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**Effect of Outside Employment on Academic Success
Among Full-Time Associate Degree Nursing Students
by**

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A Dissertation Submitted to the Faculty of Old Dominion University
in Partial Fulfillment of the Requirement for the Degree of

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ABSTRACT

EFFECT OF OUTSIDE EMPLOYMENT ON ACADEMIC SUCCESS AMONG FULL-TIME ASSOCIATE DEGREE NURSING STUDENTS

Julian A. Moore
Old Dominion University, 2008
Director: Dr. Alan M. Schwitzer

Large portions of the United States are experiencing a shortage of nurses in the workplace. In 2001 the American Hospital Association reported that there were 126,000 vacancies for RNs nationwide. Sixty percent of all U.S. educated RNs who entered the field in 2000 received their education at the associate degree level and 79% of these associate degree recipients graduated from a community college. Improving completion rates in nursing programs is one major strategy in the effort to relieve this shortage of nurses.

The intent of this research was to study the effect of various factors on the academic achievement of students in associate degree nursing programs. The researcher collected data from participants at five Virginia community colleges who maintained nursing programs. All of the selected colleges were in rural or suburban areas in the western portion of the Commonwealth.

Consistent with the literature for the general college population, the researcher expected that full-time nursing students' GPAs would be most affected by the number of weekly hours of outside employment they maintained. Differences in traditional and non-traditional students, career-related and non career-related employment, social support, and perceived stress levels were also considered as contributing factors. This research study's findings indicated that,

contrary to the findings in previous literature, the positive influence of social support and the negative impact of stress affected GPA more than outside employment among this specific population. Social support explained seven percent of the variance among mean grade point average and perceived stress level explained an additional three percent.

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Dr. Patricia Huber was my personal cheerleader. On several occasions, her encouragement and friendship kept me from leaving the work unfinished in a box somewhere gathering dust. Words cannot adequately describe my appreciation for her assistance.

My mother, Frances Moore, believed in me. When I told her I was going back to college after 25 years, her response was that she always thought I should and what could she do to help. I wish she had lived to see me accomplish my goal.

Finally, I must recognize Teri, my wife of 33 years. She has endured much during this process and I sincerely appreciate her support and belief in me.

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	viii
 Chapter	
I. INTRODUCTION.....	1
OUTSIDE WORK AND DEGREE PROGRAM COMPLETION.....	2
OUTSIDE WORK AND ACADEMIC PERFORMANCE: CURVILINEAR RELATIONSHIP.....	3
OUTSIDE WORK AND ACADEMIC PERFORMANCE: TYPE OF EMPLOYMENT..	4
IMPACT OF SOCIAL SUPPORT.....	5
NURSING AND ALLIED HEALTH STUDENTS...	6
PURPOSE OF THE STUDY.....	7
SIGNIFICANCE OF THE STUDY	8
RESEARCH QUESTIONS.....	9
METHOD.....	10
DEFINITION OF TERMS.....	12
SUMMARY.....	14
 II. LITERATURE REVIEW.....	 17
FINDINGS FROM STUDIES OF HIGH SCHOOL STUDENT STUDENTS.....	18
DETRIMENTAL EFFECT.....	19
CURVILINEAR RELATIONSHIP.....	20
ADDITIONAL VARIABLES.....	22
LONG TERM EFFECTS.....	22
USE OF A MULTI-VARIATE MODEL.....	23
FINDINGS FROM STUDIES OF COLLEGE STUDENTS.....	24
WORK IN ASSOCIATION WITH FIELD OF STUDY.....	24
NO EFFECT WHEN WEEKLY WORKED HOURS ARE REASONABLE.....	27
CURVILINEAR RELATIONSHIP.....	28
CAREER DEVELOPMENT AND CAREER MATURITY.....	29
EFFECT OF OUTSIDE EMPLOYMENT ON DEGREE COMPLETION.....	32

	Page
USE OF A MULTI-VARIATE MODEL TO EXAMINE COLLEGE-LEVEL STUDENTS ON-CAMPUS VS. OFF-CAMPUS EMPLOYMENT.....	33 34
TRADITIONAL VS. NON-TRADITIONAL STUDENTS.....	37
STRESS AND SOCIAL SUPPORT.....	39
CONCLUSION.....	42
III. METHOD.....	43
PARTICIPANTS.....	44
MEASURES.....	49
DEMOGRAPHIC INFORMATION.....	49
EMPLOYMENT HISTORY.....	51
ACADEMIC ACHIEVEMENT.....	53
COURSE GRADES.....	53
NURSE ENTRANCE TEST (NET).....	54
STRESS.....	56
SUPPORT DIMENSION SCALE (SDS).....	57
PROCEDURE.....	59
CALENDAR.....	59
HUMAN SUBJECT REVIEW AND APPROVAL FROM THE VIRGINIA COMMUNITY COLLEGE SYSTEM.....	59
DATA COLLECTION.....	60
ANALYTIC APPROACH.....	62
RESEARCH QUESTION 1.....	63
RESEARCH QUESTION 2.....	63
RESEARCH QUESTION 3.....	64
RESEARCH QUESTION 4.....	64
RESEARCH QUESTION 5.....	65
RESEARCH QUESTION 6.....	65
HYPOTHESES.....	66
LIMITATIONS.....	67
SELF-REPORTED DATA	67
CONVENIENCE SAMPLE.....	67
DISSEMINATION/REPORT OF FINDINGS.....	68
IV. RESULTS.....	70
OVERVIEW.....	70
PRESENTATION OF RESEARCH FINDINGS	70
RELATIONSHIP OF WEEKLY EMPLOYMENT TO ACADEMIC ACHIEVEMENT.....	70
EFFECT OF TYPE OF STUDENT ON THE RELATIONSHIP.....	72

	Page
EFFECT OF TYPE OF EMPLOYMENT ON THE RELATIONSHIP.....	74
EFFECT OF LEVEL OF SOCIAL SUPPORT ON THE RELATIONSHIP.....	77
EFFECT OF LEVEL OF ANTICIPATED STRESS ON THE RELATIONSHIP.....	80
COMBINED EFFECT OF VARIABLES OF INTEREST ON THE RELATIONSHIP.....	84
V. DISCUSSION.....	88
SUMMARY AND DISCUSSION OF RESEARCH FINDINGS.....	88
RESEARCH QUESTION 1.....	88
RESEARCH QUESTION 2.....	91
RESEARCH QUESTION 3.....	93
RESEARCH QUESTION 4.....	95
RESEARCH QUESTION 5.....	97
RESEARCH QUESTION 6.....	98
IMPLICATIONS FOR PRACTICE.....	99
IMPACT OF WORK.....	100
SOCIAL SUPPORT.....	101
STRESS.....	102
LIMITATIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH.....	102
SUMMARY.....	105
REFERENCES	106
APPENDICES	
A. STUDENT INFORMATION SHEET	117
B. STUDENT DATA REPORTING FORMS.....	119
C. INFORMED CONSENT FORM.....	126
RELEASE OF INFORMATION (Sample)	
D. COURSES INCLUDED IN MAJOR GRADE POINT AVERAGE BY COMMUNITY COLLEGE.....	129
VITA	130

LIST OF TABLES

Table	Page
1. Independent and Dependent Variables with Corresponding Measures.....	11
2. Reconciliation of Initial Enrollment to Participation, by College....	44
3. 95% Confidence Intervals of Differences in NET Composite Scores, by College.....	47
4. One-Way Analysis of Variance Summary for Age, by College....	48
5. Reconciliation of Participants, Full-Time Enrollment, and Total Observations, by College.....	48
6. 95% Confidence Intervals of Mean Differences in Total GPA, By College	54
7. One-Way Analysis of Variance Summary for Stress Profile, by College.....	57
8. One-Way Analysis of Variance Summary for Support Dimension Scale, by College.....	58
9. Bivariate Linear Regression Analysis of Average Hours Worked per Week and GPA.....	72
10. Differences Between Participants Classified as Traditional and Non-Traditional Students.....	73
11. Hierarchical Regression Analysis for Predicting GPA.....	74
12. Differences Between Participants Classified as Engaging in Career-Related and Non Career-Related Employment.....	76
13. Hierarchical Regression Analysis for Predicting GPA.....	77
14. One-Way Analysis of Variance: Average Weekly Hours Worked by Social Support Level.....	78
15. One-Way Analysis of Variance: GPA by Social Support Level...	78

Table	Page
16. 95% Confidence Interval of Pairwise Differences in Mean Changes in Semester GPA by Social Support Level Grouping..	79
17. Correlation Results for Academic Achievement and Weekly Employment by Level of Social Support.....	80
18. One-Way Analysis of Variance: GPA by Perceived Stress Level	81
19. One-Way Analysis of Variance: Average Weekly Hours Worked by Perceived Stress Level.....	82
20. 95% Confidence Interval of Pairwise Differences in Mean Changes in Weekly Hours of Employment by Perceived Stress Level.....	83
21. Correlation Results for Academic Achievement and Weekly Employment by Level of Stress.....	83
22. One-Way Analysis of Variance: GPA by Combined Variables Of Interest.....	85
23. Means, Standard Deviations, and Unstandardized Regression Coefficients for Academic Achievement and Predictor Variables.....	86
24. Hierarchical Regression Analysis Summary for Variables Predicting Semester GPA among Community College Associate Degree Nursing Students.....	87

Effect of Outside Employment on Academic Success Among Full -Time Associate Degree Nursing Students

Chapter I

Introduction

Two- and 4-year colleges and universities in the United States are enrolling increasing numbers of students who maintain at least a part-time employment load along with a full-time academic course load (Riggert, Boyle, Petrosko, Ash, & Rude-Parkins, 2006). Employment among college and university students appears to have increased for several reasons.

First, higher educational costs have risen. For example, the average cost of tuition and fees at public and private four-year colleges and universities rose 38% between 1993 and 2002. The cost of a public four-year college education has increased 202% since 1981 while the Consumer Price Index has only risen 80% (Boehner & McKeon, 2003). Further, college student loan debt has increased. In fact, student loans now comprise about one-half of all financial aid received by students at 2- and 4-year higher educational institutions (Debard, 2000). Correspondingly, King and Bannon (2002) reported that 20% of full-time employed students worked 30 or more hours per week. Furr and Elling (2000) found that about 40% of entering freshmen at four-year colleges expect to get a job to help pay for college expenses, up from almost 35% in 1989.

Second, more non-traditionally aged learners now are enrolled in higher education. These non-traditionally aged learners often simultaneously fill multiple roles as full-time students, full- or part-time employees, and as parents or caretakers for other family members (Di, 1996). As the number of older students entering college for the first time or returning for re-training increases, it is expected that even great numbers of full-time students also will be full- or part-time employees (Riggert et al., 2006).

Outside Work and Degree Program Completion

Outside work may have an impact on college academic performance, with potential influences on both length of a student's program of study, and on his or her educational performance as measured by grade point average. Examining length of a student's program of study, the extant research suggests that many students choose to adjust their course load in a manner that distributes a program of study across one or more semesters in excess of the recommended program length. For example, Ehrenberg and Sherman (1987), Gleason (1993), and Jenke, Lyons, and Krachenberg (1993) found that student workers tend to decrease their academic course load rather than their employment load to maintain a desired grade point average (GPA). Similarly, Canabal (1998) studied 8,304 students and observed a similar non-significant inverse relationship between academic load and outside work. Further, Furr and Elling reported that the mean number of semesters to complete a baccalaureate degree increased from 8.4 semesters for non-working full time students to 9.9 semesters for

students who worked more than 16 hours a week and classified themselves as full-time students. In fact, when students work overly extensive hours at off-campus jobs, such as 30 hours or more, they appear less likely to complete their degrees even after 150% of the prescribed period for completion (Lundberg, 2004).

Federal financial aid regulations require a student to attempt 12 credit hours per semester to be considered full-time. Students pursuing an associate degree are eligible for Federal financial aid for three academic years and students pursuing a baccalaureate degree have six years of Federal financial aid eligibility (Student Assistance General Provisions, 2005). Therefore, because a typical associate degree requires approximately 65 credit hours and a typical baccalaureate degree requires 132 credit hours, students may often expand their associated degree programs to as many as three years, or bachelor's programs to as many as six years, while retaining full-time status. In this way, spreading out course requirements over additional years allows the student to adapt to employment schedules or other outside commitments while continuing to make reasonable progress toward degree completion.

Outside Work and Academic Performance:

Curvilinear Relationship

Turning to educational performance, previous researchers traditionally have suggested a curvilinear relationship between employment and academic achievement as measured by GPA, whereby outside employment of 16 hours or

less per week appears to be associated with better academic achievement (Canabal, 1998; Hammes & Haller, 1983; Hay and Lindsay, 1970; Hood, Craig, & Ferguson, 1992; Ma & Wooster, 1979) and outside employment of more than 20 hours per week appears to be associated with declining academic performance (Astin, 1977; Hood et al. 1992; Lahmers & Zulauf, 2000; Ma & Wooster; Paul, 1982). More generally, Hood et al. concluded that any "Special Commitment Activity" that consumes more than 15 hours per week of a student's time, for example, athletic participation, dance classes, or family obligations, has the same detrimental effect on academic achievement as employment (p. 450).

Outside Work and Academic Performance:

Type of Employment

Interestingly, some researchers have suggested that the apparent effects of outside employment on a student's grade point average may tend to vary according to the relationship between the student's type of employment, and his or her field of academic study. For example, in one early study, Ma and Wooster (1979) found that college students employed part-time in mental/verbal types of employment appeared to earn significantly better grades than those employed performing manual types of work.

Further, Hammes and Haller (1983) concluded that one factor that enabled students to maintain their GPA while working was a direct relationship of the job to their academic discipline, although the effect was not considered major. Students who reported that their job was relevant to their major field of study

exhibited a higher, though not statistically significant, average GPA than those reporting that their job was not relevant (Ma, 1984). Along these lines, DeYoung & Sorofman (1989) found that the grade point averages of pharmacy students working in nonpharmacy work environments tended to be lower than among those students who worked in pharmacy jobs. More recently, Hawkins, Hawkins, Smith, and Grant (2006) reported finding a similar trend among undergraduate social work students.

Impact of Social Support

The relationship between academic performance and life stressors is well documented in the literature. DeMeuse (1985) studied this relationship among psychology students and observed a significant inverse correlation between the two factors. Harris (1972) and Lloyd, Alexander, Rice, and Greenfield (1980) reported similar finding in studies they conducted on college underclassmen.

The availability of social support from family, friends, and co-workers may assist the student in handling the stressful effects of employment, academic demands, and other outside life demands. The extensive existing literature examining college students consistently suggests a positive linear relationship between academic achievement and availability of social support. For example, Cutrona, Cole, Colangelo, Assouline, & Russell (1994) reported that parental social support was a significant positive predictor of GPA for traditional students. Similarly regarding non-traditional students, Chartrand (1992) reported that social

support of family and friends was one important predictor of successful college adjustment.

Nursing and Allied Health Students

Some populations are of special interest regarding outside employment and academic success. Students in certain academic curricula and programs, such as those pursuing nursing and the allied health sciences, typically move through their coursework in cohort groups and therefore have much less opportunity to use the strategy of reducing their per semester course load and extending their course of study over a longer time-period. Also among students such as those in nursing and the health sciences, high specific GPA requirements exist for program continuance. Thus, the potential relationship between part-time employment and academic achievement among these students may have additional salience for these students. In fact, in one earlier study, DeYoung and Sorofman (1989) found that 60% of pharmacy students were employed while in the pharmacy program and that more than half said they would have considered extending their three year curriculum to four years to accommodate outside employment if the pharmacy program were structured to allow such flexibility in coursework.

Gaining a better understanding of the effects on nursing and allied health students is especially important because the current workforce shortage in the health professions (Bureau of Labor Statistics, 2006; SCHEV, 2004) has created tremendous opportunities for current entry-level healthcare providers to return to

college as an employer-sponsored student and obtain a degree that qualifies them to sit for the national licensing or certification examinations. This opportunity is not offered without restrictions, however. In Southwest Virginia, for example, a major acute health care provider offers complete tuition payment for its full-time employees if they enroll in specified "high demand" programs, agree to work on a full-time basis for two years after successful licensure or certification, and continue to work at least 16 hours per week while in the program (Carilion Clinic, 2007). In the Piedmont area of North Carolina, the largest non-university owned medical center identifies approximately 20 students each year that are newly enrolled in a local associate degree nursing program and offers each a full-tuition scholarship in return for working 24 hours per week (48 weekends a year) and full-time for one year after licensure (Moses Cone Medical Center, 2006).

Purpose of the Study

The purpose of this study was to examine the effects of part-time employment on the academic success of full-time associate degree nursing students. Although the literature tends to suggest that there exists a curvilinear relationship between hours worked per week and academic achievement in both the general high school and college populations, little analysis has been performed on the applicability of these findings to the specific population under study.

Significance of the Study

Community colleges are the primary educators of new registered nurses (RNs) in the United States. Sixty percent of all U.S. educated RNs who entered the field in 2000 received their education at the associate degree level and 79% of these associate degree recipients graduated from a community college (Viterito & Teich, 2002). The American Hospital Association (2001) reported that there were 126,000 vacancies for RNs nationwide. Of the 28 states that experienced a decline in the ratio of RNs to residents between 1996 and 2000, Virginia rated fifth with a reduction of 80 per 100,000 residents (Bureau of Health Professions Division of Nursing, 2001). Understanding the effect of outside employment on academic scheduling may assist occupational/technical programs to design course offerings to support the working student rather than creating conflict among competing demands. This, in turn, will assist in increasing the supply of nursing graduates from community colleges.

Further, the results of this study are potentially important to employers of these students. For example, if, as the literature related to the general high school and college population demonstrates, the required 16-24 hours of employment per week places the student on the downward portion of the curve, the employer may be better served by reducing the work requirement and, thereby, increasing the number and/or outcome quality of sponsored students who complete the program.

Research Questions

This study addressed six research questions concerning academic achievement among associate degree nursing students at five Virginia community colleges. The six questions are:

1. Is there a relationship between (a) the number of weekly hours students in an associate degree nursing program of study devote to employment and (b) student academic achievement?
2. Is the relationship between (a) hours of employment and (b) academic achievement for nursing students different for traditional and non-traditional or adult learners?
3. Is there a relationship between (a) the type of outside employment, i.e. career-related or non career-related, and (b) the impact of employment on academic achievement?
4. Is there a relationship between the level of "social support" and capacity for outside employment or "outside responsibilities" while pursuing the associate degree nursing?
5. Is there a relationship between (a) anticipated levels of stress and (b) the impact of employment on the academic achievement of learners pursuing an associate degree nursing?
6. Considering the variables studied, which are the greatest predictors of academic achievement in associate degree of nursing students?

Method

Three types of data were collected and analyzed for this quantitative study to investigate the relationship of outside employment and academic success in community college associate degree nursing students: self-reported data, standardized test scores, and earned grades in selected coursework. Data were collected from participants at five community colleges during the Fall 2006 and Spring 2007 academic year. Self-reported data were primarily demographic and employment load in nature. College personnel require a battery of standardized tests as a part of the regular admission process to these nursing programs and the resulting aptitude and stress index scores were furnished by the college nursing programs for use in this study. Additionally, the author administered the Support Dimension Scale to measure the level of social support each participant received. The respective college registrars provided grades in predetermined courses – see Appendix D for a listing of courses - and the author calculated semester and cumulative grade point averages (GPAs) for use as variables. The study's variables and measures are summarized in Table 1.

Participants consisted of essentially all of the entering associate degree nursing classes of five western Virginia community colleges. Of the 230 students enrolled at the beginning of the fall 2006 semester in the programs at the five colleges, 212 completed the semester and 208, or 98.1%, agreed to participate. Ten students had prior healthcare experience as a licensed practical nurse (LPN) or nationally certified paramedic/emergency medical technician (NCP/EMT) and this sub-set was segregated from the data in several instances to ensure that

Table 1	
Independent and Dependent Variables with Corresponding Measures	
Variable	Measure
Independent Variables	
<i>Demographics</i>	
Age	Self-report Information Sheet
Gender	Self-report Information Sheet
Ethnicity	Self-report Information Sheet
Years since completion of high school (or receipt of GED)	Self-report Information Sheet
Primary financial support	Self-report Information Sheet
Highest level of previous education	Self-report Information Sheet
<i>Semester Work History</i>	
Participation in outside employment	Self-report Data Sheet
Average amount of weekly outside employment	Self-report Data Sheet
Employment location	Self-report Data Sheet
Employment healthcare related	Self-report Data Sheet
<i>Pre-Enrollment Academic Characteristics</i>	
Composite Percentile Scores	Nurse Entrance Test (NET)
<i>Contributing Factors</i>	
Stress Profile Scores	NET
Social Support	Social Dimension Scale (SDS)
Dependent Variable	
Academic Success	Grade Point Average in required courses

they did not materially affect the results. Students self-select the nursing program they enter based upon proximity to their place of residence. Three of

the community colleges operate their associate degree nursing offerings as a joint program with a common curriculum. The remaining two colleges operate separate programs that follow similar, but not identical, curricula.

Definition of Terms

For purposes of this study, the following operational definitions will be used:

Associate degree nursing is defined as an educational program leading to the award of an Associate of Science in Nursing or an Associate of Applied Science in Nursing that, in turn, qualifies the recipient to write the National Council Licensure Exam (NCLEX-RN) for licensure as a registered nurse.

Career-related work is defined for this study as employment by a health care provider in a position that includes direct patient care or secondary contact with patients and health care practitioners in a clinical environment. Career-related work does not include employment that is primarily clerical or staff support, regardless of the physical location. Ultimately, the determination of whether work is career-related is made by the self-assignment of study participants.

Family support is defined as the level of non-monetary assistance provided by parents, grandparents, spouse, and other relatives in maintaining the non-educational aspects of a learner's lifestyle. Examples would include assistance in childcare or meal preparation and provision of emotional support and guidance.

Full-time employment is defined as paid or unpaid formal work responsibilities that average 35 or more hours per week. For the purpose of this study, full-time employment may include a significant commitment to a family-operated business for which no direct compensation is received.

Full-time student is defined as a learner who attempted 12 or more credit hours per semester as of the college's census date during the fall and spring terms.

Major courses are defined as those nursing and associated natural science courses that are a part of the required curriculum at a particular community college nursing program. These major courses are specified, by college, in Appendix C.

Non career-related work is defined as any outside employment that is not defined as career-related. Typically, non-career related work includes all employment that does not involve direct patient care or secondary contact with health care practitioners.

Nontraditional student or adult learner is defined as a student who is at least 24 years of age, living independently of parents, with or without spouse or children, and enrolled in college on a part-time or full-time basis. Nontraditional students typically have a break of at least five years in formal education between high school and entering college.

Off-campus work is defined as any employment by the student that does not meet the definition of on-campus work.

On-campus work is defined as employment by the student on the campus or auxiliary site of the college at which the student is enrolled. On-campus work includes clinical assistantships, employment by a vendor at an on-campus work location, and work-study positions. Ultimately, the determination of whether work is on-campus is made by the self-assignment of study participants.

Outside responsibility is defined as any obligation of a learner's time that the learner identifies as a surrogate to paid employment and that he or she determines is in excess of a typical level of responsibility. Examples would include, but not be limited to, the daily care of a mentally or physically challenged offspring or significant responsibilities for completing the daily tasks associated with the operations of a family farm or business.

Part-time student is defined as a learner who attempts less than 12 credit hours per semester during the fall and spring terms.

Traditional student is defined as a student under the age of 24 who derives substantial support from parents, and usually is unmarried and without children. The traditional student typically has not had a break of more than three years in formal education between high school and entering college.

Summary

The demand for nurses will continue to grow in the foreseeable future (SCHEV, 2004). Corresponding increases in the supply of these workers are necessary. To this end, in recent years numerous task forces and commissions on both a statewide and nationwide level have examined methods to increase

the size and accessibility of nursing programs (Chancellor's Task Force on Nursing Education, 2005; NLN, 2003; SCHEV, 2004).

Increased retention of students through successful completion of a nursing program is another major contributing factor to meeting this demand for nurses. Community colleges educate the majority of nurses in Virginia and nationwide (American Association of Community Colleges, 2006; Chancellor's Task Force on Nursing Education, 2005; Viterito and Teich, 2002). At the same time, attrition from Virginia community college nursing programs exceeded 44% in 2004 – 2005 (Virginia Board of Nursing, 2005). According to the American Association of Community Colleges (1997) (AACC) in almost 80% of the cases, the immediate reason for failure to continue in a nursing program of study through graduation is inadequate grades. While this study does not speculate on the core reasons that a student's grades fail to meet minimum standards to proceed to the next semester, only 20% of students who do not persist leave the program in good academic standing. Even assuming that some non-persisting students stop attending class but fail to withdraw, thereby earning failing grades, it appears reasonable to argue that many of these students continue to unsuccessfully attempt to balance academics and outside factors until such time as they can proceed no farther as a result of their grades.

Correspondingly, the primary purpose of this study was to examine the effect of several factors on academic achievement, in the form of grade point average, of students in community college nursing programs. It was expected that a better understanding of these factors and their relation to academic

achievement might provide educators and college student personnel with more effective tools and strategies for reducing nursing student attrition and improving student success.

This chapter has stated the specific research questions, delineating factors that may relate to academic achievement: average amount of outside employment on a weekly basis, social support factors, stress factors, and age and demographic characteristics of the student. A section of this chapter also defined these terms operationally as they apply to this study.

Chapter II

Literature Review

A primary mission of higher educational institutions in the United States is to assist learners to meet specified learning goals and outcomes. These goals and outcomes typically are measured by academic achievement, operationalized as grade point average (GPA). Substantial literature exists supporting the role of non-academic factors in learners' academic achievement. Among these non-academic factors, researchers consistently have reported significant relationships between student non-academic work hours and their academic achievement (Barone, 1993; Greenberger & Steinberg, 1986; Marsh, 1991). Although much research exists focusing on the impact of work on educational attainment among high school students and college and university learners, (Bella & Huba, 1982; Canabal, 1998; Furr & Eling, 2000; Lillydahl, 1990; Schill, McCartin, & Meyer, 1985), very few studies have drawn any distinction between two- and four-year colleges.

In general, the results of existing studies with both high school and college students, consistently suggest that outside employment at a weekly rate above a certain level, typically 15 – 20 hours, has a negative impact on academic achievement, as measured by grade point average (GPA). Employment at lower levels, meanwhile, has little negative or even a somewhat positive effect on academic achievement among completers of high school or college

The use of high school research on employment is useful to this study in providing a reference for the role of employment in the lives of college students. Most traditional-aged students tend to continue, with some adaptation, their pattern of high school work and social activity (Bozick, 2007). Generalizing from high school data, however, requires caution as high school students typically are in class most of the day while college students have greater flexibility in planning their academic schedules (Dundes & Marx, 2006).

Findings from Studies of High School Students

Many more high school students currently engage in outside employment than in the past. For example, Bracey (1998) reported that in 1998, 55% of American high school seniors were working more than 20 hours per week. In fact, outside employment has been encouraged by many scholars (Olsen, 1997; Ruhm, 1997; Stern, McMillion, Hopkins, & Stone, 1990). Further, the U.S. federal government has implemented programs during the past several decades to encourage outside employment among high school students. In the early 1970s, the President's Science Advisory Committee recommended that high school students acquire work experience to socialize them into adult roles. Early work experience was presumed to confer upon the students a partial autonomy through which they could practice responsibility and presumably enhance their labor-market prospects (President's Science Advisory Committee, 1974). Through programs such as the School-to-Work Act of 1994, the Federal government has continued to take an active role in encouraging collaboration

between schools and employers to develop programs that link school and work to enhance human resource development (Bailey, 1995; Osterman, 1995; Poczik, 1995).

Detrimental Effect

There is an accumulation of evidence; however, suggesting that outside employment during high school may tend to have a detrimental effect on educational attainment. For example, Carr, Wright, & Brody (1996) used the National Longitudinal Survey of Youth to study the effects of working while in high school on educational attainment and various labor force outcomes a decade after high school completion. They found moderate negative effects on educational attainment; working youth are less likely to attend or complete four or more years of college. Ruhm (1997) noted similar findings from his analysis of this same data set.

In another large-scale study, Greenberger and Steinberg (1986) examined the experiences of more than 3,000 10th and 11th grade high school students in a cross-sectional and longitudinal study. The cross-sectional data strongly suggested that tenth graders working more than 15 hours per week and 11th graders working more than 20 hours a week had significantly lower grades than did students who worked fewer hours.

Similarly, Marsh (1991), using the National Center for Education Statistics High School and Beyond (1980) and Sophomore Cohort Second Follow-up (1984) databases, indicated that the effect of hours worked by high school

students was statistically significant for 17 of 22 outcomes - all but one unfavorably. This study controlled for many background variables such as gender, socio-economic status, and ethnicity.

Warren, LePore, and Mare (2000) analyzed data from National Educational Longitudinal Study of 1988 (NELS88), a longitudinal survey of the eighth-grade cohort of 1988. Their study suggested a curvilinear relationship exists between number of hours worked, which they define as employment intensity, and the chances that a student drops out between grades 10 and 12. These authors found no compelling evidence that employment affects grades among those students who did not drop out.

Bringing much of these data together in a meta-analytical review, Bedenbaugh and Garvey (1993) concluded that in addition to the potential negative effects on academic success that are reported in these studies, extended hours of employment severely limited the extracurricular involvement of students in school-related activities.

Curvilinear relationship

In contrast to the suggestion that employment might negatively influence academic performance, other researchers found that modest amounts of outside employment may have positive effects on academic success, as measured by grade point average, attendance, and high school completion rates. For example, Wirtz, Rohrbeck, Charner, and Fraser (1987) studied 446 high school students planning to attend college and found a negative relationship between

working more than 20 hours a week and GPA. This research found no significant effect on GPA for students working less than 20 hours per week.

Examining these findings more closely, Schill, McCartin, and Meyer (1985) reported a statistically significant curvilinear relationship between employment and GPA in their large-scale study of 4,587 high school students. In this study, students who worked between 5 and 13 hours a week had the highest GPA; those working more than 20 hours per week or fewer than five hours a week had a lower GPA. Schill, et al. (1985) also reported that, contrary to their expectations, weekly time devoted to studying did not decline appreciably as hours of employment per week rose, but engagement in extracurricular high school related activities decreased significantly.

Marsh (1991) studied a subset of the High School and Beyond (HSB) database and reproduced comparable curvilinear findings on a sample of 1,400 rural students in grades 11 and 12. Further, he found reasonable consistency across ethnicity, gender, ability levels, and levels of socioeconomic status.

Likewise, Barone (1993) obtained similar results in his study of 2,000 upstate New York students in grades 10, 11, and 12. When he disaggregated the data by grade, he noted that the work in excess of 18 hours per week had less of a negative effect on 12th graders than on 10th graders. He further reported no significant differences in his observations by gender but did note stronger negative effects based upon ethnicity.

Quirk, Keith, and Quirk's (2001) analysis of the 15,552 participants in the National Educational Longitudinal Study (1988, 1990, 1992) further supported the

curvilinear relationship between outside employment and academic achievement, as measured by GPA, with a slightly positive curve from no work to a peak at 18 hours. The curve showed an increasingly negative relationship above 18 hours of employment per week. Interestingly, Quirk et al., using standardized test scores as a substitute measure of academic achievement, found no effect by outside employment, either positive or negative, until weekly hours worked exceeded approximately 16.

Additional Variables

Examining factors beyond time committed to outside work, other researchers have reported that academic performance does not decline as rapidly with increasing levels of employment if the intent is to save money for college (Hannah & Baum, 2001; Marsh, 1991), to assist family/parents in meeting normal expenses (Hannah & Baum), or if it is related to the expected program of college study (Kuh, 1995). Most employment assumed by teenage students, however, bears little relation to the knowledge and skills developed in school (Bedenbaugh & Garvey, 1993) nor provides knowledge and training on skill sets necessary for an expected career choice (Lillydahl, 1990); thus, the general finding of the curvilinear relationship remains applicable in most instances.

Long-term Effects

Whether or not part-time employment in high school has any effect on academic performance, it has positive lasting benefits on post-high school

employment. Ruhm (1997), using data from the National Longitudinal Survey on Youth, found that high school seniors employed about 20 hours a week continued to earn approximately 11% more annually nine years after graduation than their counterparts who did not work during high school. They were also more likely to receive pensions and health insurance from their employers. These favorable effects of senior year employment persist after controlling for a comprehensive set of background characteristics.

The findings of Carr, Wright, and Brody (1996) indicated that working during the 11th or 12th grade of high school had a positive effect on a variety of labor force outcomes (participation, employment status, and income) five years following the expected graduation date. These results remained consistent regardless of whether the student ultimately completed high school.

Ruhn (1997) recognized that the literature supports the premise that part-time employment in high school appears to reduce educational attainment. Nevertheless, he argued that the average long-term economic benefits attained from such employment as a high school senior outweigh the one percent decrease in college graduations rates observed for this group.

Use of a Multi-variate Model

Lillydahl (1990) applied a multivariate equation framework on a stratified national sample of more than 3,000 high school tenth and twelfth grade students to study alternative measures of academic success. The multivariate approach was selected because of limitations with previous studies, including conflicting

employment results, differences in measurements used, and the manner that the data were analyzed. The mean hours of employment for working students and the percentage of working students in the sample were consistent with the findings of Wirtz et al. (1987). The regression results used by Lillydahl suggested that the choice of measures for academic achievement – GPA, SAT verbal, SAT mathematical, and Test of Economic Literacy -affects the outcome. Using GPA as the dependent variable, the study indicated that modest levels of employment by high school students might actually improve academic performance. However, the results also indicated that students who work in excess of 15 or 20 hours per week were absent more often from school, spent less time on homework, and had lower GPAs and were less involved in high school activities.

Lillydahl (1990) and Warren, LePore, and Mare (2000) speculated that causality occurs in both directions in the relationship between employment and educational outcomes – that is, students who are performing poorly in school may turn to employment as an alternative avenue of achievement or fulfillment, whereas students who are performing well might limit how many hours they work in hopes of maintaining their success.

Findings from Studies of College Students

Work in Association with Field of Study

In comparison with the large volume of research on the effect of employment on the academic achievement of high school students, the amount

of research regarding labor force participation of college students has attracted far less attention (Bozick, 2007; Riggert, et al, 2006). The research on the relationship between employment and GPA in the postsecondary years has found negative effects similar to that found among high-school students.

Research into the relationship between employment and academic success among college students began in the mid-1950's, when Trueblood (1956, 1957) noted "a current trend" toward more full-time undergraduates maintaining part-time employment. Trueblood performed two studies of students at Indiana University and found that part-time employment had no effect on the academic achievement of the general college population, but increased the GPA of business students by 0.22 if the employment was career-related.

A study of 125 students at a satellite campus of The Pennsylvania State University by Hay and Lindsay (1969) supported the earlier findings of Trueblood concerning business students and found that the effect of employment on the grades of liberal arts students was mitigated for those with higher scholastic aptitude. They noted no appreciable difference in the effect part-time employment had on grades for arts and sciences student's when scholastic aptitude was factored into the analysis.

Hammes and Haller's (1983) study of a random sample of Cornell University students found no positive effect of employment on GPA; however their findings indicated that reasonable levels of off-campus employment had no adverse effect on academic performance especially if there was a direct

relationship of the job to their major. Their research found, however, that the effect was not considered major.

DeYoung and Sorofman (1989), studying pharmacy students, found results similar to those found by Hammes and Haller. They noted that the relationship curve between outside employment and GPA became negative for pharmacy students working in non-pharmacy jobs than those students working in pharmacy-related jobs. The mean GPA of both sub-sets of working students were essentially identical when weekly hours worked was held to less than 12 hours, when the curve for non-pharmacy jobs became negative. On the other hand, the slope of the curve for pharmacy related jobs did not become change until weekly hours worked exceeded 16. This result, however, was not statistically significant.

Goldstein and High (1992) surveyed a sample of undergraduates from nine primarily commuter colleges enrolling a high percentage of students who worked part-time. Their findings were consistent with Trueblood's and indicated that business students' GPA were not affected by off-campus employment until work exceeded 24 hours per week. On the other hand, these findings were inconsistent with those of Hay and Lindsay (1969) as Goldstein and High reported that arts and science students' experienced declining GPAs with weekly employment of approximately 14 hours.

No Effect When Weekly Worked Hours Are Reasonable

Barnes and Keene (1974) studied all freshmen at Southern Illinois University at Carbondale who received institutionally-sponsored financial aid and found no differences in initial academic adjustment, as measured by grades and satisfaction rankings of given for courses taken, between aid recipients who worked part-time and those students who did not. Work appeared to have little or no effect on grades or satisfaction until employed weekly hours was in excess of fifteen. Institutionally sponsored aid was awarded primarily to students demonstrating financial need who scored above the admissions average on scholastic aptitude tests, thus the two groups were expected to exhibit similar grade point averages.

Canabal (1998) studied approximately 4,900 undergraduates at Illinois State University. After controlling for several socioeconomic variables, the researchers noted a positive relationship between hours of weekly employment and GPA among students working less than 16 hours a week.

Hawkins, et al. (2005) surveyed 300 undergraduate social work students at two southwestern universities. In studying the relationship between outside employment and overall GPA, they found a slight inverse relationship between number of hours worked and GPA. Additionally, gender was the only demographic variable that had a statistically significant effect on the results, with females obtaining higher GPAs than males.

Of particular interest to this researcher, as a result of contrary findings, Light (2001) interviewed samples of traditional and non-traditional students from five

colleges in the greater Boston area. His samples included undergraduates pursuing a wide variety of majors. He found no significant relationship between work and grades. Light summarized the findings as “students who work a lot, a little, or not at all share a similar pattern of grades” (p.29).

Curvilinear Relationship

Ma and Wooster (1979) studied 600 full-time students at a Texas university. In contrast to the findings in earlier studies, they noted a curvilinear relationship between outside employment and GPA, with students who worked 15 hours or less a week demonstrating higher academic achievement than those who did not work or who worked more than 15 hours a week. Additionally they found a statistically significant correlation between type of employment – manual versus mental/verbal – and GPA degradation, after controlling for SAT scores. They concluded that college students employed part time in mental/verbal types of employment received significantly better grades than those engaged in manual work.

Hood, Craig, and Ferguson (1992) studied 2,856 students at the University of Iowa, consisting of 952 athletes, 952 non-athletes matched by gender, ethnicity, ACT composite score, and residential status, and 952 undergraduates in a random sample. Hood et al. considered “Special Commitment Activity” – athletic participation, dance classes, family obligations – and found that students who allocated six to 15 hours a week to these activities exhibited slightly higher GPAs than those who made no such commitment. Additionally, a special activity

commitment that consumed more than 15 hours per week of a student's time had the same detrimental effect on academic achievement as employment at similar levels.

In 2003, Dundes and Marx, 2006, studied a sample of 256 traditional aged students at a private college in Maryland. They found no apparent benefit to GPA for weekly outside off-campus employment of less than 10 hours per week, while those working between 10 and 19 hours a week excelled in the classroom. As is consistent with other research, students employed more than 19 hours a week experienced a decrease in GPA.

Career Development and Career Maturity

The results of several early studies suggested that part-time jobs, especially high-quality part-time jobs, may contribute to the career development of the college student. For example, Healy, O'Shea, and Crook (1985) studied 158 liberal arts majors and found a strong relationship between quality of employment during college and levels of career maturity. Students employed in higher status occupations also had higher GPAs and behaved more professionally. Similarly, Healy & Mourton (1987) reported that higher-level college jobs mediated the effects of anxiety on career development and academic performance. Healy and Mourton found that high quality employment might enable students of both genders to practice and improve work habits, time management, and communication skills, which contribute to an increase in GPA. In addition, in their early, large-scale study, Ma and Wooster (1979) noted that a job's relevance to

the major field of study in college had a positive effect on students' grades in major courses. The students who stated that their jobs were relevant to their field of study had a majors GPA of 2.98 in comparison to a majors GPA of 2.66 for those students in the study who did not indicate that their jobs were relevant to their program of study. The overall difference in the means of the two groups was considered conceptually significant.

More recently, among 256 students at a mid-Atlantic private liberal arts college, students with the highest GPAs were more likely to be employed in positions that related to their post-graduate plans or their college studies (Dundes & Marx, 2006). This observation held true for all levels of weekly outside employment and for both genders. Similarly Kane, Healy, and Henson (1992) examined the experiences of students at an urban west-coast university who were employed part-time in off-campus positions. Of the 1,438 respondents, 48.2% held part-time employment positions that the researchers classified as congruent with students' career interests. These students reported statistically significantly greater satisfaction with their jobs than did students in non career-congruent jobs. Students employed in engineering, health care, teaching, and computer-related occupations were significantly more likely to have part-time positions consistent with career aspirations. There were no identified differences in the findings by gender; however college juniors and seniors were more likely to work in these career-consistent positions than freshmen and sophomores.

Considering Kane, et al.'s (1992) results further, it is interesting to note that only 20.6% of the respondents believed that their jobs offered any opportunity for

using their education on the job. These researchers reported that the GPAs of those students employed” jobs congruent with their career interests” (p.141) were somewhat higher than those in positions not consistent with career aspirations. Additionally, they discovered that undergraduates employed in part-time jobs congruent with their career interests reported more satisfaction with their jobs than students whose work was not congruent with vocational interests.

Along these lines, Luzzo (1995) found additional positive factors associated with traditional students whose college employment was congruent with vocational interests and career aspirations. Luzzo’s research revealed that students employed in congruent working situations tended to exhibit higher levels of career maturity and greater knowledge of career decision-making principles than their peers whose employment was not related to their career interests.

These tentative research findings are in line with higher educational foundational theoretical concepts. Notably, In *Education and Identity*, Chickering (1969) suggested that adolescence and early adulthood are marked by individual growth along seven vectors of development – complex dimensions of cognitive, affective, and psychomotive transformation. He proposed that various aspects of college life (institutional objectives, curricula, student culture) are capable of influencing these transformations, both positively and negatively. Hammes and Haller (1983) argued that Chickering failed to recognize that paid work might play a similar role in student development. Their findings at Cornell University implied that part-time employment, and the need to balance the requirements of work

and school, plays an important part in the personal growth of students in a manner consistent with Chickering's theories.

Effect of Outside Employment on Degree Completion

Outside employment while attending college also has an impact on academic factors beyond GPA. Although there may be a potential benefit to GPA from limited part-time employment, early researchers suggested that – regardless of the numbers of hours worked per week – an inverse relationship may exist among part-time employment and completion of a degree on time (Astin, 1975, 1977; Ehrenberg & Sherman, 1987), as well as development of interpersonal skills and knowledge of the field or discipline (Astin, 1993).

More recently, Gleason (1993), working with the High School and Beyond survey (1980 – 1986), found that student workers seem to decrease their academic load rather than their employment workload to maintain a desired GPA, thereby increasing the number of years needed for graduation. Additionally, Gleason found that part-time employment in college is positively related to “dropping-out”. Canabal (1998) reported similar results from an analysis of the 1990 Status of Minorities in Education data.

Also along similar lines, one of the most powerful findings of a study performed by Furr and Elling (2000) documented that the more hours that college students worked, the greater they perceived a negative impact on academic progress. Further, Furr and Elling reported that the mean number of semesters to complete a baccalaureate degree increased from 8.4 semesters for non-

working full-time students to 9.9 semesters for those students who worked more than 16 hours a week and classified themselves as full-time students.

Further, in their study of social work students, Hawkins et al.(2005) report that 35% of employed students perceived that their work interfered “much” or “greatly” with their studies. This perception of work interference does not vary significantly among the weekly employment workload categories of 16-20 hours, 21-30 hours, and >30 hours per week. Analyses of covariance and multiple regression analysis indicated that the average number of hours worked and perceived work interference with studies were statistically significant negative predictors of GPA, even when the model controlled for gender, marital status, parental status, ethnicity, and age.

Lundberg (2004) found that working many hours at jobs off-campus had a negative effect on persistence and degree completion within 150% of the prescribed period for completion. This was especially true for students working over 30 hours per week in off-campus settings.

Use of a Multi-variate Model to Examine College-level Students

Di (1996) and Goldstein and High (1992) both attempted to replicate Lillydahl's (1990) examination of high school students using college student participant samples. Goldstein and High, in their study of nine commuter colleges on Long Island, found statistically significant correlations to academic achievement among the variables: employed hours per week and prior high school work experience ($r = .35, p < .01$), and between hours worked in college

and GPA ($r = .33, p < .01$) among Arts and Science students. The correlation between hours worked in college and GPA among business students was not significant.

Di (1996) found statistically significant correlations between college students' academic achievement (as measured by grades) and class absence ($r = -.22, p < .05$), number of credit hours attempted ($r = .25, p < .05$), study hours per week ($r = .16, p < .05$), work hours per week ($r = -.21, p < .05$), class meeting times ($r = -.40, p < .001$), and extracurricular activities ($r = -.17, p < .05$). He reported significant interrelated connections among these factors and noted the contextual factors that play significant roles in students' academic achievement are not limited to background cultural and socio-economic factors but include factors in the students' daily lives as well.

On-campus vs. Off-campus Employment

Studies in the extant literature seem to suggest that on-campus employment, particularly which is associated with Federal and college-funded work-study programs, does not have a relationship with academic achievement. For example, in an early study, Gaston (1973) found that students in work-study positions performed at the same level academically as a control group of non-working students. By comparison, students working in off-campus settings experienced slightly declining academic achievement. In another early study, Bella and Huba (1982) examined this research question more closely to determine if the type of on-campus position – clerical, manual, food service,

supervisory/technical – had any effect on grade point average. They found no significant differences in GPA based upon type of on-campus work.

Additionally, it appears that on-campus versus off-campus work may have different influences on college persistence. For example, Ehrenberg and Sherman (1987) reported that employment in off-campus jobs were negatively associated with persistence, whereas students who spent more hours working on campus were more likely to persist through graduation, and also to enter graduate school.

Turning to other outcomes of on-campus versus off-campus employment on college students, Lahmers & Zulauf (2000) found that part-time on-campus work had more positive effects on self-reported cognitive and affective growth than did off-campus work. Similarly, when Pascarella, Bohr, Nora, Desler, and Zusman (1994) examined the experiences of 210 first-year students at a Chicago university to determine part-time work's effect on cognitive outcomes, they found that on-campus employment tended to foster involvement with other students and with faculty, thereby enhancing the students' engagement in the college and academic experience. Furr and Eling (2000) performed a stratified random sample study of 1,200 students enrolled in a single, public institution. They found students working on campus were more likely to engage in club or campus organization activities ($X^2 = 39.92$, $df = 4$, $p < .005$) and were less likely to report that outside employment negatively impacted academic progress ($X^2 = 62.90$, $df = 4$, $p < .001$). These findings supported those of Pascarella et al.

One concern regarding off-campus employment is the traditional theory that activities which limit a student's peer interactions or physically separate the student from the campus environment may tend to reduce the usually expected impact of higher education on his or her cognitive and affective development (Astin, 1984, 1993). On the basis of this construct, institutions traditionally have attempted to increase, rather than decrease, student engagement with the campus environment (Astin, 1993). In fact, when they examined this question, Furr and Elling (2000) found that students tended to become less connected to the institution as they become more involved in off-campus employment – and that as students became more engaged in off-campus employment, they became less involved in critical learning experiences.

On the other hand, Kuh (1995) concluded that to the extent that part-time employment opportunities can be incorporated into a student's academic experience, these work experiences constitute additional opportunities to promote the student's academic and cognitive development, as well as their interpersonal and practical skills.

Further, when Pascarella, Edison, Nora, Hagedorn, and Terenzini (1998) re-examined these questions in a large longitudinal investigation of the factors that influence learning and cognitive development in college that controlled for pre-college student background characteristics (which Kuh, Furr and Elling, did not), they found only minor and inconsistent evidence to suggest that on-campus or off-campus work impeded learning or cognitive development, especially in the first and second years.

Traditional versus Non-traditional Students

Very little research has been conducting examining part-time employment and academic achievement among traditionally-aged versus non-traditionally aged learners. More commonly, studies examining the experiences of non-traditional students have focused on their differences with traditional students. Di (1996) noted that as non-traditional students increased their enrollment in colleges, full-time students are often simultaneously part-time or even full-time employees and/or parents with a variety of additional responsibilities and demands. It is known that coursework and other activities related to college are only part of adult learners' many responsibilities. Older students often have work, family, and community responsibilities outside of the educational environment. The educational orientation of older students tends to be instrumental rather than expressive and factors that are perceived as relevant to establishing a career are especially salient (Chartrand, 1992). Adults want their studies to apply practically to their lives and to interact with staff and faculty (Schlossberg, Lynch, and Chickering, 1989). Generally speaking, older, non-traditional college students tend to compensate for outside pressures more effectively than the traditional college-aged student. They do so by adjusting work hours according to academic demands, selecting jobs with flexible hours, and learning to study more effectively (Hammes & Haller, 1983).

At the same time, Schlossberg, Lynch, and Chickering (1989) found that adults tended to be highly motivated learners who are more involved in learning

and studying than are their younger peers. According to the study, these adult learners exhibited greater self-determination, acceptance of responsibility, and desire to maintain a high degree of control over their learning activities. Further, Bean and Metzner (1985) noted that most non-traditional students attend school primarily for vocational reasons. That is, they directly associate obtaining a degree with career advancement opportunities. They are less likely to obtain a degree than their traditionally-aged peers, but the factors that contribute to their lack of persistence still are not well understood.

Taking a closer look at this diverse population, Berker, Horn, and Carroll (2003) identified two distinct categories of non-traditional students. In 1999-2000, 65% of nontraditional students in undergraduate institutions considered employment their primary activity. These students tended to be older, attended college part-time, and were more likely to be married and to have children and/or other dependents. The remaining 35% primarily characterized themselves as students who worked to pay education and related expenses. Those who self-identified primarily as students" were significantly more likely to attend college full-time, work part-time, have fewer family responsibilities, and to persist through the completion of a program of study and obtain postsecondary credentials. Additionally, these learners were more likely to major in a health field (16 percent vs. 10 percent) than a student who classified himself or herself as primarily an employee.

Another important aspect of non-traditional learners is their apparent desire to be noticed. Whitt (1994) collected data from 1,300 students, faculty, and

administrators at 14 colleges and universities identified as providing high quality out-of-class experiences for undergraduates. Among the findings in her qualitative study were that, in order for adult learners to achieve their educational and developmental goals, they must feel they matter to their college, they are the objects of someone else's attention, and others care about and appreciate them.

Healy, O'Shea, and Crook (1985) suggested that career attitudes mature with age, and that their maturation enhances employability and facilitates academic achievement. Older college students are likely to hold higher-level jobs during college than younger college students. Thus the mediation of the age – GPA relation by career maturity may lead to more effective approaches to one's academic obligations. This, in turn, may lead to greater care in working, which will also increase the likelihood of acquiring higher-level work.

Stress and Social Support

The relationship between academic performance and life stressors is well documented in the literature. These constructs are salient to the present dissertation study because college employment might potentially serve as a stressor, a source of social support, or both. Further, availability of social support sources in a student's everyday life might help mitigate the stressful effects of employment plus academic and other demands when they encountered by non-traditionally aged adult learners.

Perceived social support is the belief that help would be available if needed. It provides positive expectations for interactions with others, increased self-

efficacy, and reduced stress and anxiety (Weiss, 1974). Weiss described six different social functions that may be obtained from relationships with others. He contended that all six functions are needed for individuals to feel adequately supported, although different functions may be most critical in certain circumstances or at different stages in the life cycle.

Cutrona and Russell (1987) began to develop the premise that Weiss' functions of "guidance", "reliable alliance", and "reassurance of worth" are critical to the full-time college student and that much of this support is found from others functioning in a parental role. Studying traditional college students, Cutrona, Cole, Colangelo, Assouline, and Russell (1994) expanded on this premise and found that those students who perceived their parents and older siblings as supportive were much more likely to have acquired the self-confidence to master new situations and cope effectively with challenge. The authors concluded that social support has positive effects of academic achievement.

Chartrand (1992) studied 347 (228 female, 119 male) nontraditional undergraduates at a large southeastern university and determined that environmental variables, notably family and friend support, was positively and directly related to both absence of psychological distress and intent to continue. On the other hand, family responsibilities did not meaningfully contribute to perceived psychological distress and intentions to continue.

Senter and Senter (1998) studied the perceived social support needs of traditional and nontraditional students living off-campus. They devised a four-point index (0 - 3) to measure employment status, marital status, and parental

status of students. Students with an index score of 0 were single, did not work while in school, and had no dependent children. Students with an index score of 3 were married, worked full-time, and had dependent children. Thus, the higher the index score, the more outside factors required time commitments apart from studying. Using a stratified random sample of 1,687 subjects – 962 aged 25 or older and 725 under age 25 - Senter and Senter found that 90.5% of the traditional (under aged 25) students earned an index score of 0 while 77.6% of the 25 and older age group scored from 1 to 3. It is not surprising, then, that the older student must adapt differently to the academic environment than the traditional student.

Recently, Kulm and Cramer (2006) examined the experiences of 500, primarily traditionally aged and residential, undergraduates in a mid-western university. They discovered that students tend to seek day-to-day social support from other students. These researchers also found a positive correlation between extra-curricular activities and attainment of self-perceived socializing needs. In the specific area of employment and college stress, Kulm and Cramer (2006) also reported a significant negative correlation between both the number of hours employed and participation in extra-curricular activities and between the perceived level of socializing and extent of employment. These findings led them to conclude that outside employment while maintaining a full-time college course load had a negative effect on a student's social and academic development. As such, the role of social supports in the life of students simultaneously pursuing a

demanding academic degree such as in nursing or health sciences, and employment, requires further study.

Conclusion

Taken together, the extant literature suggests that a curvilinear relationship tends to occur between employment and academic achievement among full-time students, regardless of the age of the student, with moderate outside employment of less than about 20 hours having no effect to a slightly positive effect on academic achievement while employment in excess of about 20 hours a week has a detrimental effect on academic achievement. The results of existing studies suggest that common characteristics of individual difference (such as gender, race, socio-economic status) tend not to mediate this curvilinear relationship when. The current dissertation study attempted to extend the knowledge-base by testing the applicability of these general findings with a specific target population – namely, associate degree seeking nursing students. Further, the current study was conducted to determine whether the extent to which the relationship between part-time employment and academic achievement might vary between traditional and non-traditional students.

CHAPTER III

Method

This was a quantitative, non-experimental post-test only study conducted for the purpose of addressing six research questions:

1. Is there a relationship between (a) the number of weekly hours students in an associate degree nursing program of study devote to employment and (b) student academic achievement?
2. Is the relationship between (a) hours of employment and (b) academic achievement for nursing students different for traditional and non-traditional or adult learners?
3. Is there a relationship between (a) the type of outside employment, i.e. career-related or non career-related, and (b) the impact of employment on academic achievement?
4. Is there a relationship between the level of “social support” and capacity for outside employment or “outside responsibilities” while pursuing the associate degree nursing?
5. Is there a relationship between (a) anticipated levels of stress and (b) the impact of employment on the academic achievement of learners pursuing an associate degree nursing?
6. Considering the variables studied, which are the greatest predictors of academic achievement in associate degree of nursing students?

Participants

This study used a convenience sample of full-time students enrolled in associate degree nursing programs at the five community colleges located in the western half of the Commonwealth of Virginia that utilized the Nurse Entrance Test (NET) as a portion of their admission criteria. The five community colleges studied – Blue Ridge Community College (BRCC), New River Community College (NRCC), Mountain Empire Community College (MECC), Southwest Virginia Community College (SwVCC), and Virginia Highlands Community College (VHCC) – enrolled a total 230 students in their entering fall 2006 nursing cohort. Table 2 provides a reporting of the 212 students who completed the fall 2006 semester. Two hundred and eight of these students at the five community colleges agreed to participate in the study, which represents a participation rate of between 95.0% and 100%.

Table 2
Reconciliation of Initial Enrollment to Participation, by College

College	Enrollment at		Participants	Percentage of Participation
	Fall 2006 Census Date	Completing Fall 2006 Semester		
BRCC	46	45	45	100.0%
MECC	46	43	43	100.0%
NRCC	56	52	51	98.1%
SwVCC	42	32	31	96.9%
VHCC	40	40	38	95.0%
Total	230	212	208	98.1%

MECC, SwVCC, and VHCC maintained a joint nursing program – the Virginia Appalachian Tri-college nursing program (VATC). A first-year class was located at each campus and then combined at a single site for the second year curriculum. BRCC and NRCC operated separate associate degree nursing programs. Although all three associate degree nursing programs were accredited by the Virginia State Board of Nursing and were offered by community colleges accredited by the Southern Association of Colleges and Schools (SACS), there was no statewide nursing curriculum.

During the initial development of this research project, several parties, including the Virginia Hospital and Healthcare Association (C. S. Bailey, personal communication, June 17, 2005), stated a perception that the applicant pool for available nursing class openings varied by region across the Commonwealth. Informal discussions with the program directors of the three surveyed nursing programs indicated that the demand for spaces in the nursing classes at several of the schools – primarily BRCC and VHCC – allowed those colleges to be more selective in their admissions. A preliminary analysis was needed to determine whether the selectivity of the colleges could be a factor in explaining the findings of this research. Using NET Composite Score as an indicator of the academic ability of the entering students, one-way between groups analysis of variance was conducted on the variables Age and NET Composite Score to explore this issue. There was a statistically significant difference at the $p = .05$ level in NET scores, [$F(4, 188.416) = 5.594, p = .000$]. Levene's Homogeneity of Variance for NET scores was significant at .001;

therefore Brown-Forsythe Robust Test of Equality of Means was utilized (Pallant, 2005).

Since the data could not be assumed to be homogenous, post hoc comparisons were performed utilizing the Dunnett's C test. Dunnett's C does not assume equal variances among the five groups (Green & Salkind, 2003). Post-hoc comparisons indicated that the mean score for BRCC ($M = 75.12$, $SD = 16.564$) was significantly different from MECC ($M = 55.60$, $SD = 19.893$), NRCC ($M = 61.56$, $SD = 25.118$), SwVCC ($M = 59.19$, $SD = 18.004$) and VHCC ($M = 59.39$, $SD = 22.518$). MECC, NRCC, SwVCC, and VHCC did not differ significantly among themselves. Table 3 presents the results of this analysis. The ANOVA conducted on participant age by community college indicated no significant differences, $F(4,203) = 1.628$, $p = .169$ (Table 4). Because of these findings, the researcher performed additional testing to determine additional demographic differences between the four aggregated colleges (MECC, NRCC, SwVCC, and VHCC) and BRCC.

Ten student participants entered the associate degree nursing program as either licensed practical nurses (LPN) or nationally certified paramedic/emergency medical technicians (NCP/EMT). The researcher believed these students would exhibit a natural tendency to seek outside employment in their originating profession and at wage levels above those that one would expect to be available to full-time students. Higher wages per hour may tend to decrease the number of hours per week that a student was willing to work, thus including these students in the data would tend to skew the average hours

worked results. Further, these students presented with a higher level of basic healthcare knowledge than their peers and, therefore, would have an easier time with the initial material covered. This greater initial knowledge cannot be expected to increase grade point average, however, since the findings of Allen, Higgs, and Holloway (1988) indicate that previous experience in these professions was not significantly related to class standing in an associate degree or baccalaureate degree-nursing program. The researcher found no significant differences in the average weekly hours worked or the average GPA between these 10 participants and the remaining 198 participants. Thus, based upon this small sample size, prior work experience as a licensed care provider had no effect on either variable.

Table 3
95% Confidence Intervals of Differences in NET Composite Scores, by
College

	M	SD	BRCC	MECC	NRCC	SwVCC
BRCC	75.12	16.564				
MECC	55.60	19.893	8.20 to 30.82*			
NRCC	61.56	25.118	1.13 to 25.98*	-19.22 to 7.31		
SwVCC	59.19	18.004	4.05 to 27.81*	-16.34 to 9.17	-11.39 to 16.12	
VHCC	59.39	22.518	2.96 to 28.48*	-17.37 to 9.79	-12.36 to 16.69	-14.26 to 13.86

Note: An asterisk indicates that the 95% confidence interval does not contain zero, and therefore the difference is significant at the .05 significance using Dunnett's C procedure.

Table 4
One-Way Analysis of Variance Summary for Age, by College

Source	df	SS	MS	F
Between Groups	4	523.247	130.812	.169
Within Group	203	16,312.863	80.359	
Total	207	16,836.110		

Of the 208 participants who completed the Fall 2006 semester, 12 did not qualify as full-time students, leaving 196 full-time participants for the fall semester. Of the 208 Fall 2006 participants, 176 entered and completed the Spring 2007 semester as full-time nursing students. Therefore, the database consists of 372 data pairings (semester GPA, weekly hours worked, type of work). Table 5 further provides a reconciliation of initial fall enrollment to participants.

Table 5
Reconciliation of Participants, Full-Time Enrollment, and Total Observations, by College

	Total Fall	Fall Full-Time	Total Continuing In Spring	Spring Full-Time	Total Valid Data Pairings
BRCC	45	45	44	44	89
MECC	43	39	37	36	75
NRCC	51	45	40	40	85
SwVCC	31	31	29	27	58
VHCC	38	36	30	29	65
TOTAL	208	196	180	176	372

Measures

Demographic Information

The student information sheet (Appendix A) was used to capture basic demographic information. Data collected included age, gender, ethnicity, traditional or non-traditional student status, enrolled credit hours, prior health care experience, and number of dependents. These data allowed the researcher to determine the comparability of the participants at the five community colleges to students in all VCCS nursing programs. Additionally, collection of basic demographic information allowed the researcher to examine whether findings varied along one or more of the demographic variables. This information was obtained during the second and third week of the fall 2006 semester. Guidelines for the self-categorization as a traditional or non-traditional student were included in the instructions to the participants: Non-traditional students are defined as at least 24 years of age, living independently of parents, with or without spouse or children, and typically having a break of at least five years in formal education between high school and entering college. Traditional students are defined as under the age of 24 who derive substantial support from parents, and are usually unmarried and without children. The traditional student typically had not had a break of more than three years in formal education between high school and entering college.

The participant populations by college did not appear to vary significantly by gender, ethnicity, provider of primary financial support, or dependents. However to ensure that demographic variation between the four aggregated colleges and

BRCC did not affect the results of hypothesis testing, a series of chi-square tests were performed.

The percentage of female participants was 85.3 % for the aggregated colleges and 91.1 % for BRCC. An independent-samples chi-square test was conducted to determine the significance of the gender percentage variation between the two groups. A preliminary check was conducted to ensure the assumption of expected frequencies in the cells was not violated. Using Yates' Correction of Continuity, the chi-square analysis indicated no significant difference, $\chi^2(1, N=208) = .591, p = .442$.

Additionally, all nursing cohorts were very ethnically homogeneous, with at least 93.5% of participants at each college self-reporting as Caucasian. There were only seven non-Caucasian participants – one African-American, two Asian Americans, one Hispanic, and three international students from the African sub-Saharan.

Approximately one-third of all participants indicated that their parents were their primary financial providers. An independent-samples chi-square test was conducted to determine the significance of the variation between the two groups. A preliminary check was conducted to ensure the assumption of expected frequencies in the cells was not violated. Using Yates' Correction of Continuity, the chi-square analysis indicated no significant difference, $\chi^2(1, N=208) = .000, p = .999$.

Of the 208 participants, 145, or 69.7% reported zero or one dependent on their 2005 Federal Income Tax return. The aggregated colleges reported 68.7%

in this category and BRCC reported 73.3% with zero or one dependent. The data were recoded into two categories – zero or one dependent and two or more dependents – to ensure the assumption of expected frequencies in the cells was not violated. An independent-samples chi-square test was conducted to determine the significance of the variation between the two groups. Using Yates' Correction of Continuity, the chi-square analysis indicated no significant difference, $\chi^2(1, N=208) = .171, p = .679$.

Employment History

During the final week of classes of both the fall 2006 and spring 2007 semesters, the participants completed the researcher-created questionnaires (Appendix B) to obtain self-reported actual average hours worked per week, if this employment was related to the chosen course of study, and if the work was on-campus or off-campus work. On-campus work includes clinical assistantships, employment by a vendor at an on-campus work location, and work-study positions while off-campus work is any other work. Career-related employment is defined for this study as employment by a health care provider in a position that includes direct patient care or secondary contact with patients and health care practitioners in a clinical environment. Career-related work does not include employment that is primarily clerical or staff support, regardless of the physical location. Career-related employment allows the subject to operationalize learned program concepts in the work environment. In all cases, the subjects were asked to self-report based upon their interpretation of these

definitions. The researcher found it necessary to re-code several participants' questionnaires from career-related employment to non-career-related employment when their self-reported job was clerical in nature but they coded their employment as career-related.

The data reporting questionnaires used at the end of each semester were essentially identical for each college. They differed only in the listing of classes taken, in accordance with the colleges' nursing programs of study. Additionally, the data reporting questionnaires used at each college in the spring included statements to ensure that only spring data, rather than cumulative data, were reported. The questionnaires have a Flesch Reading Ease score of 46.2 on a 100-point scale.

The 372 data pairings included 264 instances where the participant maintained outside employment while a full-time student. On-campus employment was reported in only 10 instances; therefore the researcher set aside any further review based upon this variable as a result of small sample size.

All colleges reported approximately one-half of their employed participants worked in positions related to their nursing education. The mean score of the results for the five colleges was 1.49 with a range of 1.39 (BRCC) to 1.57 (VHCC). An independent-samples chi-square test was conducted to determine the significance of the variation of mean type of work by college. The results of the test were not significant, $\chi^2(5, N=264) = 6.493, p = .165$.

Academic Achievement

Course Grades

Each college nursing program follows a program of study designed and approved by the college's faculty. Programmatic course material is distributed differently across course offerings, different course numbers are utilized, and a variety of non-nursing courses are required as a part of the respective programs. The researcher made no attempt to review the content of the courses to determine similarities. Instead, he relied upon the requirements of course content set forth by the Virginia Board of Nursing and by the Virginia Community College System to ensure comparability of overall programmatic content. Academic achievement of the participants was determined using the cumulative GPA of the nursing and major related courses required to be taken during the first year of the program (See Appendix D for a listing by college). Some individuals took one or more of these courses during a prior, unsurveyed semester and these courses were excluded when calculating GPA. Grades in each course were weighted by the assigned credit hours to calculate GPA in the standard manner.

During the first year of the nursing program, the hours of required curriculum courses completed during the first year of study varied from 25 at BRCC to 31 at NRCC. Additionally, participants may have enrolled in additional coursework during the surveyed semesters to meet the general graduation requirement of the community college. The researcher was concerned that this 38% variation in the number of credit hours of required major courses during the survey period might

limit the comparability among programs. A one-way between-groups analysis of variance was conducted to examine this disparity in first year required curriculum courses. Table 6 shows a statistically significant difference exists at the $p < .05$ level between BRCC and the other four community colleges [$F(4, 383)=20.798, p = .000$]. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for BRCC ($M = 3.2229, SD = .54283$) was significantly different from MECC ($M = 2.34199, SD = .74748$), NRCC ($M = 2.6447, SD = .66845$), SwVCC ($M = 2.4752, SD = .63608$), and VHCC ($M = 2.6225, SD = .70862$). Additionally, the post-hoc comparisons indicated that the mean score for NRCC was significantly different from MECC. There was no significant difference among any of pairing of the other four colleges.

Table 6						
95% Confidence Intervals of Mean Differences in Total GPA, by College						
	M	SD	BRCC	MECC	NRCC	SwVCC
BRCC	3.2229	.54283				
MECC	2.3419	.74748	.8810*			
NRCC	2.6447	.66845	.5782*	.3029*		
SwVCC	2.4752	.63608	.7478*	.1333	.1610	
VHCC	2.6225	.70962	.6004*	.2806	.0222	.1473

Note: An asterisk indicates that the difference in mean GPA is significant at the .05 level using the Tukey HSD test

Nurse Entrance Test (NET)

Educational Resources, Inc. specifically designed the NET for use as an admission-screening tool at both hospital-based and community and technical college nursing programs. Section 1 of the NET contains 60 items to evaluate

basic operations in mathematics that are essential for success in nursing education programs. Sections 5 and 6 evaluate reading comprehension for science-related material.

Members of the college's admissions staff administered the NET to all participants prior to admission to the respective nursing program as a part of the normal admission process. The composite percentile score was used to determine the comparability of the participants of the five colleges, based upon academic ability. As stated previously, independent-samples *t* tests on the distributions of Nurse Entrance Test (NET) composite percentile scores indicate that statistically significant differences exist between the mean NET scores of the participants at BRCC and each of the other four colleges. The *t* test results were not significant for any combination of pairs of colleges not including BRCC.

The NET is standardized by equating its individual composite percentile and the individual math and reading comprehension scores with the scores of the American College Testing Program (ACT) composite scores as well as its math and reading comprehension scores. The equating method associates the projected scores on the NET with the appropriate scores achieved on the ACT by the same test population. The ACT is widely used by colleges to determine the skill development of a college applicant for both reading comprehension and math. Studies between ACT and NET reading comprehension and math scores consistently yield correlations of $+0.80$ or better on the composite percentages, representing that the tests are parallel, that is they provide the same information (Frost, 2004). Additionally, split-half correlations serve as the reliability estimate from the norming sample. Reliability estimates for the subscores range from a low of $.81$ for the math subtest to $.98$ for reading comprehension (Albanese, 2005).

Stress

Section 3 of the NET test produces a self-perceived stress profile by calculating a stress index for each applicant in five areas of personal coping: family life, social life, the work place, academic adequacy, and time and money commitments (Frost, 2003). High scores indicate areas of personal stress that may cause difficulties for students as they progress through the program (Frost, 2004). The scores in each area represent the percentage of stressors selected. Scores from the five areas are added to produce the stress profile. The stress profile measures the self-perceived stress level of a learner at the beginning of coursework and forms a basis upon which to evaluate the relationship between stress and academic performance.

A study at Prairie View A&M University reported that individual components of the NET Stress Profile, when analyzed in step-wise regression with the NET Composite Score, explained as much as 7% of the variance in cumulative scores of students in basic nursing courses (Abdur-Rahman, Femea, & Gaines, 2004). Thus, the NET Stress Profile and its components are useful to the researcher in this study to gain a better understanding of the role that self-perceived stress has on a student's GPA.

The original standardization of the NET was based on the testing of 1,385 beginning nurses from programs in all four geographical regions of the United States. The reliability of the NET subtests areas for students who participated in the standardization was examined by the parallel-forms method (Frost, 2004). The reliability coefficient for the Stress Level Profile (referred to as Stress Decisions in the Frost article) was reported at .97, indicating that there is little internal variation in a student's performance from one form of the NET to the next.

The average Stress Profile score by college for this study was 127.45 (N = 204). Average Stress Profile scores by college varied from a low score at MECC of 113.95 to a high score at NRCC of 136.00. A one-way between-groups analysis of variance was conducted to determine whether the variation in average Stress Profile scores constituted significance. The analysis indicated no statistically significant difference exists at the $p < .05$ level among the five community colleges [$F(4, 199)=1.602, p = .175$] (Table 7).

Table 7				
One-Way Analysis of Variance Summary for Stress Profile, by College				
Source	df	SS	MS	F
Between Groups	4	13,217.126	3304.281	1.602
Within Group	199	410,457.380	2062.600	
Total	203	423,674.510		

Support Dimension Scale (SDS)

The SDS is a 44-item self-reporting questionnaire designed to assess the amount of support a participant receives from four different social sources - friends of the same gender, friends of the other gender, family, and helping professionals (Caldwell, Pearson, & Chin, 1987). The researcher used the SDS to investigate the impact of social support on a student's ability to maintain outside employment while successfully maintaining an acceptable GPA in the first year of a nursing program. The SDS yields four scores, each representing the amount of, and satisfaction with, support from four different social network sources (Caldwell et al.). The questionnaire consists primarily of 5-point Likert-

like scales ranging from “none” to “a great deal” or from “completely unsatisfied” to “completely satisfied”. Item statistics were computed for the individual items in each scale, each of which contains 11 items. Coefficient Alphas for measuring internal validity for each of the items in each scale range as follows: Friends same gender, .82 to .85; Friends other gender, .84 to .87; Family, .82 to .85; Professionals, .69 to .73 (Caldwell et al.). Split-half correlations for each of the four scales ranged from .83 for friends of the other gender to .96 for family in a study by Caldwell and Reinhart (1988).

The average Support Dimension Scale score by college for this study was 135.76 (N=207). Average SDS scores by college varied from a low score at NRCC of 128.43 to a high score at SwVCC of 140.73. A one-way between groups analysis of variance was conducted and indicated that no statistically significant differences exists among SDS scores at the $p < .05$ level among the five community colleges [$F(4, 202)=1.622$, $p = .170$] (Table 8).

Table 8				
One-Way Analysis of Variance Summary for Support Dimension Scale, by College				
Source	df	SS	MS	F
Between Groups	4	4549.020	1137.255	1.622
Within Group	202	141,650.900	701.242	
Total	205	146,199.920		

Procedure

Calendar

Most of the participants of the study at a college took all of their nursing and related coursework as a cohort. Several may have taken selected related coursework in a prior semester. Additional students joined the classes in the spring term. These students were repeating their second semester of clinical study and were not included in this study. The researcher used the primary program course offered in each semester of the first year of the respective program to survey the participants and collect data. As a result, at the end of the study, the researcher collected data for both primary semesters of the represented programs of study. Employment and GPA data were collected for 208 participants in fall 2006. One hundred and seventy six of the fall 2006 participants continued into the spring 2007 semester and provided employment and GPA data for this semester as well. This represents an 84.6% retention rate from fall to spring. When further parsed to remove part-time students, this allowed the researcher to consider 372 pairings of data.

Human Subject Review and Approval from the Virginia Community College System

Application for Exempt Research was filed with the Darden College of Education Human Subjects Committee on May 8, 2006. An amended application for the inclusion of the use of the Support Dimension Scale (SDS) was filed on June 8, 2006. Approval from the Committee was received on June 10, 2006.

On July 28, 2006, the researcher obtained permission from the Office of the Vice-Chancellor for Academics and Research of the Virginia Community College System (VCCS) to conduct this project within the VCCS, pending

approval from the individual colleges. Only one of the participating colleges had a committee in place to conduct a review of the proposed research; therefore, the college presidents of the remaining four community colleges conducted the review and provided approval, in accordance with VCCS policy, in lieu of a committee. Official letters of approval from the five colleges were received prior to data collection. Additionally, the directors of all three nursing programs indicated their willingness to have their program participate.

Data Collection

The community colleges operate on a 14-week semester. The first 2 weeks are considered the Add/Drop period where students may elect to withdraw from the program without penalty. The first day after the Add/Drop period is referred to as the Census Date and is the date when course rosters become final. The researcher met with the first-year cohort of associate degree nursing students at each of the selected community colleges three times.

At the beginning of the fall 2006 semester, the researcher met with each identified class and provided the participants with a brief description of the study, covering the topics of confidentiality, purpose, survey techniques, and time commitment by the participants. In two instances, the scheduled meeting with a class occurred prior to Census Date. In these instances, final census data were compared against collected demographic data and it was determined that all participants continued in the program at that time.

Students were advised of the voluntary nature of their participation and asked to sign an Informed Consent Form and a Release of Information Form (Appendix C). No participants were under the age of 18, thus no parental consent was necessary. The participants were assured that the researcher was

the only person who would be able to cross-reference responses to the identity of the student. Further, the researcher explained that the report of results would be of an aggregate nature where individual results will not be identifiable.

The initial data collection and explanation session consumed approximately 30 minutes of class time. Participants completed the Student Information Sheet (Appendix A) at this time and the appropriate college-specific forms necessary for the college registrar to release course grades and standardized test scores to the researcher.

The end of fall semester data collection occupied approximately 30 minutes of class time and involved completing both the Student Data Reporting form (Appendix B) and the SDS. The end of spring semester data collection took less than 15 minutes as only the Student Data Reporting form was completed.

The participants did not vary their normal routine in any way because of participation in the study; no records of employment hours were requested. However, the participants were asked to mentally maintain a rolling estimate of hours worked per week during the term. Several students chose not to participate in the study and were either excused from class or sat quietly at their desks, depending upon the preference of the instructor and the scheduling of the data collection sessions in relation to the scheduled class time.

The researcher obtained NET scores for each participant from the nursing program directors within four weeks of initial contact with the identified class session. The college registrars provided final grades when available after the end of each semester.

Analytic Approach

In summary, the data from the five colleges are similar in age, gender, ethnicity, primary financial support, dependents, self-perceived stress, and level of social support. Additionally, work characteristics did not vary significantly by type or amount and the number of participants reporting on-campus work was so small as to render any analysis useless. The data by college did exhibit significant differences in NET Composite Scores and GPA. The researcher analyzed each of the six research questions segregating the data into two datasets – one set for BRCC and a second set aggregating the four remaining colleges (MECC, NRCC, SwVCC, and VHCC). He found no statistically significant differences between the results obtained from the two datasets. Therefore, the data from all five community colleges were combined into a single dataset and the Results section of this study reports the findings from this aggregated database.

This nonexperimental, quantitative study uses descriptive, correlation, linear regression, and comparative methods to analyze the data to answer the six research questions. The descriptive statistics summarize the data and the results. Correlation analysis examines the association, if any, which exists between variables when the researcher has no control over the values of the variables of the study. Instead, the researcher can merely observe how the two variables of interest covary in the natural environment (Kachigan, 1986). Linear regression is used in those instances where causality is apparent between the variables. The regression equation defines the slope and intercept of the regression line which predicts the value of the dependent variable, given a value for the independent variable of interest (Huck, 2004). A comparative design is appropriate with respect dichotomous variables as it examines the differences

between the two groups; its purpose is not to establish cause but to identify differences (McMillan & Wergin, 2002).

Research Question 1

Is there a relationship between (a) the number of weekly hours students in an associate degree nursing program of study devote to employment and (b) student academic achievement?

This first research question used reported average weekly hours worked as the independent variable and program grade point average (GPA) as the dependent variable. The relationship between the variables was studied through the use of linear regression and correlation analysis. The researcher calculated the correlation coefficient (r) between paired values of interest. The correlation coefficient, which ranges in value from -1.00 to +1.00, signifies the strength of the linear relationship between paired values of interest. Key assumptions for the use of correlation analysis are a linearity of the data, a randomness of the variables, and a bivariate normal distribution of the variables of interest.

Research Question 2

Is the relationship between (a) hours of employment and (b) academic achievement for nursing students different for traditional and non-traditional learners?

This second research question added a dichotomous variable to the analysis by examining whether the results of the analysis done previously were statistically or practically different between traditional and non-traditional students. Regression analysis was appropriate for this question as its objective is "to assess the relative importance of the various predictor variables in their

contribution to variation in the criterion variable” (Kachigan, 1986, p. 239). Linear regression involves certain assumptions concerning the data, namely that for each x there is a probability distribution of independent values for y, that the variances of the y distributions are homoscedastic, and that the mean of the y distributions fall on the regression line (Kachigan).

Research Question 3

Is there a relationship between (a) the type of outside employment, i.e. career-related or non career-related, and (b) the impact of employment on academic achievement?

This research question substituted a different dichotomous variable to the analysis by examining whether the results obtained in research question 1 were statistically or practically different between students who are employed in career-related or non career-related jobs. The researcher used correlation analysis, and statistical comparison of the resulting correlation coefficients to study the effect this variable has on the academic achievement of the nursing student participants.

Research Question 4

Is there a relationship between “social support” and capacity for outside employment or “outside responsibilities” while pursuing the associate degree nursing?

In the fourth research question, this study attempted to determine whether an increased level of family social support had a beneficial effect on the ability of a student to continue outside employment while pursuing an associate degree nursing. First, the researcher analyzed the differences in the mean GPA and

weekly hours worked by three levels of social support by use of one-way analysis of variance (ANOVA) to determine whether these differences were statistically significant. Additionally, correlation analysis was utilized to study the impact that social support exerted on the relationship between academic achievement and weekly hours of employment among the nursing student participants.

Research Question 5

Is there a relationship between (a) anticipated levels of stress and (b) the impact of employment on the academic achievement of learners pursuing an associate degree nursing?

With this question, the researcher separated the data by the participants' self-perceived level of stress prior to entering the nursing program – low, medium, or high. Analysis of variance compared the differences in the mean GPA and weekly hours worked. Regression analysis and analysis of variance was used to determine whether stress had an impact on the relationship between GPA and weekly hours of employment.

Research Question 6

Considering the variables studied, which are the greatest predictors of academic achievement in associate degree of nursing students?

Finally, it is desirable to know the total explanatory power of a set of independent variables have in combination on the dependent variable. Through the use of multiple regression, the researcher was able to determine how much of the variation in the dependent variable was associated with variation in a set of independent variables. Calculation of the multiple correlation coefficient (R)

allows for a determination of how well a set of independent variables predicts the dependent variable of interest (Kachigan, 1986).

Hypotheses

1. There is a curvilinear relationship between the number of weekly hours an associate degree nursing student works and academic achievement that approximates the curvilinear relationship found in the literature for the general high school and college populations.
2. The peak of the curvilinear relationship between weekly outside employment and academic achievement will occur at a higher number of weekly hours worked for the non-traditional student than the traditional student.
3. Associate degree nursing students are able to work more hours weekly in a career-related job than in a non career-related job before a reduction in academic achievement is noted.
4. Higher levels of social support allows for students, particularly non-traditional students, to maintain satisfactory academic performance while being employed.
5. Higher levels of stress will reduce the amount of weekly outside employment an associate degree nursing student can assume without a decrease in academic performance.
6. Among all of the predictors of academic achievement considered in this study, weekly hours of outside employment will have the greatest impact on academic success, although the impact will be greater among traditional students.

Limitations

Self-reported Data

This study relies primarily on self-reported data. Although guidelines were provided to assist participants in providing accurate responses, naturally participants' viewpoints unexpectedly influence how they respond. Additionally, the internal validity of the study was naturally threatened by subject effects – subjects providing the answers they believe the researcher expected. Further, the participants were asked to report actual average work hours per week during the semester. Inconsistent work schedules, heavier at the beginning of the term than the end, for example, may have biased the self-reported average toward the more recent experience and not provided an accurate recap of the three to four month reporting period.

Of particular note is the limitation of self-reported data to the NET. Albanese (2005) argues in his review that the approach used by the NET to collect data for the stress profile is susceptible to self-report bias as it is dependent upon respondents making open and honest answers.

Convenience Sample

This study used a convenience sample of full-time students enrolled in associate degree nursing programs at three community college located in the western half of the Commonwealth of Virginia. Although all three associate degree nursing programs are accredited by the Virginia State Board of Nursing and are offered by community colleges accredited by the Southern Association of Colleges and Schools (SACS), there is no statewide nursing curriculum. The typical program of study at four of the surveyed schools offers maternal/child and psychiatric nursing in the spring of the first year with the second year of the

program being devoted to medical/surgical nursing. The fifth school in the survey offers the first of two semesters devoted to medical/surgical nursing in the spring of the first year and delays maternal/child and psychiatric nursing until the fourth, or final semester of their program of study. These differences could affect the comparability of academic success indicators among the three participating community colleges.

Additionally, certain topics, dosage calculations for example, were either be offered as a separate one or two credit hour course or integrated into larger course offering. Each program employed different instructors and utilized different textbooks. These environmental differences in teaching styles and material presentation may impact the academic success of participants.

The three programs chosen for study all serve a primarily rural and suburban population that exhibits less ethnic diversity than other areas of the state. Additionally, these areas were generally experiencing higher levels of unemployment than the eastern and northern regions of the state. The Virginia Hospital and Healthcare Association opines that increased unemployment in the west and southwest regions leads to both a higher perceived status of the nursing profession and an increased applicant pool for available nursing class openings (C. S. Bailey, personal communication, June 17, 2005). Factors such as these could have caused the results of the study to have limited generalizability to programs with more a more diverse student body.

Dissemination/Report of Findings

Findings from the study may be disseminated through a variety of arenas. First, the findings are recorded in an unpublished dissertation to partially fulfill the requirements for a doctor of philosophy degree in community college leadership

at Old Dominion University. Second, research findings may be published in appropriate professional journal articles. Third, results of the research is of interest to the VCCS and will be shared through its nursing program director peer group and its on-going task-force efforts to meet the demand for nursing graduates from VCCS colleges.

CHAPTER IV

RESULTS

Overview

The intent of this study was to examine the relationship between outside employment and academic achievement among nursing students pursuing an associate degree and to determine whether several secondary factors, including type of learner, type of employment, level of social support, and predicted level of stress, affect this relationship. Three types of data - self-reported data, standardized test scores, and earned grades in selected coursework – were used to examine the research questions.

Presentation of Research Findings

Relationship of Weekly Employment to Academic Achievement

Research Question 1: Is there a relationship between (a) the number of weekly hours students in an associate degree nursing program of study devote to employment and (b) student academic achievement?

To assess the relationship between outside employment and academic achievement, the researcher recoded the average weekly hours worked data to reflect the midpoint of each category. Thus, the raw data category “1 to 8 hours” became 5 hours, “9 to 16 hours” became 13 hours, “17 to 24 hours” became 21 hours, “25 to 32 hours” became 29 hours, and “more than 32 hours” became 37 hours.

The relationship between student academic achievement (as measured by semester GPA) and average weekly hours of outside employment was investigated using bivariate ordinary

++ least squares regression with semester GPA as the dependent variable and average weekly hours of outside employment as the predictor variable.

Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. It is important to note that a histogram of the data shows no curvilinearity in the plots of the data. The histogram did indicate a tailing off of the plot after the category "9 to 16 hours". Results are presented in Table 9.

The Pearson product-movement correlation indicated a very weak, non-significant, negative correlation [$r(372) = -.052, p = .313$] (Table 9). The regression equation for predicting GPA indicated a very slight negative slope to the regression line ($\beta = -.00281$). Both of these results are consistent with the expectation that GPA would decrease as average weekly hours worked increased. The R^2 of .003, however, suggests that weekly hours worked explained essentially none of the variance on GPA. Thus, there appears to be no statistically significant relationship between average hours worked and semester GPA for nursing students enrolled in an associate degree nursing program in a community college setting.

Table 9
Bivariate Linear Regression Analysis of Average Hours Worked per Week and GPA

	M	SD	N	r	R ²	Beta	Sig (2 tailed)
Semester GPA	2.71	0.73	372	-.052	.003	-.00281	.313
Avg Wkly Hrs	16.75	13.66					

Effect of Type of Student on the Relationship

Research Question 2: Is the relationship between (a) hours of employment and (b) academic achievement for nursing students different for traditional learners and non-traditional learners?

The first research question identified no significant correlation between academic achievement and outside employment for associate degree seeking nursing students. To determine whether this relationship differed based upon the type of learner – traditional vs. non-traditional – the researcher performed *t*-tests. The researcher then tested the effect of type of learning on GPA with hours worked as a covariate using ordinary least squares regression.

An independent-samples *t*-test was conducted to evaluate whether a difference existed between the number of weekly hours of employment for traditional students and non-traditional students. The researcher hypothesized that traditional students would work fewer hours than non-traditional students. However, the results found that traditional students worked more hours than non-

traditional students ($M_{\text{trad}} = 18.67$, $M_{\text{non-trad}} = 15.71$). The significance level of Levene's test for equality of variances was $p = .000$, therefore, equal variances were not assumed in this analysis. The test was significant, $t(306.77) = 2.006$, $p = .036$, traditional students worked significantly more hours than non-traditional students. The 95% confidence interval for the difference in means was wide, ranging from .1966 to 5.7278 (Table 10). The eta square index indicates that 1% of the variance of the average weekly hours worked variable was accounted for by type of student – traditional or non-traditional.

Additionally, an independent-samples t -test was conducted to evaluate whether a difference existed between the GPA of traditional students ($M = 2.614$) and non-traditional students ($M = 2.763$). The means and standard deviations of the two groups were very similar and the t -test was not significant, $t(370) = -1.89$, $p = .060$ (Table 10). Therefore, traditional and non-traditional students have the same GPA of around "C".

Table 10
Differences Between Participants Classified as Traditional and Non-Traditional Students

Predictor Variable	Traditional Students (N=131)		Non-Traditional Students (N=241)		df	t
	M	SD	M	SD		
Avg Wkly Hrs Wked	18.672	12.125	15.710	14.340	306.772	2.108*
GPA	2.614	.743	2.763	.721	370.000	-1.890

* Significant at the $p < .05$ level.

Using ordinary least squares regression with semester GPA as the dependent variable and hours worked as well as traditional versus non-traditional student as the predictor variables, the bivariate Pearson product-movement correlation of type of students and GPA indicated a weak, non-significant, positive correlation [$r(370) = .098, p = .060$] (Table 11). The bivariate regression equation for predicting GPA indicated a positive slope to the regression line ($B = .149$). The addition of average weekly hours of employment as a second predictor variable to the model provided essentially no additional predictive value as $R^2 = .010$ using only student type as the predictors and $R^2 = .011$ when using the combination of student type and weekly hours worked as the predictor.

Table 11					
Hierarchical Regression Analysis for Predicting GPA					
Variable	B	SEB	p	R^2	ΔR^2
Model 1				.010	
Student Type	.149	.079	.060		
Model 2				.011	.001
Student Type	.143	.080	.074		
Avg Wkly Hrs Worked	<.000	.003	.412		

Effect of Type of Employment on the Relationship

Research Question 3: Is there a relationship between (a) the type of outside employment, i.e. career-related or non career-related, and (b) the impact of employment on academic achievement?

Thus far, the researcher identified a weak, non-significant negative correlation between academic achievement and outside employment for associate degree seeking nursing students that did not appear to vary significantly by type of learner – traditional vs. non-traditional. This research question considered whether the relationship differed based upon the type of outside employment – career-related vs. non career-related. In answering this question, the researcher performed *t*-tests and subsequently tested the effect of type of employment on GPA with hours worked as a covariate using ordinary least squares regression.

An independent-samples *t*-test was conducted to evaluate whether a difference existed between the number of weekly hours of employment for participants engaging in career-related employment against those engaging in non career-related employment (See Table 12). The significance level of Levene's test for equality of variances was $p = .778$, therefore, equal variances were assumed in this analysis. The test was significant, $t(262) = 1.976$, $p = .049$, and consistent with the expectation that participants engaged in career-related employment would undertake more outside employment per week ($M = 24.793$, $SD = 10.102$) than those in non career-related employment ($M = 22.364$, $SD = 9.855$). The 95% confidence interval for the difference in means was wide, ranging from .0082 to 4.848. The eta square index indicates that 1.5% of the variance of the average weekly hours worked variable was accounted for by type of employment.

Table 12
Differences Between Participants Classified as Engaging in Career-Related and Non Career-Related Employment

Predictor Variable	Career-Related (N = 135)		Non Career-Related (N = 129)		df	t
	M	SD	M	SD		
Avg Wkly Hrs Worked	24.793	10.102	22.364	9.855	262	1.976*
GPA	2.662	.725	2.726	.749	262	-.704

* Significant at the $p < .05$ level.

Additionally, an independent-samples *t*-test was conducted to evaluate whether a difference existed between the GPA of participants engaged in career-related and non career-related employment. The means and standard deviations of the two groups were very similar and the *t*-test was not significant, $t(262) = -.704$, $p = .482$ (Table 13).

Using bivariate ordinary least squares regression with semester GPA as the dependent variable and career-related versus non career-related employment as the predictor variable, the Pearson product-movement correlation indicated a very weak, non-significant, positive correlation [$r(264) = .043$, $p = .482$] (Table 13). The regression equation for predicting GPA indicated an essentially horizontal regression line ($B = .006$). Neither predictor variable, individually or combined, explained any of the variance.

Table 13
Hierarchical Regression Analysis for Predicting GPA

Variable	B	SEB	<i>p</i>	R ²	ΔR ²
Model 1				.002	
Employment Type	.006	.091	.482		
Model 2				.003	.001
Employment Type	.006	.091	.536		
Avg Wkly Hrs Worked	<.000	.005	.521		

Effect of Level of Social Support on the Relationship

Research Question 4: Is there a relationship between the level of “social support” and capacity for outside employment or “outside responsibilities” while pursuing the associate degree nursing?

Another potentially important variable in the relationship between academic achievement and outside employment was the level of social support provided to the student by family and friends. To determine whether level of social support had an influence on academic achievement, the researcher recoded the data to provide three social support categories – low, medium, and high – based upon the SDS combination score. One-way analysis of variance was conducted to evaluate the differences in GPA and average weekly hours worked for the three categories.

The ANOVA on average weekly hours worked indicated no significant difference in hours worked by the three groups, $F(2,367) = 2.775$, $p = .064$ (Table 14). The mean weekly hours worked ranged from 14.9 to 18.6. The

difference in mean GPA was significant, $F(2,367) = 8.324$, $p = .000$, with the mean ranging from 2.526 for the group receiving low social support to 2.899 for the group receiving high social support. The strength of relationship between the level of social support and GPA, as assessed by η^2 , was low (Cohen, 1988), with social support level accounting for 4% of the variance in the dependent variable (Table 15).

Table 14
One-Way Analysis of Variance: Average Weekly Hours Worked by Social Support Level

Source	df	SS	MS	F	Sig.	Eta ²
Between Groups	2	18.631	9.316	2.775	.064	.015
Within Group	367	1231.899	3.357			
Total	369	1250.530				

Table 15
One-Way Analysis of Variance: GPA by Social Support Level

Source	df	SS	MS	F	Sig.	Eta ²
Between Groups	2	8.584	4.292	8.324	.000	.043
Within Group	367	189.222	.516			
Total	369	197.806				

Follow-up tests were conducted to evaluate pairwise differences among the means. As the variances among the three groups ranged from .485 to .573, the researcher chose to assume that the variances were homogeneous and

conducted post hoc comparisons using the Tukey HSD test. There was a significant difference in the means between the low social support group ($M = 2.526$) and the high social support group ($M = 2.899$), but no significant difference between the medium social support group ($M = 2.707$) and either the low or the high social support groups. Students with high social support earned, on average, three-tenths of a point higher GPA than students reporting low social support. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for the three social support groups, are reported in Table 16.

Table 16				
95% Confidence Interval of Pairwise Differences in Mean Changes in Semester GPA by Social Support Level Grouping				
SDS Group SDS score	M	SD	Low Support	Medium Support
Low Support 60 – 128	2.526	.757		
Medium Support 129 – 148	2.707	.701	-.397 to .035	
High Support 149 – 194	2.899	.696	-.588 to -.158*	-.406 to .022

* The mean difference is significant at the .05 level.

Pearson product-movement correlations were then calculated on each of the social support levels to determine whether social support had an effect on the relationship between GPA and weekly hours worked for each of the three levels of social support. This analysis yielded a very weak, negative correlation

for the low social support group [$r(121) = -.083, p = .367$], a weak, negative correlation for the medium support group [$r(123) = -.171, p = .058$], and no correlation for the high support group [$r(126) = .005, p = .952$] (Table 17). Thus, it is apparent that while level of social support has no observable effect on the relationship between academic achievement and weekly outside employment, increased levels of social support have a significant and positive effect on GPA.

Table 17			
Correlation Results for Academic Achievement and Weekly Employment by Level of Social Support			
	N	r	Sig (2 tailed)
Low Social Support	121	-.083	.367
Medium Social Support	123	-.171	.058
High Social Support	126	.005	.952

Effect of Level of Anticipated Stress on the Relationship

Research Question 5: Is there a relationship between (a) anticipated levels of stress and (b) the impact of employment on the academic achievement of learners pursuing an associate degree nursing?

The final factor that the researcher desired to consider as a possible influence on the relationship between academic achievement and outside employment was students' perceptions of the amount of stress they would bear while completing the first year curriculum of the nursing program. Participants were separated into three sub-sets, based upon NET Stress Profile scores (low,

medium, and high stress), and one-way analysis of variance was conducted to evaluate the differences in GPA and average weekly hours worked for the three stress levels.

The ANOVA on semester GPA indicated no significant difference by the three groups, $F(2,360) = 2.525$, $p = .082$ (Table 18). The mean semester GPA ranged from 2.6026 to 2.8162. The difference in mean weekly hours worked was significant, $F(2,367) = 6.826$, $p = .001$, with the mean ranging from 13.4032 for the group experiencing low stress to 19.3738 for the group experiencing high stress. The strength of relationship between the level of perceived stress and weekly hours worked, as assessed by η^2 , was low (Cohen, 1988), with perceived stress level accounting for less than 4% of the variance in the dependent variable (Table 19). It is interesting to note that the NET Stress Profile was completed by the participants prior to the beginning of the academic program of study. Given the positive relationship between level of stress and weekly hours worked, it appears that participants' stress levels may have been affected by their expected number of hours of weekly outside employment.

Table 18
One-Way Analysis of Variance: GPA by Perceived Stress Level

Source	df	SS	MS	F	Sig.	Eta ²
Between Groups	2	2.705	1.352	2.525	.082	.014
Within Group	360	192.843	.536			
Total	362	195.547				

Table 19
One-Way Analysis of Variance: Average Weekly Hours Worked by Perceived
Stress Level

Source	df	SS	MS	F	Sig.	Eta ²
Between Groups	2	44.330	22.165	6.826	.001	.037
Within Group	360	1168.993	3.247			
Total	362	1213.322				

Follow-up tests were conducted to evaluate pairwise differences among the means. As the variances among the three groups ranged from 2.286 to 3.733, the researcher chose to assume that the variances were not homogeneous and conducted post hoc comparisons using the Dunnett's C test, a test that does not assume equal variances among the three groups. There was a significant difference in the means between the low stress group ($M = 13.403$) and the high stress group ($M = 19.374$), but no significant difference between the medium stress group ($M = 17.318$) and either the low or the high stress groups. On average, the students in the high stress group work six more hours per week than students in the low stress group. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for the three social support groups, are reported in Table 20.

Pearson product-movement correlations were then calculated on each of the levels of stress – low, medium, and high. A significant, but weak, positive correlation between GPA and weekly hours worked was obtained for the participants with low perceived stress group [$r(124) .227, p = .011$] and a

significant, weak, negative correlation between the variables in the participants reporting medium levels of perceived stress group [$r(132) = -.251, p = .004$].

Among participants reporting high levels of perceived stress, the correlation of GPA and weekly hours worked showed a weak, negative correlation that was not significant group [$r(107) = -.107, p = .273$] (Table 21).

Table 20

95% Confidence Interval of Pairwise Differences in Mean Changes in Weekly Hours of Employment by Perceived Stress Grouping

Stress Grouping NET Stress Score	M	SD	Low Stress	Medium Stress
Low Stress 30 – 90	13.403	14.214		
Medium Stress 100 - 130	17.318	13.995	-8.099 to .269	
High Stress 140 - 250	19.374	11.395	-9.974 to -1.967*	-6.146 to 2.035

* The mean difference is significant at the .05 level.

Table 21

Correlation Results for Academic Achievement and Weekly Employment by Level of Stress

	N	r	Sig (2 tailed)
Low Stress NET Stress score 30 – 90	124	.227*	.011
Medium Stress NET Stress score 100 - 130	132	-.251**	.004
High Stress NET Stress score 140 - 250	107	-.107	.273

* Correlation is significant at the .05 level.

** Correlation is significant at the .01 level.

Level of stress appears to have an effect on the relationship between academic achievement and outside employment, explaining 5% of the variance among the participants who perceive they have low stress ($r^2 = .051$) and 6% of the variance among those with self-perceived medium stress ($r^2 = .063$). Additionally, the anticipated amount of hours of employment that a participant needed to meet his or her financial needs appears to negatively affect the level of stress that is perceived.

Combined Effect of Variables of Interest on the Relationship

Research Question 6: Considering the variables studied, which are the greatest predictors of academic achievement in associate degree of nursing students?

To this point, the researcher has observed a weak, negative relationship between academic achievement and average weekly hours worked in full-time associate degree nursing students. The impact of four additional variables – type of student, career-related or non career-related employment, level of social support, and level of perceived stress – have been considered on the basic comparison of interest. To determine which variables are the greatest predictors of academic achievement among the student participants of this study, a multiple regression was conducted. Specifically, the researcher regressed GPA on hours worked, type of student, type of employment, level of social support, and level of perceived stress. The hypothesis was that hours worked would have the greatest effect on GPA.

The linear combination of independent variables was significantly related to GPA, $F(5,251) = 6.718, p < .01$. The sample multiple correlation coefficient was .344, indicating that approximately 12% of the variance in GPA in the sample can be accounted for by the linear combination of the variables (Table 22).

Table 22						
One-Way Analysis of Variance: GPA by Combined Variables of Interest						
Model	df	SS	MS	F	Sig.	Eta ²
Between Groups	5	16.521	3.304	6.718	.000	.118
Within Group	251	123.452	.492			
Total	256	139.972				

In Table 23, the researcher presents indices to indicate the relative strength of the individual predictors. The bivariate correlations between GPA and two variables - average weekly hours worked and stress level – were negative, as expected. The correlation with stress level was statistically significant ($p < .05$). The resulting bivariate correlations with the remaining three predictor variables were positive, as anticipated based upon prior analysis. Additionally, correlations with student type (traditional vs. non-traditional) and social support were statistically significant ($p < .05$).

The greatest predictor of academic achievement appears to be social support, which explains approximately 7% of the variance. Stress level explains an additional 3% and the remaining three variables – weekly hours of outside

employment, type of student, and type of employment - explain the remaining 3% (Table 24).

Table 23							
Means, Standard Deviations, and Unstandardized Regression Coefficients for Academic Achievement and Predictor Variables							
	M	SD	1	2	3	4	5
Semester GPA	2.69	.734	-.050	.085*	.061	.230*	-.199*
Predictor Variables							
1. Wkly Hrs Worked	23.43	9.929	--	.104	-.106	-.063	-.063
2. Student Type (Trad – Non Trad)	1.57	.496		--	-.239	-.227	-.041
3. Work Type (Career – Non Career)	1.50	.501			--	-.034	.064
4. Social Support	2.09	.803				--	-.086
5. Perceived Stress	2.09	.793					--

* Significant at $p < .05$.

Table 24
Hierarchical Regression Analysis Summary for Variables Predicting Semester
GPA Among Community College Associate degree nursing Students
(N = 251)

Variable	B	SEB	p	R ²	ΔR ²
Model 1				.003	.003
Wkly Hrs Worked	<.000	.005	.424		
Model 2				.011	.008
Wkly Hrs Worked	<.000	.005	.343		
Student Type (Trad – Non Trad)	.136	.094	.146		
Model 3				.017	.006
Wkly Hrs Worked	<.000	.005	.401		
Student Type (Trad – Non Trad)	.164	.096	.088		
Work Type (Career – Non Career)	.120	.095	.207		
Model 4				.086	.069
Wkly Hrs Worked	<.000	.005	.511		
Student Type (Trad – Non Trad)	.264	.096	.006		
Work Type (Career – Non Career)	.159	.092	.085		
Social Support	.250	.057	.000		
Model 5				.118	.032
Wkly Hrs Worked	<.000	.004	.397		
Student Type (Trad – Non Trad)	.251	.094	.008		
Work Type (Career – Non Career)	.171	.091	.061		
Social Support	.233	.057	.000		
Perceived Stress	-.168	.056	.003		

CHAPTER V

DISCUSSION

The purpose of this study was to examine factors that affect academic achievement in associate degree nursing students in five Virginia community colleges. These factors included level of weekly outside employment, type of student – traditional or non-traditional, type of employment – career-related or non career-related, social support and perceived stress. Examination of these variables for this study was organized around six research questions. This final chapter summarizes and discusses important findings pertaining to each of the research questions examined. This chapter also presents implications for research and practice as well as a limitations of the study and recommendations for future research.

Summary and Discussion of Research Findings

Research Question 1: Is there a relationship between (a) the number of weekly hours students in an associate degree nursing program of study devote to employment and (b) student academic achievement?

The extant literature regarding both high school students and college learners strongly suggests a negative relationship between average weekly employment and academic achievement, especially when hours worked exceeds about sixteen per week. A majority of the literature reports that work has either no effect or a slightly positive effect on GPA when weekly hours worked remains less than about 16. Thus, based upon the literature, in the current study it was

hypothesized that a relationship would exist between the numbers of weekly hours an associate degree nursing students worked and academic achievement that approximated the curvilinear relationship reported in the literature for the general high school and college populations.

Results of the current study suggested a weak, negative linear relationship between the numbers of weekly hours an associate degree nursing student works and academic achievement. No curvilinearity was noted in the sample used for this study, thus the hypothesis was not supported. A plot of the current study's results, however, showed essentially no variation in academic achievement among the first three weekly work ranges – no work, 0 – 8 hours, 9 – 16 hours – and a slight inverse relation after the third work range. This plot may be interpreted as support for the previous findings of a decrease in academic achievement as weekly hours of employment increase beyond a certain level, typically reported as 12 to 16 hours per week. The relationship observed in this study, however, was not significant and very weak, which could also support the findings of Light (2001) that no relationship existed.

One explanation for the lack of a more robust curvilinear relationship may pertain to limitations inherent in the instrument used to capture self-reported data regarding work information. Specifically, the literature suggests that approximately 16 hours per week is the point at which the GPA – weekly hours worked curve should begin a negative trend. In retrospect, rather than using a categorical report form based on this normative finding, a better design may have been to have participants self-report the actual specific number of average

weekly hours worked rather than pre-establishing ranges. In this manner, the researcher might have better captured a greater dispersion of hours worked which may have allowed for closer approximation of the actual curve. A curve based upon average weekly work hours reported, rather than six work ranges – no work, 0 – 8 hours, 9 – 16 hours, 17 – 24 hours, 25 – 32 hours, more than 32 hours – may have identified whether hours of work had any effect on GPA above a certain level.

Alternatively, one of the intents of this study was to determine whether the relationship between academic achievement and outside employment reported for the general high school and college populations was a predictor of this relationship among associate degree nursing students. The results of this study tend to suggest that previous findings for college students in general may not be applicable to the specific population studied, namely nursing students as two year institutions. Most previous studies focused on traditional college students who were primarily residential (Barnes & Keene, 1974; Dundes & Marx, 2006; Hammes & Haller, 1983; Hood et al., 1992). Goldstein and High (1992) were the only researchers who specifically surveyed primarily commuter students, and even their sample comprised mostly, 84%, traditional students. Their research uncovered no relationship between weekly hours worked and GPA for reasonable hours (14 hours for arts and science, 24 hours for business) and the frequently reported inverse relationship above these levels. It is possible that the findings of this study may have been consistent with those of Goldstein and High had more accurate data been collected.

The sample used in this study was comprised of 64.8% non-traditional students. All student participants in this sample were commuter students. Schlossberg, Lynch, and Chickering (1989) report that adult learners exhibited greater self-determination, acceptance of responsibility, and desire to maintain a high degree of control over their learning activities. The differences, then, between the samples used in previous research and the sample used in this study may explain a significant portion of the variation in the findings.

Research Question 2: Is the relationship between (a) hours of employment and (b) academic achievement for nursing students different for traditional learners and non-traditional learners?

Very little extant literature has been devoted to the difference in academic achievement between traditional and non-traditional students. Instead, the existing literature reflects that non-traditional students tend to be more motivated and exhibit better time management while experiencing greater demands on their time and energies from family. Bean and Metzner (1985) did note a slightly higher, non-significant mean GPA for non-traditional students in their review of students in vocational programs.

Based upon the available research and anecdotal observations from several of the program directors of the surveyed programs, the researcher hypothesized that the peak of the expected curvilinear relationship between weekly outside employment and academic achievement would occur at a higher number of weekly hours worked for the non-traditional student than the traditional

student. In other words, it was expected that non-traditional students would be able to work more than traditional students before the resulting decrease in academic achievement was noted.

As noted previously, a curvilinear relationship between weekly outside employment and academic achievement was not found. Therefore, strictly speaking, the researcher's second hypothesis was not supported, as stated. Additionally, contrary to expectations, traditional students worked significantly more hours per week than did non-traditional students ($M_{\text{trad}} = 18.67$, $M_{\text{non-trad}} = 15.71$). However, results of the current study did suggest that outside employment had slightly less impact on the academic achievement of the non-traditional students, in support of the informal observations of the nursing program directors. Although the difference between the two groups was too slight to be statistically significant, the results hint at the possibility that non-traditional students may be better able to utilize time management skills to assist in balancing employment and academic pursuits. This conclusion would be consistent with the prior literature concerning the adult learner.

Here again, the concern expressed earlier in this chapter about the design of the data collection tool may be important to consider. The written survey instrument captured self-reported ranges of average weekly work. Additionally, the boundary of two of the ranges – 9 – 16 hours and 17 – 24 hours - occur at the point where previous literature predicts that the curve of the GPA – Average Weekly Hours Worked relationship turns negative. In retrospect, instead of having the participants estimate their average number of hours worked per week

rather than reporting an estimated range of weekly hours worked might have allowed the researcher to more accurately plot the resultant curve, which, in turn may have distinguished greater differences between the traditional and non-traditional student subsets.

Research Question 3: Is there a relationship between (a) the type of outside employment, i.e. career-related or non career-related, and (b) the impact of employment on academic achievement?

The extant research indicated that working in career-related employment while pursuing an education in an occupational-technical field of study had a non-significant, positive effect on GPA (Trueblood, 1956; Hay & Lindsay, 1969; Hammes & Haller, 1983). The previous research closest in comparison to this study was performed by DeYoung and Sorofman (1989) and examined the experiences of pharmacy students. DeYoung and Sorofman reported that students engaged in non career-related employment exhibited a stronger negative relationship between GPA than students engaged in career-related employment when weekly hours of work exceeded 12.

In the current study, it was hypothesized that the nursing students who participated in the research would be able to work more hours weekly in a career-related job than in a non career-related job before a reduction in academic achievement was noted. The researcher found a significant difference between the mean hours worked in career-related and non career-related employment ($M_{\text{career-rel}} = 24.793$, $M_{\text{non career-rel}} = 22.364$). There was no statistically significant

difference in the GPAs of the two groups, although students with non career-related employment averaged slightly higher grades.

In turn, the current study's findings were generally consistent with the research of DeYoung and Sorofman (1989); this outcome was of particular interest to the current researcher because several significant demographic differences exist between the participant groups examined in the two studies. First, the mean age of DeYoung and Sorofman's sample was 23.3 and only 5% were old enough to be considered as non-traditional students. In contrast, the mean age of participants in this study of associate degree nursing students was 27.9 and 64.8% were classified as non-traditional students. Additionally, the sample of pharmacy students was 62% female while the nursing student sample was 87% female. The absence of an impact of the confounding variables of average age and gender on the consistent findings of both DeYoung and Sorofman and the current study may allow for greater generalizability of these results to students in other healthcare related majors.

Another potential difference between the two samples is the manner in which career-related employers view the student workers. Although the students in the DeYoung and Sorofman (1989) study were not participating in formal internships, they nevertheless would have tended to work more one-on-one with a registered pharmacist. This direct contact would allow the student to ask questions, to observe the pharmacist at work, and may allow for a tailoring of duties to reinforce concepts recently learned in the classroom. Career-related employment among nursing students, in contrast, tends to focus on

predetermined semi-independent tasks as a nursing assistant, orderly, or emergency medical technician that cannot be easily altered in reinforcement of classroom studies. Supervision is usually the role of a registered nurse, but the nurse and student are not working together on most tasks; therefore the nurse has little opportunity to pursue a role of mentoring a future member of the nursing profession in the way that practicing pharmacists may mentor those pharmacy students who work with them. Thus, despite possible significant differences in the character of the career-related employment experience for these two groups of students, the finding remains consistent that students who engage in career-related employment can carry a heavier weekly workload without affecting GPA.

Research Question 4: Is there a relationship between the level of “social support” and capacity for outside employment or “outside responsibilities” while pursuing the associate degree nursing?

Weiss (1974) and Cutrona and Russell (1987) conducted rather extensive research on the role that social support may have on the academic performance of college-level students. They found that those students who perceived their parents and older siblings as supportive were much more likely to have acquired the self-confidence to master new situations and cope effectively with challenge. These authors concluded that social support had positive effects of academic achievement.

In turn, in the current study, it was hypothesized that higher levels of social support would allow students, particularly non-traditional students, to maintain

satisfactory academic performance while being employed. The findings of this study supported the hypothesis: the difference in mean GPA among the three groups – those reporting low social support, medium social support, and high social support - was significant at the $p < .000$ level.

Based upon informal discussions with non-representative samples of the participants, the researcher assumed that nursing students had determined a target GPA needed to proceed with their studies and, ultimately, successfully write the NCLEX-RN examination. It was expected that the students would then modify their employment schedule as necessary in support of maintaining the target GPA. The researcher further anticipated that increased levels of social support would allow weekly hours of employment to increase while GPA remained stable. Instead, results of the current study indicated that mean hours worked remained fairly constant among the three sub-groups at about 16 hours weekly. With average weekly outside employment remaining the same among the three groups, the research found a positive relationship between GPA and social support – students reporting higher levels of social support tended to maintain a higher GPA.

It is apparent that a student's anticipated outside employment load may be predetermined by either employer or financial needs and thus tends to remain fixed. This finding is consistent with the findings of Gleason (1993) and Canabal (1998) who reported that student workers seem to decrease their academic workload rather than their employment workload to maintain a desired GPA. Nursing students have less of an opportunity to reduce academic workload,

however, hence the researcher's expectation that employment load would be the varying factor. Results of the current study may indicate that such predetermination of workload plays a larger role in the complex relationship between employment and academic achievement than has been reported previously, as workload did not vary even when the student could not mitigate academic load as was the findings of Gleason and Canabal.

The presence of a somewhat unusual variable may also have an atypical effect of the results of this study, as follows: an undetermined number of the students in this study were in an employee development program that specifies a weekly employment workload. An example of this type of program is one offered by Carilion Clinic (2007) in which the student's tuition is paid in return for the employee's agreement to work at least 16 hours per week while in the program, and to continue to work on a full-time basis for two years after successful licensure. While the researcher did not collect data that would allow a determination of the number of students enrolled at the five colleges under an arrangement of this type, at least several students in each program were sponsored by area hospitals with employee development programs of this type.

Research Question 5: Is there a relationship between (a) anticipated levels of stress and (b) the impact of employment on the academic achievement of learners pursuing an associate degree nursing?

The relationship between academic performance and stress is well documented in the literature. As examples, DeMeuse (1985) studied this

relationship among psychology students and observed a significant inverse correlation between the two factors. Harris (1972) and Lloyd et al. (1980) reported similar finding in studies they conducted on college underclassmen. Cutrona, Cole et al. (1994) found the negative correlation between academic achievement and stress levels held true for a general sample of traditional students and Chartrand's (1992) research noted the inverse relationship among non-traditional students.

Based upon the findings in the previous literature, this study included the hypothesis that higher levels of stress would reduce the amount of weekly outside employment an associate degree nursing student could assume without a decrease in academic performance. This hypothesis was supported by the research as average GPA did not vary significantly among the students classified as "low stress", "medium stress", and "high stress", however significant difference existed among the average weekly hours worked by each group. Further, of the predictor variables considered, stress level explained the largest portion of the variance in academic achievement.

Research Question 6: Considering the variables studied, which are the greatest predictors of academic achievement in associate degree nursing students?

Various elements of the extant literature have focused on different segments of this study's areas of focus. The majority of the literature predicted a negative relationship between academic performance and outside employment when worked hours exceeded a reasonable amount, identified as around 16

hours. Published studies also suggested that non-traditional students were generally found to be more focused of their academic goals and exhibited better time management. Further, according to the literature, students engaged in work-related employment were predicted to earn a slightly better GPA than students engaged in non career-related employment, particularly when the student was pursuing an occupational-technical major. Finally, based on existing research, increased social support should have a positive impact on academic achievement and stress should have a negative effect on academic achievement.

Of course, multiple variables affecting GPA are present in each unique student situation. The goal of the last research question was to consider all of the variables of interest in this study in order to potentially determine which had the greatest relative influence on academic outcomes. The initial hypothesis was that weekly hours of outside employment would be the single predictor variable that exhibited the greatest impact on academic success. The data analysis did not support this expectation, possibly due to weaknesses in the study's design associated with the survey measure, as noted earlier in this chapter.

Instead, level of social support appeared to exert the greatest influence on academic achievement, explaining predicting 7% of the variance among the 372 observations. Lower stress tends to yield higher GPA. Social support predicts another 3% of the variance. As the student receives increasing support from family, friends, the college, and the community, GPA tends to rise. These findings appear congruent with the earlier findings indicating that, holding

average weekly hours of employment constant, increased social support and decreased stress both independently showed a statistically significant effect on GPA.

Implications for Practice

This study focused on factors potentially influencing the academic success of students in community college associate degree nursing programs. As noted in the literature cited in Chapter I, a shortage of nurses exists in many areas of Virginia and the rest of the country and colleges are receiving increasing pressure from employers, state legislatures, and the general community to increase the number of nursing graduates. Therefore, the findings of the current study may provide insight into changes that can be made to improve these students' academic success, with the goal of retaining more of the entering cohort through graduation.

Impact of Work

The literature, taken as a whole, provides a fairly strong argument that some outside employment while carrying a full-time academic load has no effect on academic success, but that the weekly employment load must remain reasonable. Although the findings of this study did not provide new support for the conclusions found in the extant literature, it is possible that the utilization of a more precise data collection instrument in further study to examine the

experiences of nursing may uncover new findings that are in concert with current literature.

Regardless, it seems imperative for all constituent stakeholders to recognize that outside employment has potential negative effects and should be maintained within reasonable thresholds. Current employers who are sponsoring students through the nursing program should give consideration to work requirements under these sponsorships to ensure that artificial hindrances to academic success are not being imposed upon the students. College student service personnel should aggressively pursue alternative avenues of meeting the financial needs of these students to reduce the pressure to work more hours than is reasonable, thereby adversely impacting their GPA. Students should be advised of the negative correlation between academic achievement and excess outside employment. Consideration should be given to nursing programs imposing voluntary restrictions on the employment activity of students while enrolled in the program. Finally, sponsoring employers should review the work requirement they impose on enrolled students to ensure that such sponsorships enhance, rather than hinder, the probability of success.

Social Support

When students receive social support from family, friends, college, employer, and community, academic success tends to improve. One of the major roles of a college's student services personnel should be to assist in eliminating barriers to success. Nursing students typically spend as many as 24

hours per week in clinical environments off-campus. Nursing academic schedules are frequently arranged so that all classroom activity occurs during two days per week, allowing for the scheduling to meet the extensive clinical time demands. To effectively reach out to this student population, student services must be aware of when nursing students are on-campus and tailor offerings to meet nursing student availability.

Entering nursing students may be ill-prepared to face the demands of the program. Faculty-led summer orientation programs for these students may be a viable method for impressing upon the students the need to develop a strong network of social support as a critical tool for the successful completion of the program. The inclusion of the incoming students' family members could be included in an orientation of this type so that they better understand their role in the student's ultimate success. Sponsoring employers must be made aware of the role of social support in the success of the student as well. It is possible that the employer may be able to provide support in a variety of ways, including mentoring from current registered nurses and more flexibility in work schedules.

Stress

Based upon the findings of this study, perceived stress appears to be a significant predictor of academic achievement among community college associated degree in nursing students. Therefore, any actions that can be taken by the college, employer, student, family, or other related party to reduce the level of stress that the student experiences have the potential for positive effects

on academic achievement. It was beyond the current study's scope to identify whether some life stressors have more of an effect than others or which life stressors may be more prevalent in this student population. Identification of prevalent stressors may be an important next step in determining how a college can best provide assistance to mitigate the outcome of stress among a student nursing population.

Limitations and Recommendations for Further Research

This study relied primarily on self-reported data. Although guidelines were provided to assist participants in providing accurate responses, naturally participants' viewpoints may have unexpectedly influenced how they responded. Additionally, the internal validity of the study was naturally threatened by subject effects – subjects providing the answers they believe the researcher expected.

The participants were asked to report actual average work hours per week during the semester. Inconsistent work schedules, heavier at the beginning of the term than the end, for example, may have biased the self-reported average toward the more recent experience and not provided an accurate recap of the three to four month reporting period. Further, the data collection instrument required participants to record weekly hours of employment categorically as fitting into 1 of 6 ranges. If weekly worked hours been captured rather than the eight-hour range in which the average occurred, more accurate calculation of statistical results may have occurred. Researchers who conduct follow-up studies should consider modifying the manner that worked hours are collected to potentially gain additional insight into the role of employment of nursing students.

The researcher administered the Support Dimension Scale (SDS) to the participants during the last weeks of the fall semester, or approximately half way through the academic year. The capturing of social support levels at this time presupposes that such support levels will not change significantly in the upcoming spring semester. Consideration should be given to determining the level of social support received by the student each semester, to determine whether variations exist from semester to semester.

In this study, amount of self-perceived stress a student anticipated experiencing during the upcoming academic year is served as a variable. A reporting by the students of the amount of stress they actually experienced may yield significantly different results than this study. Modification of this variable from anticipated stress to actual experience seems a logical step in the research process.

Additionally, this study used the Nurse Entrance Test (NET) Stress Index as the measure of perceived stress in the participant's life. This Stress Index synthesized responses to questions regarding a variety of life stressors and produced a composite score. Further research should examine both whether certain categories of life stressors are predominant in the student nursing population and whether certain categories of life stressors have a greater effect on academic achievements than others.

Finally, this study followed students at five community colleges in mostly rural areas of the state. The samples were very homogenous in makeup. The generalizability of the findings may be limited by these factors. Further research needs to be completed to determine whether varying these demographic attributes alter the results of this study.

Summary

The intent of this research study was to identify factors that affect the academic achievement of students in associate degree nursing programs. Improving completion rates in nursing programs is one major strategy in the effort to relieve the shortage of nurses that Virginia and the rest of the country is experiencing. The researcher hypothesized that, consistent with the literature for the general college population, full-time nursing students' GPA would be most affected by the number of weekly hours of outside employment they maintained. Differences in traditional and non-traditional students, career-related and non career-related employment, social support, and perceived stress levels were also considered as contributing factors. This research study's findings indicate that, contrary to the findings in previous literature, the positive influence of social support and the negative impact of stress affected GPA more than outside employment among this specific population.

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Appendix A

Student Information Sheet

Appendix B

**Student Data Reporting Forms
Used for the three Associate Degree Nursing Programs**

NAME _____

Empl ID _____

Student Data Reporting
Examining the Effect of Employment on Academic Success
Blue Ridge Community College

Please respond to the following questions by either writing the appropriate answer in the blank provided or by checking the appropriate box.

Semester: ☐ Fall 2006 ☐ Spring 2007

1. Which of the following best describes your work status during the semester indicated above:

☐ Did not hold outside employment during the semester (Skip to item 6 on the next page)

☐ Engaged in outside employment during the semester (Continue with the next item)

2. Average amount of outside work per week during the semester:
(Rounded to the nearest hour)

☐ 1 – 8 hours per week

☐ 9 – 16 hours per week

☐ 17 – 24 hours per week

☐ 25 – 32 hours per week

☐ more than 32 hours per week

3. Indicate whether the employment was on-campus or off-campus.

☐ On-campus (includes work-study assignments regardless of assigned location and employment by sub-contractors to the college when the primary job location is the college)

☐ Off-campus

4. Indicate whether or not employment while during the past semester was healthcare-related.

- ☐ Employment was healthcare-related (includes work as a CNA, LPN, EMT, pharmacy tech, etc.) (Continue with next item)
- ☐ Employment was not healthcare-related (skip to item 6)

5. In the course of your healthcare-related employment, indicate whether employment during the past semester allowed you to use the knowledge and skills you have learned as a result of the courses listed below in item 6.

- ☐ Employment allowed the opportunity to use acquired health care knowledge and skills.
- ☐ Employment did not provide an opportunity to use acquired health care knowledge and skills.

6. Coursework that you successfully completed during this semester. (Mark only those courses that you will complete this semester)

- | | |
|----------------------------------|------------------------------------|
| <input type="checkbox"/> BIO 141 | Human Anatomy and Physiology I |
| <input type="checkbox"/> BIO 142 | Human Anatomy and Physiology II |
| <input type="checkbox"/> NUR 108 | Nursing Principles and Concepts I |
| <input type="checkbox"/> NUR 109 | Nursing Principles and Concepts II |
| <input type="checkbox"/> NUR 136 | Principles of Pharmacology I |
| <input type="checkbox"/> PSY 230 | Developmental Psychology |

Thank you for your participation!

NAME _____

Empl ID _____

Student Data Reporting
Examining the Effect of Employment on Academic Success
New River Community College

Please respond to the following questions by either writing the appropriate answer in the blank provided or by checking the appropriate box.

Semester: ☐ Fall 2006 ☐ Spring 2007

1. Which of the following best describes your work status during the semester indicated above:

- ☐ Did not hold outside employment during the semester (Skip to item 6 on the next page)
- ☐ Engaged in outside employment during the semester (Continue with the next item)

2. Average amount of outside work per week during the semester:
(Rounded to the nearest hour)

- ☐ 1 – 8 hours per week
- ☐ 9 – 16 hours per week
- ☐ 17 – 24 hours per week
- ☐ 25 – 32 hours per week
- ☐ more than 32 hours per week

3. Indicate whether the employment was on-campus or off-campus.

- ☐ On-campus (includes work-study assignments regardless of assigned location and employment by sub-contractors to the college when the primary job location is the college)
- ☐ Off-campus

4. Indicate whether or not employment while during the past semester was healthcare-related.

- ☐ Employment was healthcare-related (includes work as a CNA, LPN, EMT, pharmacy tech, etc.) (Continue with next item)
- ☐ Employment was not healthcare-related (skip to item 6)

5. In the course of your healthcare-related employment, indicate whether employment during the past semester allowed you to use the knowledge and skills you have learned as a result of the courses listed below in item 6.

- ☐ Employment allowed the opportunity to use acquired health care knowledge and skills.
- ☐ Employment did not provide an opportunity to use acquired health care knowledge and skills.

6. Coursework that you successfully completed during this semester.

(Mark only those courses that you will complete this semester)

- ☐ BIO 141 Human Anatomy and Physiology I
- ☐ BIO 142 Human Anatomy and Physiology II
- ☐ NUR 104 Fundamentals of Nursing
- ☐ NUR 105 Nursing Skills
- ☐ NUR 135 Drug Dosage Calculations
- ☐ NUR 221 Medical/Surgical Principles & Concepts I
- ☐ NUR 226 Health Assessment
- ☐ PSY 230 Developmental Psychology

Thank you for your participation!

NAME _____

Empl ID _____

_____	MECC
_____	SwVCC
_____	VHCC

Student Data Reporting
Examining the Effect of Employment on Academic Success
Virginia Appalachian Tri-College Nursing Program

Please respond to the following questions by either writing the appropriate answer in the blank provided or by checking the appropriate box.

Semester: ☐ Fall 2006 ☐ Spring 2007

1. Which of the following best describes your work status during the semester indicated above:

- ☐ Did not hold outside employment during the semester (Skip to item 6 on the next page)
- ☐ Engaged in outside employment during the semester (Continue with the next item)

2. Average amount of outside work per week during the semester:
(Rounded to the nearest hour)

- ☐ 1 – 8 hours per week
- ☐ 9 – 16 hours per week
- ☐ 17 – 24 hours per week
- ☐ 25 – 32 hours per week
- ☐ more than 32 hours per week

3. Indicate whether the employment was on-campus or off-campus.

- ☐ On-campus (includes work-study assignments regardless of assigned location and employment by sub-contractors to the college when the primary job location is the college)
- ☐ Off-campus

4. Indicate whether or not employment while during the past semester was healthcare-related.

☐ Employment was healthcare-related (includes work as a CNA, LPN, EMT, pharmacy tech, etc.) (Continue with next item)

☐ Employment was not healthcare-related (skip to item 6)

5. In the course of your healthcare-related employment, indicate whether employment during the past semester allowed you to use the knowledge and skills you have learned as a result of the courses listed below in item 6.

☐ Employment allowed the opportunity to use acquired health care knowledge and skills.

☐ Employment did not provide an opportunity to use acquired health care knowledge and skills.

6. Coursework that you successfully completed during this semester.

(Mark only those courses that you will complete this semester)

☐ BIO 141 Human Anatomy and Physiology I

☐ BIO 142 Human Anatomy and Physiology II

☐ NUR 111 Nursing I

☐ NUR 112 Nursing II

☐ NUR 136 Principles of Pharmacology I

☐ NUR 137 Principles of Pharmacology II

Thank you for your participation!

Appendix C
Consent Form
Sample Release of Information Form

Informed Consent Form Old Dominion University

The Effect of Outside Employment on the Academic Success of Full-Time Associate Degree Nursing Students

This research will examine the relationship between outside employment and academic achievement in an associate degree in nursing program. The study will look at a variety of demographic factors, such as age and prior health care experience. The study will also investigate the relationship of social support from family and friends on a nursing student's ability to work part-time while completing a nursing program..

You are being asked to complete a survey packet at the beginning of the fall 2006 semester and a questionnaire at the end of both the fall 2006 and spring 2007 semesters. Additionally, you will be asked to provide permission for the college to share your NET scores, used for determining admission to the nursing program, and your final grades in your nursing and related coursework to the researchers. Your participation will require one day of class time (30 minutes) at the beginning of the fall semester and two days of class time (60 minutes) near the end of each semester. Approximately 200 students will be participating in this study. The purposes of this form are to give you information that may affect your decision whether to say "yes" or "no" to participation in this research and to record the consent of those who say "yes."

Your participation is voluntary. Although it is important to us that you complete the whole packet, you can choose to stop participation at any point. Your participation today will in no way affect your grades or the services you receive here.

There are no right or wrong answers, so please just make your honest and best judgment. Although the questions are in no way intended to prove distressful, if you do have questions or concerns related to the survey, please consult with the proctors.

CONFIDENTIALITY:

The researchers will take reasonable steps to keep private information, such as survey responses, confidential. The results of this study may be used in reports, presentations, and publications; but the researcher will not identify you. All results will be reported only as a group.

Please sign below to indicate that you understand and are ready to participate.

Participant's Printed Name	
Signature	Date

STUDENT PERMISSION TO RELEASE INFORMATION

I, _____, give permission to the Registrar, Associate Degree in Nursing program director, and nursing faculty to release my:

- my final grades in all courses attempted during Fall 2006 at New River Community College;
- final grades in all courses attempted during Spring 2007 at New River Community College;
- final grades and dates taken for all Biology and Psychology courses that I have taken at either New River Community College prior to Fall 2006 or have transferred into New River Community College to be applied toward graduation; and
- scores on all entrance tests taken for admission to New River Community College's Associate Degree Nursing Program

to Julian A. Moore or Alan M. Schwitzer, PhD, for use in a research study entitled

The Effect of Outside Employment on the Academic Success of Associate Degree Nursing Students.

Additionally, I **give permission** for Mr. Moore and Dr. Schwitzer to **discuss** my academic progress with the program director and program faculty.

Student Signature

Date

Empl ID # _____

Appendix D

**Courses included in Major Grade Point Average
By Community College**

Blue Ridge Community College		New River Community College		Virginia Appalachian Tri-college	
Course	Credit Hours	Course	Credit Hours	Course	Credit Hours
BIO 141 Human Anatomy & Physiology I	4	BIO 141 Human Anatomy & Physiology I	4	BIO 141 Human Anatomy & Physiology I	4
BIO 142 Human Anatomy & Physiology II	4	BIO 142 Human Anatomy & Physiology II	4	BIO 142 Human Anatomy & Physiology II	4
NUR 108 Nursing Principles & Concepts I	5	NUR 104 Fundamentals of Nursing	6	NUR 111 Nursing I	7
NUR 109 Nursing Principles & Concepts II	6	NUR 105 Nursing Skills	1	NUR 112 Nursing II	8
NUR 136 Principles of Pharmacology I	1	NUR 135 Drug Dosage Calculations	1	NUR 136 Principles of Pharmacology I	1
PSY 230 Developmental Psychology	3	NUR 221 2 nd Level Principles & Concepts I	9	NUR 137 Principles of Pharmacology II	1
		NUR 226 Health Assessment	3		
		PSY 230 Developmental Psychology	3		
Total Credit Hours	23		31		25

VITA

Julian A. Moore was born in 1956 in the City of Winchester, Virginia. He graduated from Hampden-Sydney College in Hampden-Sydney, Virginia, with a Bachelor of Arts in Economics and Political Science in 1978. He earned a Master of Business Administration from the Owen Graduate School of Management, Vanderbilt University, Nashville, Tennessee, in 1980 concentrating in accounting and operations management. Moore worked in various auditing, accounting, and financial management positions within the acute healthcare industry for 20 years, including 13 years as the chief financial officer of a non-for-profit community hospital. He completed all requirements and became a Certified Management Accountant in 1985 and a Fellow in the Healthcare Financial Management Association in 1990. During this time, Moore additionally taught periodically on an adjunct basis for Wytheville Community College, Wytheville, Virginia.

In 2000, Moore accepted a senior management position at Jefferson College of Health Sciences, Roanoke, Virginia. During his tenure at Jefferson, he additionally taught healthcare finance on an adjunct basis. Currently Moore teaches business and accounting courses on an adjunct basis at New River Community College, Dublin, Virginia, while completing his dissertation.