	12	103	56
0	46	5	8	21	84	45
0	46	2	20	15	103	30
0	39	6	8	16	108	44
0	22	1	23	12	87	53
0	31	5	30	5	98	41
0	21	2	24	6	102	41
0	44	5	24	10	134	33
0	32	2	32	15	89	41
0	34	2	20	4	115	34
0	26	3	18	12	100	44
0	25	3	0	12	88	64
0	20	1	24	-	80	70
0	22	5	30	8	110	45

Table K7. Correlation data table: sorted by pretest score

Pretest Score	Student Age	Family Income Code	Employment Hrs/wk	Total Study Time	Community Service Hrs/wk	Value Added Gain
140	32	1	0	18	5	23
134	44	5	24	10	0	33
128	34	2	16	28	2	40
127	31	6	0	28	2	30
126	27	1	0	9	4	31
126	42	1	16	11	3	21
125	36	2	25	7	3	18
124	33	4	40	13	1	29
116	38	4	12	12	4	45
115	38	2	0	10	8	35
115	34	2	20	4	0	34
114	35	1	30	16	3	30
113	29	3	0	18	3	38
112	45	6	10	14	7	29
111	41	4	20	10	1	19
110	29	1	0	8	3	36
110	22	5	30	8	0	45
110	29	1	13	5	2	23
109	36	6	4	8	4	40
108	39	6	8	16	0	44
108	30	-	0	30	1	20
104	50	4	0	14	8	39
103	46	2	20	15	0	30
103	24	2	15	12	3	40
103	22	3	10	12	1	56
102	21	2	24	6	0	41
101	41	2	20	30	4	58
101	31	1	20	10	1	30
100	23	1	22	2	1	31
100	26	3	18	12	0	44
100	27	1	15	13	2	21
98	31	5	30	5	0	41
97	38	5	32	14	2	61
97	32	5	0	12	5	38

Table K7 (continued)

Pretest Score	Student Age	Family Income Code	Employment Hrs/wk	Total Study Time	Community Service Hrs/wk	Value Added Gain
93	23	3	20	22	5	45
91	19	1	23	48	10	56
90	21	-	0	10	6	40
89	32	2	32	15	0	41
88	25	3	0	12	0	64
87	22	1	23	12	0	53
87	26	2	12	14	1	41
86	20	1	8	15	1	50
85	21	1	28	20	3	33
84	46	5	8	21	0	45
82	22	1	24	6	3	60
82	29	3	8	6	2	61
80	20	1	24	-	0	70
79	21	2	16	4	2	65
78	30	-	0	30	4	51
76	20	1	10	12	2	58
70	23	6	20	16	4	71

Table K8. Correlation data table: sorted by "value-added" gain

Value Added Gain	Student Age	Family Income Code	Employment Hrs/wk	Total Study Time	Community Service Hrs/wk	Pretest Score
71	23	6	20	16	4	70
70	20	1	24	-	0	80
65	21	2	16	4	2	79
64	25	3	0	12	0	88
61	38	5	32	14	2	97
61	29	3	8	6	2	82
60	22	1	24	6	3	82
58	41	2	20	30	4	101
58	20	1	10	12	2	76
56	19	1	23	48	10	91
56	22	3	10	12	1	103
53	22	1	23	12	0	87
51	30	-	0	30	4	78
50	20	1	8	15	1	86
45	46	5	8	21	0	84
45	23	3	20	22	5	93
45	22	5	30	8	0	110
45	38	4	12	12	4	116
44	39	6	8	16	0	108
44	26	3	18	12	0	100
41	26	2	12	14	1	87
41	31	5	30	5	0	98
41	21	2	24	6	0	102
41	32	2	32	15	0	89
40	21	-	0	10	6	90
40	24	2	15	12	3	103
40	34	2	16	28	2	128
40	36	6	4	8	4	109
39	50	4	0	14	8	104
38	29	3	0	18	3	113
38	32	5	0	12	5	97
36	29	1	0	8	3	110
35	38	2	0	10	8	115
34	34	2	20	4	0	115

Table K8 (continued)

Value Added Gain	Student Age	Family Income Code	Employment Hrs/wk	Total Study Time	Community Service Hrs/wk	Pretest Score
33	21	1	28	20	3	85
33	44	5	24	10	0	134
31	23	1	22	2	1	100
31	27	1	0	9	4	126
30	46	2	20	15	0	103
30	35	1	30	16	3	114
30	31	1	20	10	1	101
30	31	6	0	28	2	127
29	45	6	10	14	7	112
29	33	4	40	13	1	124
23	32	1	0	18	5	140
23	29	1	13	5	2	110
21	42	1	16	11	3	126
21	27	1	15	13	2	100
20	30	-	0	30	1	108
19	41	4	20	10	1	111
18	36	2	25	7	3	125

Table K9. First and second semester scores and "value-added" gain

Semester 1 Scores	Value Added Gain	Semester 2 Scores	Value Added Gain
720.0	40	564.5	56
719.5	30	555.0	40
713.0	45	550.5	30
710.0	33	549.0	31
702.5	56	549.0	45
691.5	31	541.5	64
690.5	23	536.0	33
689.0	38	528.0	58
685.0	71	526.0	38
682.5	44	525.0	45
681.0	64	523.0	44
679.5	30	520.0	36
676.0	35	518.0	58
674.0	45	517.5	23
673.5	41	517.0	71
670.0	39	515.0	30
666.5	45	514.0	40
665.0	36	512.0	30
664.0	30	512.0	35
664.0	44	511.0	44
661.5	40	509.5	61
661.5	60	509.0	40
657.5	61	509.0	53
653.5	58	509.0	41
652.5	40	508.0	39
650.5	58	505.0	60
646.0	40	499.0	51
646.0	45	499.0	45
645.5	20	498.5	21
645.5	70	496.5	20
642.5	29	494.0	31
639.5	21	489.5	65
639.5	34	488.0	70
637.0	31	486.0	38

Table K9 (continued)

Semester 1 Scores	Value Added Gain	Semester 2 Scores	Value Added Gain
636.0	18	484.5	34
635.5	56	484.0	50
635.5	65	483.5	45
634.0	50	482.0	41
632.0	29	481.5	21
631.5	38	480.0	41
623.0	51	477.0	29
622.5	33	474.0	33
621.0	53	474.0	18
618.0	23	472.0	41
618.0	41	472.0	23
616.5	21	471.0	56
612.5	41	471.0	40
605.5	61	462.0	29
599.0	19	449.5	19
596.5	30	448.0	30
594.5	41	442.0	61

Table K10. First and second semester scores and posttest scores

Semester 1 Scores	Posttest Scores	Semester 2 Scores	Posttest Scores
720.0	168	564.5	159
719.5	157	555.0	168
713.0	161	550.5	157
710.0	167	549.0	161
702.5	159	549.u	157
691.5	157	541.5	152
690.5	133	536.0	167
689.0	151	528.0	159
685.0	141	526.0	150
682.5	152	525.0	129
681.0	152	523.0	152
679.5	144	520.0	146
676.0	150	518.0	134
674.0	129	517.5	133
673.5	139	517.0	141
670.0	143	515.0	133
666.5	155	514.0	143
665.0	146	512.0	150
664.0	144	512.0	144
664.0	133	511.0	144
661.5	142	509.5	143
661.5	143	509.0	140
657.5	143	509.0	139
653.5	134	509.0	130
652.5	130	508.0	143
650.5	159	505.0	142
646.0	149	499.0	155
646.0	138	499.0	129
645.5	128	498.5	147
645.5	150	496.5	128
642.5	153	494.0	131
639.5	147	489.5	144
639.5	149	488.0	150
637.0	131	486.0	135

229

Table K10 (continued)

Semester 1 Scores	Posttest Scores	Semester 2 Scores	Posttest Scores
636.0	143	484.5	149
635.5	144	484.0	136
635.5	147	483.5	138
634.0	136	482.0	143
632.0	141	481.5	121
631.5	135	480.0	130
623.0	129	477.0	141
622.5	118	474.0	143
621.0	140	474.0	118
618.0	163	472.0	128
618.0	143	472.0	163
616.5	121	471.0	149
612.5	128	471.0	147
605.5	158	462.0	153
599.0	130	449.5	130
596.5	131	448.0	131
594.5	130	442.0	158

Table K11. Age vs. pre- and posttest results

Student Age	Pretest Scores	Posttest Scores	Value Added Gain
50	104	143	39
46	103	133	30
46	84	129	45
45	112	141	29
44	134	167	33
42	126	147	21
41	111	130	19
41	101	159	58
39	108	152	44
38	116	161	45
38	115	150	35
38	97	158	61
36	125	143	18
36	109	149	40
35	114	144	30
34	128	168	40
34	115	149	34
33	124	153	29
32	140	163	23
32	97	135	38
32	89	130	41
31	127	157	30
31	101	131	30
31	98	139	41
30	108	128	20
30	78	129	51
29	113	151	38
29	110	146	36
29	110	133	23
29	82	143	61
27	126	157	31
27	100	121	21
26	100	144	44
26	87	128	41

Table K11 (continued)

Student Age	Pretest Scores	Posttest Scores	Value Added Gain
25	88	152	64
24	103	143	40
23	100	131	31
23	93	138	45
23	70	141	71
22	110	155	45
22	103	159	56
22	87	140	53
22	82	142	60
21	102	143	41
21	90	130	40
21	85	118	33
21	79	144	65
20	86	136	50
20	80	150	70
20	76	134	58
19	91	147	56

Table K12. Demographic data of the top ten group and the bottom ten group

Age		Income Range Code	
Top Ten	Bottom Ten	Top Ten	Bottom Ten
22	27	3	1
38	41	4	4
29	46	1	3
31	31	6	1
34	32	2	2
44	21	5	2
39	26	4	2
41	27	1	4
34	49	5	4
21	38	3	5

Total Study Time: Hrs./Wk		Community Service: Hrs./Wk		Hrs./Week Employed	
Top Ten	Bottom Ten	Top Ten	Bottom Ten	Top Ten	Bottom Ten
12	13	1	2	10	15
12	10	4	1	12	20
5	12	2	3	13	33
28	10	2	1	0	20
28	15	2	0	16	32
10	6	0	0	24	24
6	14	5	1	0	12
10	10	1	1	0	28
12	28	0	6	26	--
4	14	2	2	12	32