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A Study of Attrition in a Respiratory Care Associate Degree Program
in a Northeast Tennessee Community College

A thesis
presented to
the faculty of the School of Continuing Studies
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Master of Art in Liberal Studies

by
Donna D. Lilly
December 2005

Dr. Terrence Tollefson, Chair
Dr. Marie Tedesco
Dr. Rick Osborn

Keywords: Students, Attrition, Respiratory Care

ABSTRACT

A Study of Attrition in a Respiratory Care Degree Program in a Northeast Tennessee Community College

by

Donna D. Lilly

The Walters State Community College's Respiratory Care (WSCC RC) Program had a 33% attrition rate during a five-year period from 1999 through 2003. This study analyzed demographic, pre-admission, and academic variables to identify reasons for attrition within the WSCC RC program. The population size was 90 students; this was the entire population of five consecutive classes graduating during a five-year period from 1999 through 2003. The criterion variables included high school attended, gender, age, college-level GPA, college-level credit hours, and developmental requirements.

Statistical tests revealed that college-level GPA, college-level credit hours, and developmental requirements influenced persistence within the population. The chi-square test of significance was conducted to compare the attrition rate of the students. There was a significant difference in persistence for GPA, $X^2(1) = 9.844, p = .002$; college credit hours, $X^2(2) = 14.943, p = .001$; and developmental students, $X^2(1) = 4.582, p = .032$.

DEDICATION

This study is dedicated to my husband, Sidney "Chip" Lilly II, my parents, Norman and Shirley Miller, who have encouraged me for many years to complete this degree and have always been my biggest fans and supporters in all of my endeavors.

I also dedicate this study to my daughter, Sydney Elysha Lilly, four years old and very time consuming, but well worth it. At no fault of her own, this degree has taken twice as long as it should have. I love you, Sydney.

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CHAPTER 1

INTRODUCTION

In a number of studies on college retention, researchers have found that courses on study skills enhanced retention rates, and improved study skills and self-control skills allowed students to achieve increased grade-point averages (Gray-Barnett, 2001; Kirschenbaum & Perri, 1982). It was also found that attrition could not be predicted based on scores on personality scales. In Adelman's (1992) study of a high school class of 1972, he found that "Those who eventually earned degrees of any kind brought a stronger background to postsecondary education than those who didn't" (p. 17).

Persistence rates have remained remarkably stable at roughly 45% as far back as 1885 (Porter, 1990; Tinto, 1982). Several hypotheses have been advanced that may account for enrollment and persistence trends of rural students. Hauser and Anderson (1991) explored the extent to which declines in college participation rates could be attributed to changes in college aspirations and changes in high-school completion rates among rural students. Tinto (1987) argued that overall differences in persistence rates between rural students and urban students were primarily because of differences in their academic preparedness rather than differences in their socioeconomic backgrounds. Tinto (1987) contended that differences in ability arose from prior educational experiences at elementary and secondary school levels that tended to favor the educational achievement and persistence of urban students rather than rural students. In addition, St. John (1994) speculated that enrollment and persistence trends could be attributed to changes in the composition of federal financial aid packets and patterns of financing higher education exhibited by rural students.

Kirschenbaum and Perri (1982) noted, "The proliferation of methods to reach a common goal [improved academic performance] suggests that surprisingly little is known or accepted about which approaches produce the best results for which students under which conditions" (p. 31). Tinto (1987), who also pointed out how little is known about why students leave college, discussed the issue by distinguishing between an institution's specific and general retention plans. Neither review dealt directly with individual course withdrawal.

Because of this diversity, Tinto (1987) suggested, "The key to successful student retention lies with the institution, in its faculty and staff, and not in any one formula or recipe" (p. 5). He described this process as an interaction between the students and the institution. Tinto (1987) suggested:

If there is a secret to retention, it lies in the willingness of institutions to involve themselves in the social and intellectual development of their students. That involvement and the commitment to students reflect the primary source of student commitment to the institution. (p. 7)

To have this interactive approach to retention, Tinto (1987) suggested that professors and administrators should be aware of certain "social and intellectual development of their students" (p. 7).

Disengagement from family, friends, and past communities is not a precondition for the successful adjustment to college; the reverse appears to be more likely. For both rural students and urban students, parental encouragement and support facilitated the transition into the academic and social realms of the institution, enhanced commitments to both the goal of college completion and to the institution, and increased the likelihood to persist in college. It should be stressed how important the role of encouragement and support from family becomes in the persistence behavior of rural students for whom encouragement influences the effect of college

academic performance. This is a factor that was underlined as the main determinant of persistence decisions for this group (Tinto, 1993).

Statement of the Problem

The Committee on Accreditation for Respiratory Care Educational Programs (CoARC) requires all respiratory care educational programs to have less than a 33% attrition rate over a five-year period. If the attrition rate becomes greater than 33%, the program will be placed on probation. Probation means the program's accreditation is on hold; if a class is in progress, those students will be allowed to sit for their national boards and apply for a state license. In the state of Tennessee, all respiratory care practitioners must have a license to practice. To obtain a license, the respiratory care practitioner must graduate from an accredited program and pass his or her national boards.

The problem arises when it is time to admit the next class if the college does not shut down the program. By law, students must be advised that the program's accreditation is on hold and they will not be allowed to sit for their boards until the attrition problem is reconciled.

Walters State Community College's (WSCC) Respiratory Care Program had a 33% attrition rate for the years 1999–2003. CoARC requires the WSCC Respiratory Care (RC) program to submit a yearly accreditation report and a quality control plan to address the problem of attrition. The purpose of this study was to analyze demographic, pre-admission, and program variables to identify reasons for attrition within the WSCC RC program during a five-year period from 1999 through 2003.

Research Questions

The following questions guided the investigation:

1. What, if any, student demographic characteristics including graduation from a city or a county high school, gender, and age are associated with attrition rates at Walters State Community College's Respiratory Care Program?
2. What, if any, academic variables including college-level GPA and college-level credit hours are associated with attrition rates at Walters State Community College's Respiratory Care Program?
3. What, if any, prerequisite academic variables including required developmental courses are associated with attrition rates at Walters State Community College's Respiratory Care Program?

Implications

There has been much discussion on the merits of a diversified student body. Based on his theories of adult learning, for instance, Bandura (1986) considered learning to be enriched and enhanced when an organization provided opportunities for its members to work with dissimilar others on an ongoing basis. International management experts consider that for companies to compete successfully in an increasingly global market, a workforce of persons whose values and ways of thinking transcend ethnocentric frameworks is necessary (Pucik, Tichy, & Barnett, 1992). Hence, one criterion by which to judge institutional success is the extent to which colleges and universities prepare individuals to be tolerant of cultural diversity. To do so, however, colleges and universities need to maintain a culturally diverse student body. With this

in mind, they must provide opportunities for positive contacts among all groups on a continuous basis.

Maybe one aspect of maintaining a vibrant student body presupposes understanding how urban and rural students differ in their adjustments to college. Eimers and Pike (1997) indicated that city and county students adjust to college in a similar manner. For both groups, persistence was determined by preparation for college, positive academic experiences, strong parental encouragement, and academic performance in college. For both groups, exposure to a campus climate of prejudice and intolerance lessened commitment to the institution and, indirectly, weakened decisions to persist (Eimers & Pike). In view of this, it makes sense that institutional policies and practices that address students' needs rather than their ethnicity, race, or gender would be effective not only in fostering tolerance among students but also in retaining all students, whether they are county or city students.

Because of the negative effect that exposure to a prejudiced campus climate brings to all students, Vogt (1997) suggested that broad-based policies and practices need to be implemented. One intervention method that appears most promising is education. Vogt's comprehensive review on tolerance led him to conclude that prejudice and discrimination were rooted in misconceptions rather than in personality traits. Because stereotypes can be overcome through information, college administrators might effectively diffuse tension on their campuses by creating a climate that fosters tolerance among students, faculty, and staff. Cultural awareness workshops, multicultural education in the curriculum, collaborative learning classroom practices, faculty training on cultural diversity, and culturally sensitive hiring practices are some of the strategies that could be used to enhance tolerance (Cabrera & Nora, 1994; Hurtado, Milem, Clayton-Pedersen, & Allen, 1998; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996;

Vogt). Cabrera and Nora recommended specificity when they suggested reducing acts of discrimination in college classrooms rather than addressing the campus climate as a whole. Targeting discriminatory behaviors at the classroom level has the advantage of being more easily monitored and addressed than dealing collectively with students' perceptions. As noted by Pascarella et al. (1996), classroom-based intervention strategies need not be long in duration. In addition, the authors found that even attending a one-day cultural awareness workshop enhanced students' openness to diversity. Moreover, classroom-based activities need not rest solely on a specialized curriculum on diversity (Pascarella et al., 1996).

One promising approach to overcoming the problem of discrimination was the notion of building learning communities in the classroom (Tinto, 1997). Tinto (1997) noted that the classroom was instrumental in promoting the academic and social integration of students. Based on his studies, he suggested using practices that bring students together and provide a means for communication and interaction to help create a situation where learning is enhanced and acceptance of differences is cultivated. Moreover, Tinto (1997) said that such positive attitudes would "spill over to student interactions outside of the classroom" (p. 123).

Another promising approach rests on Vogt's (1997) recommendation of using cooperative learning as a way to further the growth of tolerance. At the core of Vogt's recommendation lie five principles for successful interaction among people from different ethnic backgrounds. Vogt found that collaborative learning approaches met three of the five conditions: (a) individuals collaborate rather than compete, (b) equal status among students is promoted, and (c) the focus of the group effort is directed at solving projects (pp. 154-155).

Finally, Nora and Cabrera (1996) noted that support and encouragement in different forms and from different sources were compelling in their influence on a number of cognitive

and noncognitive outcomes. Nora and Cabrera tested the impact of perceptions of discriminatory behavior as detractors of academic and social integration as stressors negatively influencing academic achievement and as instigators of withdrawal decisions. Although the effects of racist remarks and bigoted behavior exerted negative effects on all constructs, encouragement and support from significant others negated the deleterious impacts of perceived prejudice and discrimination. Words of encouragement and gestures of support by faculty and teaching assistants have also been found to affect positively students' performance (grade point averages) and their decisions to reenroll in college (Nora & Cabrera).

Definitions

Terms used throughout this study are defined as follows:

1. *Admission requirements:* Admission into the Respiratory Care Program requires the student to have all developmental courses, anatomy and physiology I and II with lab, and a computer course completed. The student must obtain a minimum grade of “C” in each of the required natural and computer science courses along with a minimum overall GPA of 2.0 as specified by the WSCC respiratory care program and defined within the WSCC catalog (Walters State Community College, 2003).
2. *Attrition:* Attrition is unsuccessful completion of all clinical core requirements with a minimum of a 75 in each of the respiratory care courses.
3. *City (urban) high school:* This is a secondary school that usually includes grades 9 or 10 through 12 that is placed in the center of population, commerce, and culture; more important than a town. A city high school is in an incorporated municipality in the

- United States with definite boundaries and legal powers set forth in a charter granted by the state.
4. *Clinical training:* This is medical skills taught in lecture and laboratory courses that are used by the student in the hospital setting for the treatment and observation of patients.
 5. *Clinical dismissal:* Students who are unable to meet competency level for required skills or unable to meet ethical and professional requirements of practice set by the state of Tennessee Health Related Boards will be dismissed from program.
 6. *College-level course:* This is a course that is applicable to degree requirements and is included in the computation of the cumulative college-level GPA. College-level courses do not include developmental education courses and noncredit courses offered by the college.
 7. *College-prepared student:* A college-prepared student is one who does not require any form of remediation upon enrollment in a college or university (same as nondevelopmental student).
 8. *County (rural) high school:* This is a secondary school that usually includes grades 9 or 10 through 12 that is placed in a region created by territorial division. A county high school is in an unincorporated municipality with definite boundaries and legal powers set forth by local government.
 9. *Degree-seeking student:* For the purpose of this study, a degree seeking student is one who indicates on the application for admission to the college his or her intent to graduate from the institution with an associate degree.

10. *Developmental course*: Remedial or developmental courses are designed to prepare students for college-level coursework. Admission is by the college assessment procedure only. Developmental courses are not intended for transfer nor do they satisfy degree-credit requirements for any associate degree or academic/technical certificate program (Walters State Community College, 2000).
11. *Developmental student*: Students who have completed remedial and/or developmental prerequisites for college-level coursework.
12. *Grade Point Average (GPA)*: The student's GPA is based on the number of quality points earned divided by the number of semester hours attempted excluding developmental courses. The GPA is the college's standard grading scale. Walters State Community College's scale awards 4 quality points for an "A" grade, 3 quality points for a "B" grade, 2 quality points for a "C" grade, 1 quality point for a "D" grade, and 0 quality points for an "F" grade.
13. *Nondevelopmental student*: A nondevelopmental student is one who has entered college level courses without the requirement of remedial and/or developmental prerequisites (same as college-prepared student).
14. *Nontraditional student*: A nontraditional student is one who does not immediately enroll in college after high-school graduation, is 25 years old or older, who may be married or a parent, and who may obtain either a General Education Diploma (GED) or a regular high school diploma.
15. *Persistence*: Persistence is considered as successful completion of all prerequisite and clinical core requirements that lead to graduation.

16. *Traditional student:* The traditional student is one who is between the ages of 18 and 24 years and who enrolls continuously from the first term until completion of the program.

CHAPTER 2

LITERATURE REVIEW

Extensive research has been conducted on retention in higher education using different methods and approaches; most of the research, however, has been conducted at four-year colleges and universities rather than at community colleges. The following literature review provides an overview of those retention studies that often have focused on particular areas of research such as the effect of students' expectations, career decision-making, students' financial aid, or the institutional environment. Some researchers have concentrated their efforts on special student populations such as older adults or minorities. Institutional researchers also have evaluated several factors simultaneously in efforts to predict student retention or to examine the relationships among several variables using conceptual models of student attrition. Finally, researchers have assessed whether specific intervention strategies reduce dropout rates among college students. The literature pertaining to each of these areas is discussed briefly in the following sections.

General Models of Student Retention

Several theoretical models have been developed to explain the influences that affect a student's decision to complete his or her college studies. In Tinto's (1975, 1993) model, retention was influenced by a student's pre-entry attributes, goals and commitments, and academic and social integration. Bean and Metzner (1985) developed a model conceptualizing student persistence as being dependent on a student's background, academic variables, environmental variables such as employment and finances, and social integration. Cabrera,

Castaneda, Nora, and Hengstler (1992) integrated the Tinto (1975, 1993) model and the Bean and Metzner model; the authors found that both provided unique insights and also measured similar constructs.

Several researchers have used the Bean and Metzner (1985) or Tinto (1975, 1993) models to assess the impact of various factors on student retention at community colleges (Bers & Smith, 1991; Claggett, 1996; Feldman, 1993). Conflicting findings existed among many of these studies as to whether gender, student goals, the need for developmental education, student grade point average, contact with faculty, or hours studied could be related to student persistence. Such studies have consistently revealed, however, that older students, part-time students, minority students, and working adults have had higher dropout rates than “traditional” students.

Pascarella, Smart, and Ethington (1993) studied the degree persistence of 825 students from 85 different community colleges over a nine-year period. Academic and social integration were significant predictors of persistence for males and females. Socioeconomic status was an important factor for females, and institutional commitment or satisfaction was significant for males. Less than 26% of the variation in degree attainment was explained in the study.

In research that focused on the development of objective measures of achievement motivation, there was a consensus that motivation was made up of multiple dimensions; however, there was no general agreement regarding the specific makeup of those dimensions. In general, there was support for the idea that achievement motivation was the product of interdependent variables such as the locus of control (Duke & Nowicki, 1974). Peidmont (1989) identified variables such as affiliation, impulsiveness, playfulness, personal achievement, social achievement, academic achievement, mastery, work orientation, competitiveness, and personal unconcern. It was assumed that these factors could vary according to individuals’ experiences

and characteristics (Peidmont). Therefore, it has been recommended that consideration of individual characteristics such as gender and social roles be included when analyzing various dimensions of achievement motivation (Peidmont).

Bean and Bradley (1986) demonstrated that, “Satisfaction has a greater influence on performance than performance has on satisfaction” (p. 403) indicating that satisfaction with college can be a predictor of academic success. In addition, Edwards and Waters (1982) tested freshmen college students and upon a two-year follow-up, found that first quarter grade point average and general satisfaction with college combined to predict attrition.

Because of limited research in this area, research that is empirical needs to be devoted to the satisfaction issue, especially on smaller campuses and with older students, as these populations have been generally neglected in the research.

The Older Rural Student

As for the learning experiences of older students, Kasworm (1990) concluded in his literature review on adult college students, that there was a need for more investigation into the role of the rural student. Understanding the learning proclivities of the older rural student may be a valuable tool in helping to prevent attrition among this group of rural students.

Ultimately, it would be helpful to develop a better understanding of how older students rate satisfaction with the college experience because, as Winefield (1993) found, older students were more at risk for psychological distress and their needs might not have been met in an urban university setting. Moreover, an extensive review of the literature on rural students completed by Bean and Metzner (1985) indicated that there was evidence that satisfaction had a positive

correlation with persistence and was one of the most important variables to consider in relation to attrition among rural students.

Particular attention has been given to identifying differences between city and county students; however, very little attention has been directed toward the achievement orientations (e.g. credit hours and GPAs) of older students (Nunn, 1994; Sheehan, McMnamin, & McDevitt, 1992). This was an especially worthwhile area of investigation as the older student population continues to increase (Kasworm, 1990; Nunn).

It appears that older students will continue to make up a substantial percentage of the higher education student body. This is a relatively new phenomenon. To decrease attrition among older students, it will be necessary to develop a greater understanding of their unique goals and needs in an educational system that was originally established to facilitate the growth, training, and education of young adults.

Specialized Models

Along with using general models of student retention, institutional researchers have focused on specific areas of interest. The advantage of such studies is that they might provide new insights and suggest other factors that may have influenced attrition rates. For example, some researchers have examined students' expectations and how they related to student attrition (Braxton, Vesper, & Hossler, 1995). These researchers found that when the college expectations of students were met, the students' persistence or intent to persist increased; research in this area has explained a small percentage of the variance in student retention.

Another example was research on the relationship between career decision-making and student persistence. There is some evidence that a student's declaration of a college major or

career relates to retention. When studying institutions of varied Carnegie classifications, Lewallen (1993) concluded that there was no association between a student being initially undecided and his or her retention. Foote (1980), however, found a significant relationship when looking at a student's declared major during his or her experience at a university. Although Foote showed that students with undeclared majors had higher attrition rates, the relative importance of this variable in relationship to other factors was not assessed in his study

Researchers have considered the institutional environment or organizational characteristics of the college or university. Studies conducted in this area indicated that students' feelings of alienation may have been greater in large universities than in smaller educational institutions. Tomlinson-Clarke and Clarke (1996) found that men experienced more alienation and expressed more uncertainty than did women in their decisions to continue their studies. Students who lived on campus were shown to have a greater sense of community and higher retention rates (Thompson, Samiratedu, & Rafter, 1993). Berger and Braxton (1998) stated that institutional communication, fairness in policy and decision-making, and participation were positively related to social integration and had significant indirect effects on attrition rates.

According to Wilcox (1991), billions of dollars in aid are awarded to students each year to "provide needy students with access to higher education, reasonable choices among alternative institutions, and financial ability to persist until graduation" (p. 48). Wilcox described several research studies affirming the positive effect of financial aid on student persistence. Moline (1987) used multiple regression and path analysis to evaluate the effects of student financial aid at a liberal arts college when controlling for student characteristics, home proximity, adjusted income, and a student's grade point average. A student's GPA and high school rank had the largest effects. Nevertheless, "Financial aid variables were not statistically significant in

explaining persistence as measured by credits completed when controlling for the other variables" (Moline, p. 141).

Although differences in retention rates among colleges and universities provide unique insights, educators also need to understand the needs of students enrolled on their campuses to improve retention rates. Higher education institutions have limited control over employment rates and funding levels in their states. In addition, community colleges accept a large number of part-time students and older working adults and operate under an open-admissions policy; thus, administrators and faculty have limited control over these factors. Given these conditions, institutional leaders continue attempts to discover ways to increase retention rates. Interventions often are based upon studies showing a need to address specific areas that affect individual student retention.

Studies on Special Student Populations

Several studies have been conducted on special student populations that often have high dropout rates. For example, older working adults may be returning to prepare for a second career or to update their knowledge and skills for the changing work environment. These students are older than the traditional 18- to 24-year-old college students who are preparing to enter the work force. Older adults are most often part-time students and the majority work while attending college. Naretto (1995) found that at four-year institutions, persistence rates were lower for older adults who worked more hours and only attended part-time. He also noted that a supportive social environment related positively to the retention of older adults. Richardson (1994) asserted that there were misconceptions that older adults generally lack academic skills and abilities. He reviewed a series of studies on older adults to support his argument.

Minority student groups also have been the subject of retention research because of their high attrition rates. For example, Nora and Cabrera (1996) found that minority students at a doctoral granting institution were somewhat less prepared for their college studies than were White students and often stated a belief that their campus environment was discriminatory. Based on their research, the authors reported that cumulative GPA was directly related to college persistence. Moreover, parental support, social integration, perceptions of discrimination, and academic and intellectual development were indirectly related to student retention.

When matching African American and White students with similar academic achievement, Augelli and Hershberger (1993) found that African American students at the university had greater concerns with finances, lower satisfaction with the institution, and frequently experienced verbal harassment. About 10% were threatened, 3% were assaulted, and 2% were spat upon. In a study of Hispanic students at several community colleges, Soils (1995) showed that satisfaction with instruction and academic experiences were related to a student's commitment to attend. Family support and future job prestige increased a student's motivation to persist (Augelli & Hershberger).

Student Retention Programs

In response to research on student attrition, colleges and universities have developed several intervention programs to increase their retention rates. Institutional researchers have often used inventories to assess students' needs when they enter the institution. If students are identified as "high risk" on the inventories, they are given additional assistance. Some researchers have supported the use of freshmen first-year programs such as seminars to help

students learn study skills and understand college expectations and orientation sessions to link them with student support services (Wolfe, 1993).

At one university, students on academic suspension took a study skills course and received additional advising, but the intervention did not improve subsequent success (Schultz, Dickman, Campbell, & Snow, 1992). Nevertheless, other researchers have demonstrated that study skills programs can be effective (Polansky, Horan, & Hanish 1993).

Researchers have studied the efficacy of developmental education programs by evaluating course completion rates, progress from developmental to college-level work, subsequent performance in college-level courses, and comparison of the persistence rates of developmental course completers with those who fail to complete developmental course work (Gray-Barnett, 2001). Weissman, Bulakowski, and Jumisko (1997) provided an excellent review of several studies demonstrating the effectiveness of developmental education programs and offered important recommendations for structuring the education of under-prepared students at community colleges.

Other programs used to increase retention include student orientation programs, support-counseling groups, mentoring programs, honors programs, and service learning. Mandatory orientation programs and basic skills assessment, completion of developmental work before regular college level courses, abolishing late registration, establishing mentoring and peer support programs, reducing academic loads for working students, providing more financial aid, and conducting more program evaluations are all being used with hopes of improving student retention.

As demonstrated by the sometimes-conflicting findings in the literature, studying student retention remains difficult and complex. Many possible factors can directly and indirectly

influence a student's decision to persist. For this reason, both two- and four-year institutions use several interventions in their attempts to reduce attrition. An effective student retention program requires a campus-wide effort and can involve several different student subpopulations. Specific influences may be different for each group.

Researchers on student retention and attrition suggested that contact with a significant person within an institution of higher education was a crucial factor in a student's decision to remain in college (Chickering & Gamson, 1987; Glennen, Farren, & Vowell, 1996). In the past few decades, many claims have been made with regard to the important role that quality academic advising programs play in the successful recruitment and retention of students (Glennen et al.; Habley, 1986; Habley & Crockett, 1988). Higher education professionals who come in direct contact with students and understand the challenges they face are primary candidates for advisor/mentor roles. While faculty, administrators, and student affairs professionals all serve as student advocates and play an integral part in student retention and attrition, advisors are typically in the best position to assist students in making quality academic decisions.

Academic Attrition Among Rural Students

Many authorities have discussed the reasons for academic attrition among rural students. For example, inequitable resource allocations across school districts and in-home settings (i.e., low-income vs. high income) result in fewer educational learning materials and experiences for some students (Jones & Watson, 1990; Lockard, Abrams, & Many, 1997).

Authorities have described the effects of lowered expectations on the self-esteem of students in the early public school years resulting in diminished self-confidence in academic

potential and performance on entering college. Once students are enrolled in the college or university setting, they may not feel that they are a part of the campus community. They may become particularly vulnerable to feelings that they do not belong, feelings of rejection, and many may not adjust to normal academic challenges associated with college life. They may also be undecided about an area of study, or feel they do not “fit” their chosen major (Grites, 1982) resulting in a greater likelihood that they may drop out or demonstrate poor academic performance. Many high-risk and underrepresented groups in the campus community may not enter the university with an already well-established commitment to it or even to higher education.

Given the importance of increasing student retention, colleges and universities have focused considerable attention on developing appropriate strategies to increase the retention rates of these students (National Academic Advising Association, 2000). Generally, successful strategies have emerged from the various academic advising models reported in the literature.

Models of Advising

In order to understand the importance of specific counseling skills in the advising process, models that provide the foundation for academic advising must be described. Three models have been frequently advocated in the professional literature. These include the prescriptive, developmental, and integrated advising approaches.

Prescriptive Advising Approach

First described by Crookston (1972), a prescriptive advising approach is characterized by an authoritarian relationship in which the advisor makes a “diagnosis,” prescribes a specific

treatment for the student, and the student follows the prescriptive regimen. The student assumes no responsibility for decision-making and relies totally on the advisor's recommendations. Specific prescriptions typically focus on course selection, degree requirements, and registration (Crookston).

Whereas Crookston (1972) reported negative aspects of this advising model (particularly the lack of student involvement in the decision-making process), other researchers have noted advantages to the model. For example, Fielstein (1989) found that over 50% of students rated the following six prescriptive activities as high priority: (a) explaining graduation requirements, (b) discussing course selection, (c) planning a course of study, (d) discussing educational goals, (e) exploring career options, and (f) explaining registration procedures. Pardee (1994) noted that many students were conditioned to expect prescriptive advising because they had not been exposed to other approaches. Interestingly, minority students often have shown a preference for prescriptive approaches (Brown & Rivas, 1994). When an advisor is directive and informs students about the nuances of college life, many minority students have a tendency to perceive the advisor as competent, listen more intently, and assume more responsibility for their own actions.

Developmental Advising Approach

The term developmental advising, first coined by Crookston (1972), refers to a shared responsibility between the student and advisor that promotes initiative and growth in the student. Instead of routinely answering questions relevant to a student's needs, the advisor directs the student to proper resources, thus, facilitating the development of greater independence, decision-making, and problem solving.

Support for the positive aspects of and student preferences for developmental advising frequently have been reported in the literature (Ender, 1994; Gordon, 1994; Pardee, 1994); however, weaknesses have also been noted. For example, Gordon listed shortcomings as: (a) time, (b) large caseloads, (c) lack of advisor training, (d) lack of consistency in advisor contacts, (e) autonomous advising units, (f) poor integration between student and academic services, (g) lack of training and working with a diverse student body, and (h) lack of effective evaluation strategies. Ender suggested that ineffective developmental advising tended to be associated with faculty advisors who experience increased out-of-class expectations, lack of institutional reward incentive for performing developmental advising, and a tendency of institutions to rely more heavily on part-time faculty.

Integrated Advising Approach

Despite the shortcomings of both prescriptive and developmental advising models, strengths have been noted in both approaches, suggesting that elements of the two should be incorporated into higher education settings (Fielstein, 1989, p. 21). Authorities have proposed a comprehensive approach to advising that emphasizes informational and counseling roles (Frost, 1993, p. 21). For example, Reiff (1997) described a range of approaches that have been used with adults having learning disabilities and suggested that such integrated approaches are useful with at-risk students in college settings (strategic goal planning, interactive learning, promotion of self awareness, self-determination, and self-reliance). Use of these approaches will result in greater student retention among at-risk students, enhanced feelings of “belongingness” within the institution, and greater connectedness with their programs of study and the faculty delivering those programs.

Skills and Competencies Essential for Academic Advisors

Many of the studies reviewed in the literature described characteristics of rural students and effective strategies for working with those populations. Numerous skills have been described in the professional literature as being critical for successful academic advising (Gordon & Habley, 2000; Peterson & Nisenholz, 1999; Winston, Miller, Ender, & Grites, 1982).

A number of authorities have indicated that regular faculty-student contact was the most important factor in student involvement and motivation and provided students with the needed support to get through the tough times and keep working toward academic success (Chickering & Gamson, 1987; Glennen & Vowell, 1995). Of particular importance was the one-to-one relationship that was typically present between the student and advisor that provided an opportunity for the student to build a personal link with the institution (Nutt, 2000). Sometimes the academic advisor was the only link the student had with the institution. This often had a profound effect on the student's academic career and the student's level of satisfaction with his or her college choice (Nutt).

In addition to being knowledgeable about academic programs and curricula requirements within the institution, the advisor's ability to give accurate and correct academic guidance was often the most commonly stated expectation from students receiving advising services (Creamer & Scott, 2000). Unfortunately, most advisors focus primarily on the academic information they need to deliver to the student, acting as the "teller" or the "expert" in the relationship, and ignore or overlook other important student needs (Frost, 1991, p. 9).

In addition to the aforementioned competencies, three specific skills appeared to be associated with effective one-to-one advising. These were communication, questioning, and referral skills (Nutt, 2000).

Communication Skills

Six basic communication skills are necessary for establishing rapport in the at-risk advising relationship. These include (a) establishing and maintaining eye contact, (b) allowing students the opportunity to fully explain their ideas or problems, (c) being sensitive to body language, (d) focusing on the content and tone of the student's words, (e) acknowledging what the student is saying through verbal and nonverbal feedback, and (f) reflecting on or paraphrasing what the student has said (Nutt, 2000; Peterson & Nisenholz, 1999).

Questioning Skills

Advisors working with rural students must be adept at using questioning skills (Nutt, 2000). The key to effective questioning was to focus on students' concerns versus issues or topics deemed important by the advisor. Generally, advisors relied on two types of questions during the advising process: (a) open-ended (i.e., those allowing students to select subject matter of interest to them, thus, providing their own structure to the session) and (b) closed-ended (i.e., short-answer, thus, facilitating the gathering of factual information) (Nutt). The use of both types of questions are important in the at-risk advising process as each provides different types of information and communicates different things to students (e.g., open-ended questions communicate interest in the student whereas closed-ended questions communicate interest in facts).

Referral Skills

Successful at-risk advising relationships typically are not established unless the advisor moves beyond simply asking a student questions to making referrals based on the information

gained through the questioning process. Once students' issues are identified using appropriate questions, the advisor has an obligation to make judgments regarding how best to serve the student. As Nutt (2000) noted, making referrals should not be perceived as “only a method of getting them out of the advisor’s office instead of as a genuine desire to assist students in the best way possible” (p. 223). Advisors should clearly and openly communicate why the student should seek outside assistance (i.e., from another source). The advisor and student should jointly determine the nature of the problem for which student assistance is needed, followed by development of a plan of action that includes the referral. Such a collaborative process requires an extensive knowledge base on the part of the advisor regarding the array of services available on campus and in the community.

Effects of Academic Advising on Student Retention/Persistence

Student persistence is critical in obtaining a college degree and it is an important criterion by which success in college is measured (Passarcella & Terenzini, 1991). College and university student persistence and attrition have been examined closely in the professional literature during the past 20 years. According to Tinto (1993), more students leave higher education settings prior to degree completion than those who stay. About one half of all students who drop out of college do so during their freshman year; many leave during the first six to eight weeks (Noel, Levitz, & Saluri, 1985). Studies have shown that a student’s sense of belonging is directly related to his or her persistence or decisions made to remain in school (Tinto, 1993). This sense of belonging was increased or decreased through interactions with the academic and social environments of the university.

The sense of student belonging in the academic community that was reported by Tinto (1993) was increased or decreased through interactions with the academic and social environments of the university. Tinto's (1993) findings have been extended to include student expectations (Braxton et al., 1995). In synthesizing the volume of studies conducted in this area, Wyckoff (1999) reported that the primary negative characteristic linked to student attrition was inadequate academic advising.

The Intrusive Advising Model and Rural Students

One approach that has gained increased attention in the literature was intrusive advising with rural students. Earl (1988) suggested that intrusive advising was “deliberate intervention to enhance student motivation” (p. 27). Generally, intrusive advising approaches include a range of intervention strategies that connote interest in and involve the advisor in the affairs of the student (Glennen, 1995) and that culminate in increased motivation on the part of the student (Earl).

Holmes (2000) summarized a range of reports and noted that the benefits were fourfold: students (a) were more inclined to keep up with their work if they knew an academic advisor would contact them; (b) had fewer financial worries; (c) received necessary connections to university retention services; and (d) were referred to needed support services, thus, communicating that someone at the institution cared about them.

The literature clearly suggested that the single most important factor in advising at-risk students was helping them feel that they were cared for by the institution (Holmes, 2000; Tinto, 1993; Wyckoff, 1999). Helping students feel valued requires a developmental approach in which the advisor expresses interest in the student and uses effective communication,

questioning, and referral techniques. However, as noted by some minority students, prescriptive strategies used in the context of the developmental model also communicated a sense of caring to students (Brown & Rivas, 1994). This finding supports the use of integrated advising approaches in which advisors use a wide range of techniques with rural students.

Most advisors have not been adequately trained to use integrated advising models with rural student populations; this creates a need for greater training (Gordon & Habley, 2000; Peterson & Nisenholz, 1999). Similarly, most faculty advisors who work with rural students are not trained to address the unique needs of these students nor are they rewarded (e.g., merit increases, credit toward tenure/promotion) for their efforts (Ender, 1994). This was particularly interesting in light of the consistent finding in the literature that regular faculty-student contact was perhaps the single most important factor in helping rural students to feel a sense of belonging (Holmes, 2000; Tinto, 1993; Wyckoff, 1999).

Integral to any contact made was to ensure that the student's needs were addressed effectively using effective communication, questioning, and referral techniques (Frost, 1991). The latter skill of referral assumes that advisors have an extensive knowledge base regarding campus and community resources that potentially might benefit these students.

Advisors must also give accurate and correct academic guidance during their contacts with students, as this has been expressed as a high priority needed by rural students (Creamer & Scott, 2000). This reinforces the importance of advisors being trained in their respective academic disciplines to ensure that timely and accurate information is conveyed.

CHAPTER 3

METHODOLOGY

The focus of the present study was to examine the attrition rate of students who entered the Walters State Community College's Respiratory Care Program over a five-year period. This chapter details the population studied, research design, data collection, research hypotheses, and research methods.

The negative term is "attrition"; the positive term is "retention to graduation." No matter which is used, the issue is how best to create a "staying" atmosphere in a challenging academic setting so that a larger proportion of those entering Walters State Community College's Respiratory Care Program will complete their degrees.

Perhaps there are flaws in the recruiting, admissions, and advising processes. Often there is little communication between those who are responsible for recruiting and admitting students and those who are responsible for educating them. It is possible that weaknesses exist in the process through which students select a health career in respiratory care including the guidance systems that direct them to respiratory care careers. Academic advising exists primarily as a departmental function and is often limited to interaction between faculty and departmental majors. Occasionally, advising may extend to students in other departments if they are assertive enough to seek it or to high school seniors on a visitation day.

The present study was designed to investigate the differences in attrition rates of students who participated in the Respiratory Care Program at Walters State Community College during a five-year period from 1999 through 2003. Attrition among urban and rural students has been

examined as a subset of social integration variables in studies under a variety of labels--contact, interaction, involvement, integration, personal bonds--and with attrition considered as one variable among many (Pascarella & Terenzini, 1991; Tinto, 1993). Research should proceed in a new direction that is sensitive to the distinctive character of Walters State Community College's Respiratory Care Program. The first step in this direction is to untangle the social integration variables and to separate the questions of academic outcomes. Walters State Community College's Respiratory Care Program's educators want to know both what kinds of social relations can be developed by two-year off-campus programs and which, if any, of these programs enhance academic outcomes such as retention.

In summary, the rationale for this study rests on three premises: First, although out-of-classroom social integration among city and county students are vital influences on attrition at four-year residential colleges, research findings are conflicted about the impact of these traditional kinds of social integration on city and county students at two-year colleges; second, the kinds of attrition among city and county students conventionally examined at four-year colleges should not be assumed a priority for research on Walters State Community College's Respiratory Care Program city and county student relations; and, third, a major objective of this research was to identify and quantify the impact that developmental instruction had on attrition at Walters State Community College's Respiratory Care Program.

Population

Respiratory Care is an allied health specialty employed in the prevention, treatment, management, diagnostic evaluation, and care of patients with diseases and abnormalities of the cardiopulmonary system. Some of the conditions that require respiratory support include

asthma, bronchitis, cardiac failure, emphysema, pneumonia, and neonatal pulmonary problems. The duties of the respiratory care practitioner include patient education, administration of medical gases and aerosolized medications, bronchopulmonary exercise and drainage, and management of life support systems through artificial ventilation. Respiratory care practitioners perform many diagnostic procedures such as x-ray evaluation, ECG monitoring, obtaining and evaluating arterial blood gases, and pulmonary function testing and screening (Walters State Community College, 1999, 2000, 2001, 2002, 2003).

The Walters State Community College Respiratory Care Program is an Associate of Applied Science (A.A.S.) degree. The program requires 62 semester hours to graduate; included in this is 11 hours of prerequisites, 17 hours of general education requirements, and 34 hours of respiratory care courses. The program is located at the WSCC Greeneville Center of Higher Education. Unlike most of the community college associate degree programs, the RC program requires full-time attendance, Monday through Friday, eight hours per day. The students are full-time for three consecutive semesters including summer, fall, and spring.

The students are ranked in order to receive admission into the program. The ranking factors consist of grades received in prerequisite courses including anatomy and physiology I and II with lab and computer competency. Students receive extra points for having each general education course completed and number of college credit hours completed excluding developmental courses. Students must have a GPA of at least 2.0 and have all developmental courses completed to be admitted into the program. GPAs greater than 2.0 receive extra points toward the student's ranking.

The WSCC RC program receives approximately 30 to 50 applications per year for acceptance into the program. The program may accept up to 22 students if all requirements are

met. There is not a waiting list for the program; therefore, if a student is not admitted he or she must reapply the following year. Some students apply two or more times and may be admitted subsequently if they have brought up their ranking to surpass new applicants. Community colleges are typically “open door” institutions that admit almost all students who apply, but the RC program and other allied health programs typically do not admit all who apply.

The average salary that a graduate from the WSCC RC program may expect to receive varies from city to city and state to state. In the Greeneville, Johnson City, and Morristown areas, the average salary for dayshift is approximately \$11.00 to \$13.00 per hour. Knoxville has a higher starting salary of approximately \$14.00 per hour. All hospitals pay a shift differential of approximately \$2.00 for those working nightshifts.

The Committee on Accreditation for Respiratory Care Educational Programs (CoARC) requires all respiratory care educational programs to have less than a 33% attrition rate over a five-year period. If the attrition rate becomes greater than 33%, the program will be placed on probation. Probation means that the program's accreditation is on hold. If a class is in progress, those students will be allowed to sit for their national boards and apply for a state license. In the state of Tennessee, all respiratory care practitioners must have a license to practice respiratory care. To obtain a license, the respiratory care practitioner must graduate from an accredited program and pass his or her national boards.

The population for the present study was comprised of students at Walters State Community College who were attending classes in the Respiratory Care Program. The program served 90 students over a five-year period from 1999 through 2003. The researcher examined the attrition rates of the program comparing students who graduated from urban (city) versus those who graduated from rural (county) high schools. The students were also compared

concerning gender, age, college GPA, college hours earned prior to admission and whether developmental courses were required before entering the Respiratory Care Program. Existing data were used to conduct this study. The data were gathered from student information maintained by Walters State Community College’s Student Information System (SIS).

The number and percentage of Respiratory Care Program students by year and type of high school attended is shown in Table 1.

Table 1

Respiratory Care Program Students by Year and Type of High School Attended

Year	<u>City</u>		<u>County</u>	
	N	%	N	%
1999	3	14.3	18	85.7
2000	6	35.3	11	64.7
2001	4	28.6	10	71.4
2002	3	15.8	16	84.2
2003	4	21.1	15	78.9
Total	20	22.2	70	77.8

As shown in Table 1, of these 90 respiratory care students, 20 (22.2%) attended city high schools and 70 (77.8%) attended county high schools. The number of city students, while relatively low when compared to the number of county students, remained relatively stable.

The number and percentage of Respiratory Care Program students by year and gender is shown in Table 2.

Table 2

Respiratory Care Program Students by Year and Gender

Year	<u>Male</u>		<u>Female</u>	
	N	%	N	%
1999	3	14.3	18	85.7
2000	3	17.6	14	82.4
2001	2	14.3	12	85.7
2002	4	21.1	15	78.9
2003	4	21.1	15	78.9
Total	16	17.8	74	82.2

As shown in Table 2, of the 90 respiratory care students, 17.8% were male and 82.2% were female. The number of male students, while remaining relatively low when compared to the number of female students, increased over the five-year period.

Of the 90 respiratory care students, 42 (46.7%) were between the ages of 18 and 24; 36 (40%) were between 25 and 34; 10 (11.1%) were between 35 and 49; and 2 (2.2%) were between 50 and 59.. Respiratory Care Program students by year for the category of age are reported in Table 3.

Table 3

Respiratory Care Program Students by Year and Age

Year	<u>18 to 24</u>		<u>25 to 34</u>		<u>35 to 49</u>		<u>50 to 59</u>	
	N	%	N	%	N	%	N	%
1999	8	38.1	12	57.1	1	4.8	0	0
2000	11	64.7	3	17.6	2	11.8	1	5.9
2001	8	57.1	4	28.6	1	7.1	1	7.1
2002	5	26.3	11	57.9	3	15.8	0	0
2003	10	52.6	6	31.6	3	15.8	0	0
Total	42	46.7	36	40.0	10	11.1	2	2.2

Table 3 shows that 46.7% of the respiratory care students were classified as traditional students, defined as being between the ages of 18 and 24 years old, whereas 53.3% of students were classified as non-traditional students, defined as being 25 years of age or older.

No student was admitted into the Respiratory Care Program with a college GPA less than 2.0 excluding developmental courses. Table 4 shows the Respiratory Care Program students by year and GPA.

Table 4

Respiratory Care Program Students by Year and GPA

Year	<u>4.0</u>		<u>3.0 - 3.9</u>		<u>2.0 - 2.9</u>	
	N	%	N	%	N	%
1999	0	0	8	38.1	13	61.9
2000	1	5.9	6	35.3	10	58.8
2001	0	0	7	50.0	7	50.0
2002	1	5.3	10	52.6	8	42.1
2003	0	0	9	47.4	10	52.6
Total	2	2.2	40	44.4	48	53.3

Of the total respiratory care student population, 2 (2.2%) had GPAs of 4.0; 40 (44.4%) had GPAs of 3.0 – 3.9; 48 (53.3%) had GPAs of 2.0 – 2.9; excluding developmental course work. Analysis shows the majority, 53.3%, of the students had GPAs closer to 2.0 than to 4.0, on the cumulative college grade point average scale when entering the program.

All students must complete 11 hours of prerequisites before admission into the Respiratory Care Program is granted. Of the population, 30 (33.3%) had earned 12 to 30 hours of credit; 34 (37.8%) had 31 to 59 credit hours; 26 (28.9%) had more than 60 hours of college credit, excluding developmental course work.. Table 5 shows the Respiratory Care Program students by year and credit hours earned before admission into the program

Table 5

Respiratory Care Program Students by Year and Credit Hours Earned Before Admission Into the Respiratory Care Program

Year	<u>12 - 30</u>		<u>31 - 59</u>		<u>60 or More</u>	
	N	%	N	%	N	%
1999	4	19.0	9	42.9	8	38.1
2000	11	64.7	3	17.6	3	17.6
2001	8	57.1	6	42.9	0	0
2002	2	10.5	8	42.1	9	47.4
2003	5	26.3	8	42.1	6	31.6
Total	30	33.3	34	37.8	26	28.9

The data, as shown in Table 5 show when all years are combined, 37.8% had earned 31 to 59 college credit hours when entering the respiratory care program.

Students who are required to take developmental coursework must complete all developmental courses before admission into the Respiratory Care Program is granted. Of the 90 students in the study, 55 (61.1%) required developmental course work; 35 (38.9%) had no developmental course requirements. Respiratory Care Program students by year and developmental requirements are reported in Table 6.

Table 6

Respiratory Care Program Students by Year and Developmental Requirements

Year	<u>Developmental</u>		<u>No Developmental</u>	
	N	%	N	%
1999	13	61.9	8	38.1
2000	10	58.8	7	41.2
2001	8	57.1	6	42.9
2002	13	68.4	6	31.6
2003	11	57.9	8	42.1
Total	55	61.1	35	38.9

As shown in Table 6, each year studied showed the majority of students needed developmental requirements before admissions into the respiratory care program could be granted.

Sixty students (66.7%) graduated from the Respiratory Care Program during the five years studied. Thirty students (33.3%) did not graduate; 7 had been dismissed for academic reasons; 13 had withdrawn because of poor academic progress; 2 had withdrawn because of financial reasons; 7 had withdrawn stating personal reasons; and 1 was clinically dismissed.

Existing data were used to conduct this study and were gathered from an exit questionnaire used by the respiratory care program (see Appendix). The students who were academically dismissed or had withdrawn were required to fill out the exit questionnaire.

Research Design

This study was designed to compare the students who had graduated to the students who had been dismissed or those who had withdrawn from the Respiratory Care Program. The independent variables used in this study were:

1. graduation from city or county high school;
2. gender;
3. age of students;
4. cumulative college GPAs computed upon admission into the Respiratory Care Program;
5. college hours earned upon admission into the Respiratory Care Program; and
6. graduation status (did not graduate versus graduated)

Data Collection

Existing data were used to conduct this study. The data were gathered from student information maintained by Walters State Community College's Student Information System (SIS). Also used in this study was an exit questionnaire (see Appendix). Each student was tracked from the time his or her major in respiratory care was declared until graduation or attrition from the Respiratory Care Program. These data were downloaded to a networked personal computer and analyzed. The students who were academically dismissed or had

withdrawn were required to fill out the exit questionnaire. Data from the questionnaire were gathered and analyzed.

Research Questions

The following questions guided the investigation:

1. What, if any, student demographic characteristics including graduation from a city or a county high school, gender, and age are associated with attrition rates at Walters State Community College's Respiratory Care Program?
2. What, if any, academic variables including college-level GPA and college-level credit hours are associated with attrition rates at Walters State Community College's Respiratory Care Program?
3. What, if any, prerequisite academic variables including required developmental courses are associated with attrition rates at Walters State Community College's Respiratory Care Program?

Hypotheses

The null hypotheses statistically tested for this research study were as follows:

Ho1: There is no difference in the attrition rates of students who had graduated from city high schools and those who had graduated from county high schools.

Ho2: There is no difference in the attrition rates of students based on gender.

Ho3: There is no difference in the graduation rates of students based on age.

Ho4: There is no difference in the graduation rates of students based on cumulative college-level GPAs before admission into the Respiratory Care Program.

Ho5: There is no difference in the graduation rates of students based on college hours earned before admission into the Respiratory Care Program.

Ho6: There is no difference in the graduation rates of students based on requirement of developmental courses before admission into the Respiratory Care Program.

Research Methods

For each of the five years of data, descriptive statistics were used to compare attrition rates by the type of high school attended, gender, age, GPA, the number of college hours earned prior to admission into the program, and whether or not developmental coursework was required prior to entry into the program. To evaluate the overall attrition rate using all 90 students in the five-year study period, six crosstabulated tables were created, one for each independent variable, and the chi-square test was used to test the six hypotheses.

The first step in the study was to test Ho1 by computing the number of students who graduated from city high schools and county high schools and the number who graduated and did not graduate from the Walters State Community College's Respiratory Care Program. The attrition rates for city and county students were then compared.

The next step in the study was to test Ho2 by computing the number of students who were male and female. The attrition rates for male and female students were then compared.

Ho3 was tested by determining the ages of students who did graduate and those who did not graduate from the Respiratory Care Program. The ages of students who graduated and those who did not graduate were then compared.

Ho4 was tested by computing the cumulative college-level GPAs before admission into the Respiratory Care Program. The GPAs for students who graduated and those who did not graduate were then compared.

Ho5 was tested by computing the college hours earned before admission into the Respiratory Care Program. The college hours earned for students who graduated and those who did not graduate were then compared.

The final step in the study was to test Ho6 by computing the number of students required to take developmental course work before admission into the Respiratory Care Program and those who were not required to take developmental coursework. The number of students who required developmental courses versus those who did not were then compared to the number of students who did not graduate and those students who did graduate.

Data Analysis

The Walters State Community College's Student Information System (SIS) provided numerical data for the dependent variable (attrition) and the six independent variables (type of high school attended, gender, age, college GPA prior to entry into the program, college hours earned prior to admission into the program, and whether or not developmental coursework was required).

In order to organize and summarize the data, I used descriptive statistical procedures outlined in *A Step-by-Step Approach to Using the SAS® System for Univariate and Multivariate Statistics* (Hatcher & Stepanski, 1994). These data were then entered into SPSS 13.0 software that was used to test all hypotheses by means of the chi-square test with an alpha level of .05.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

Analysis of the Impact of High School Graduation on Attrition Rates

Students, city or county, completing required high school education courses are expected to produce college-level work. The present study compared graduates from city and county high schools in the attrition rate at Walters State Community College's Respiratory Care Program.

Existing data were used to conduct this study. The data were gathered from student information maintained by Walters State Community College's Student Information System (SIS). Also used in this study was an exit questionnaire (see Appendix). Each student was tracked from the time a major in respiratory care was declared until graduation or attrition from the Respiratory Care Program. These data were downloaded to a networked personal computer and analyzed. The students who were academically dismissed or had withdrawn were required to fill out the exit questionnaire. Data from the questionnaire were gathered and analyzed.

Stated in the null form, the hypotheses investigated were:

Ho1: There is no difference in the attrition rates of students who had graduated from city high schools and those who had graduated from county high schools.

From 1999 to 2003, Walters State Community College had 90 students in the Respiratory Care Program. Of the 90 students, 30 students (33.3%) either were academically or clinically dismissed or had withdrawn from the program. Of the 30 students who did not graduate, 7 had been academically dismissed, 13 had withdrawn because of poor academic progress, 2 had withdrawn because of financial reasons, 7 had withdrawn for personal reasons, and 1 had been clinically dismissed.

Table 7 shows the attrition status of students who graduated from a city high school compared to students who graduated from a county high school for each of the five years in the study period.

Table 7
Attrition Status by Year and Type of High School Attended

	City		County	
	<i>N</i>	%	<i>N</i>	%
1999				
Attrition	1	33.3	9	50.0
Retained	<u>2</u>	<u>66.7</u>	<u>9</u>	<u>50.0</u>
Total	3	100.0	18	100.0
2000				
Attrition	1	16.7	3	27.3
Retained	<u>5</u>	<u>83.3</u>	<u>8</u>	<u>72.7</u>
Total	6	100.0	11	100.0
2001				
Attrition	2	50.0	3	30.0
Retained	<u>2</u>	<u>50.0</u>	<u>7</u>	<u>70.0</u>
Total	4	100.0	10	100.0
2002				
Attrition	2	66.7	7	43.8
Retained	<u>1</u>	<u>33.3</u>	<u>9</u>	<u>56.2</u>
Total	3	100.0	16	100.0
2003				
Attrition	0	0.00	2	13.3
Retained	<u>4</u>	<u>100.0</u>	<u>13</u>	<u>86.7</u>
Total	4	100.0	15	100.0

Comparison of Attrition by Type of High School Attended

In comparing the overall attrition rates of the 90 students in the Respiratory Care Program for all 5 years, the chi-square test of significance indicated that there was no statistically significant difference in the attrition rates of students who had graduated from city high schools and those who had graduated from county high schools, $X^2 (1) = .129, p = .72$. This finding supports retaining H_0 : There is no difference in the attrition rates of students who had graduated from city high schools and those who had graduated from county high schools. The data showed that 30% of the students who graduated from city high schools did not graduate as compared to 34.3% of students who graduated from county high schools who did not graduate. The crosstabulated table for the type of high school attended and attrition is shown in Table 8.

Table 8

Crosstabulated Table for Attrition by Type of High School Attended

High School Attended	City		County		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Attrition	6	30.0	24	34.3	30	33.3
Retained	<u>14</u>	<u>70.0</u>	<u>46</u>	<u>65.7</u>	<u>60</u>	<u>66.7</u>
Total	20	100.0	70	100.0	90	100.0

The strength of the relationship as measured by Phi, showed a very weak relationship between type of high school attended and attrition (.04).

Analysis of the Association Between Gender and Attrition Rates

Females make up a high percentage of health care professionals. This researcher compared male and female attrition rates at Walters State Community College's Respiratory Care Program. Stated in the null form, the hypothesis investigated was:

Ho2: There is no difference in the attrition rates of students based on gender.

From 1999 to 2003, Walters State Community College had 90 students in the Respiratory Care Program. Of the 90 students, 16 (17.8%) were male and 74 (82.2%) were female. The results of this analysis are reported in Table 9.

Table 9

Attrition Status by Year and Gender

	Male		Female	
	<i>N</i>	%	<i>N</i>	%
1999				
Attrition	2	66.7	8	44.4
Retained	<u>1</u>	<u>33.3</u>	<u>10</u>	<u>55.6</u>
Total	3	100.0	18	100.0
2000				
Attrition	0	0.00	4	28.6
Retained	<u>3</u>	<u>100.0</u>	<u>10</u>	<u>71.4</u>
Total	3	100.0	14	100.0
2001				
Attrition	0	0.0	5	41.7
Retained	<u>2</u>	<u>100.0</u>	<u>7</u>	<u>58.3</u>
Total	2	100.0	12	100.0
2002				
Attrition	2	50.0	7	46.7
Retained	<u>2</u>	<u>50.0</u>	<u>8</u>	<u>53.3</u>
Total	4	100.0	15	100.0
2003				
Attrition	1	25.0	1	6.7
Retained	<u>3</u>	<u>75.0</u>	<u>14</u>	<u>93.3</u>
Total	4	100.0	15	100.0

Comparison of Attrition by Gender

In comparing the overall attrition rates of the 90 students in the Respiratory Care Program for all 5 years, the chi-square test of significance indicated that there was no statistically significant difference in the attrition rates of male or female students, $X^2 (1) = .038, p = .845$.

These findings support retaining Ho2: There is no difference in the attrition rates of students

based on gender. The data showed that 31.3% of the male students left the program as compared to 33.8% of the female students. The crosstabulated table for gender and attrition is shown in Table 10.

Table 10

Crosstabulated Table for Attrition by Gender

Gender	Male		Female	
	<i>N</i>	%	<i>N</i>	%
Attrition	5	31.3	25	33.8
Retained	11	68.8	49	66.2
Total	16	100.0	74	100.0

The strength of the relationship as measured by Phi, showed a very weak relationship between gender and attrition (.02).

Analysis of Age on Graduation Rates

Chapter 2 revealed that many studies have found that older students had higher dropout rates than did younger students. All students, of all ages, who complete required education courses are expected to perform college-level work. The present study focused on the ages of students who did not graduate from Walters State Community College's Respiratory Care Program. Stated in the null form, the hypothesis tested was:

Ho3: There is no difference in the graduation rates of students based on age.

From 1999 to 2003 Walters State Community College had 90 students in the Respiratory Care Program. Of the 90 students, 42 (46.7%) were between the ages of 18 and 24; 36 (40%) were between 25 and 34; and 12 (13.3%) were 35 and older. The results of this analysis are reported in Table 11.

Table 11

Attrition Status by Year and Age

	18 - 24		25 - 34		35 or over	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1999						
Attrition	2	25.0	8	66.7	0	0.0
Retained	<u>6</u>	<u>75.0</u>	<u>4</u>	<u>33.3</u>	<u>1</u>	<u>100.0</u>
Total	8	100.0	12	100.0	1	100.0
2000						
Attrition	3	27.3	0	0.0	1	33.3
Retained	<u>8</u>	<u>72.7</u>	<u>3</u>	<u>100.0</u>	<u>2</u>	<u>66.7</u>
Total	11	100.0	3	100.0	3	100.0
2001						
Attrition	4	50.0	0	0.0	1	50.0
Retained	<u>4</u>	<u>50.0</u>	<u>4</u>	<u>100.0</u>	<u>1</u>	<u>50.0</u>
Total	8	100.0	4	100.0	2	100.0
2002						
Attrition	1	20.0	6	54.5	2	66.7
Retained	<u>4</u>	<u>80.0</u>	<u>5</u>	<u>45.5</u>	<u>1</u>	<u>33.3</u>
Total	5	100.0	11	100.0	3	100.0
2003						
Attrition	1	10.0	1	16.7	0	0.0
Retained	<u>9</u>	<u>90.0</u>	<u>5</u>	<u>83.3</u>	<u>3</u>	<u>100.0</u>
Total	10	100.0	6	100.0	3	100.0

Comparison of the Attrition Rate by Age

For the analysis of attrition by age, a 3 by 2 crosstabulated table was created. The 3 by 2 crosstabulated table showed no violations of the assumptions of chi-square. The chi-square test was not significant, $X^2(2) = 2.089, p = .352$. These findings support retaining Ho3: There is no difference in the graduation rates of students based on age. The crosstabulated table for age and attrition is shown in Table 12.

Table 12

Crosstabulated Table for Attrition by Age

Age	18 – 24		25 – 34		35 or over	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Attrition	11	26.2	15	41.7	4	33.3
Retained	<u>31</u>	<u>73.8</u>	21	<u>58.3</u>	<u>8</u>	<u>66.7</u>
Total	42	100.0	36	100.0	12	100.0

The strength of the relationship, as measured by Cramer's V, was weak (.15). Although not statistically significant, it should be noted that there was little difference between the attrition rates of traditional students (26.2%) and students 35 years old and over (33.3%). However, among students aged 25 to 34, almost 42% were not retained.

Analysis of Cumulative College-Level Grade Point Averages

The traditional method of establishing relative success in college-level course work is by comparison of cumulative college-level grade point averages. Students may establish a certain number of credit hours and may even graduate, but the quality of the hours earned is measured by the student's cumulative GPA. The GPA is the college's standard grading scale. The scale awards 4 quality points for an "A" grade, 3 quality points for a "B" grade, 2 quality points for a "C" grade, 1 quality point for a "D" grade, and zero quality points for an "F" grade. The present study focused on the cumulative GPA of students upon admission into the Walters State Community College's Respiratory Care Program. Stated in the null form, the hypothesis investigated was:

H₀₄: There is no difference in the graduation rates of students based on cumulative college-level GPAs before admission into the Respiratory Care Program.

From 1999 to 2003, Walters State Community College had 90 students in the Respiratory Care Program. Of the population, 2 students (2.2%) had a GPA of 4.0; 40 (44.4%) a GPA of 3.0 – 3.9; and 48 (53.3%) a GPA of 2.0 – 2.9. No students were admitted into the Respiratory Care Program with a GPA less than 2.0.

Of the 90 students studied, 30 of these students (33.3%) did not graduate. Table 13 shows the attrition status of students by GPA for each of the five years in the study period.

Table 13

Attrition Status by Year and GPA

	2.0 – 2.9		3.0 – 3.9		4.0	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1999						
Attrition	8	61.5	2	25.0	0	0
Retained	<u>5</u>	<u>38.5</u>	<u>6</u>	<u>75.0</u>	<u>0</u>	<u>0</u>
Total	13	100.0	8	100.0	0	0
2000						
Attrition	3	30.0	0	0.0	1	100.0
Retained	<u>7</u>	<u>70.0</u>	<u>6</u>	<u>100.0</u>	<u>0</u>	<u>0.0</u>
Total	10	100.0	6	100.0	1	100.0
2001						
Attrition	4	57.1	1	14.3	0	0
Retained	<u>3</u>	<u>42.9</u>	<u>6</u>	<u>85.7</u>	<u>0</u>	<u>0</u>
Total	7	100.0	7	100.0	0	0
2002						
Attrition	7	87.5	2	20.0	0	0.0
Retained	<u>1</u>	<u>12.5</u>	<u>8</u>	<u>80.0</u>	<u>1</u>	<u>100.0</u>
Total	8	100.0	10	100.0	1	100.0
2003						
Attrition	1	10.0	1	11.1	0	0
Retained	<u>9</u>	<u>90.0</u>	<u>8</u>	<u>88.9</u>	<u>0</u>	<u>0</u>
Total	10	100.0	9	100.0	0	0

Comparison of Attrition Rate by GPA

For this analysis, initially the GPA was categorized into three categories to create a 3 by 2 crosstabulated table. However, because of violations of the assumptions of chi-square, two categories of GPA (3.0 to 3.9 and 4.0) were combined. Therefore, a 2 by 2 crosstabulated table was used to analyze the hypothesis. The chi-square test for the 2 by 2 table was significant, $X^2(1) = 9.844, p = .002$. These findings support rejecting Ho4: There is no difference in the

graduation rates of students based on cumulative college-level GPAs before admission into the Respiratory Care Program. The data showed that among students with a GPA of less than 3.0 before admission to the program, 47.9% did not graduate as compared to 16.7% of students with a GPA of 3.0 or higher. The crosstabulated table for attrition by GPA is shown in Table 14.

Table 14

Crosstabulated Table for Attrition by GPA

GPA	2.0 – 2.9		3.0 – 4.0	
	<i>N</i>	%	<i>N</i>	%
Attrition	23	47.9	7	16.7
Retained	<u>25</u>	<u>52.1</u>	<u>35</u>	<u>83.3</u>
Total	48	100.0	42	100.0

The strength of the relationship as measured by Phi was moderate (.331).

Analysis of College-Level Credit Hours Earned on Graduation Rates

Students attend community colleges for a variety of reasons. Some students obtain credit hours for transfer to senior colleges and universities because of the decrease in tuition fees. Other students take courses to fulfill the requirements for an associate degree and a career path. The researcher compared the college hours earned by the students upon admission into the

Walters State Community College's Respiratory Care Program. Stated in the null form, the hypothesis investigated was:

Ho5: There is no difference in the graduation rates of students based on college hours earned before admission into the Respiratory Care Program.

From 1999 to 2003, Walters State Community College had 90 students in the Respiratory Care Program. Of the population, 30 (33.3%) had earned 12 – 30 hours of credit; 34 (37.8%) had 31 – 59 credit hours; and 26 (28.9%) had 60 hours or more of credit. All students must complete 11 hours of prerequisites and complete all required developmental courses before admission into the Respiratory Care Program is granted. Of the 30 students (33.3%) who did not graduate, 4 (13.3%) had earned 12 – 30 hours of credit; 10 (29.4%) had 31 – 59 credit hours; and 16 (61.5%) had greater than 60 hours of credit. The results of this analysis are reported in Table 15.

Table 15

Attrition Status by Year and College Hours Earned Prior to Admission

	12 – 30		31 – 59		60 or more	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1999						
Attrition	0	0.0	4	44.4	6	75.0
Retained	<u>4</u>	<u>100.0</u>	<u>5</u>	<u>55.6</u>	<u>2</u>	<u>25.0</u>
Total	4	100.0	9	100.0	8	100.0
2000						
Attrition	3	27.3	0	0.0	1	33.3
Retained	<u>8</u>	<u>72.7</u>	<u>3</u>	<u>100.0</u>	<u>2</u>	<u>66.7</u>
Total	11	100.0	3	100.0	3	100.0
2001						
Attrition	1	12.5	4	66.7	0	0
Retained	<u>7</u>	<u>87.5</u>	<u>2</u>	<u>33.3</u>	<u>0</u>	<u>0</u>
Total	8	100.0	6	100.0	0	0
2002						
Attrition	0	0.0	2	25.0	7	77.8
Retained	<u>2</u>	<u>100.0</u>	<u>6</u>	<u>75.0</u>	<u>2</u>	<u>22.2</u>
Total	2	100.0	8	100.0	9	100.0
2003						
Attrition	0	0.0	0	0.0	2	33.3
Retained	<u>5</u>	<u>100.0</u>	<u>8</u>	<u>100.0</u>	<u>4</u>	<u>66.7</u>
Total	5	100.0	8	100.0	6	100.0

Comparison of Attrition Rate by Credit Hours Earned

To analyze this hypothesis, a 3 by 2 crosstabulated table was generated. There were three categories of the number of college hours earned before admission into the program: 12 to 30 hours, 31 to 59 hours, and 60 or more hours. The chi-square was significant, $X^2 (2) = 14.943$, $p = .001$. These findings support rejecting Ho5: There is no difference in the graduation rates of students based on college hours earned before admission into the Respiratory Care Program.

The data showed that among students with 60 or more college-level credit hours earned before admission into the program, 61.5% did not graduate as compared to 29.4% of students with 31 – 59 hours and 13.3% of the students with 12 – 30 college-level credit hours earned. The crosstabulated table for attrition by college-level credit hours is shown in Table 16.

Table 16

Crosstabulated Table for Attrition by College-Level Credit Hours Earned

College Hours Earned Prior to Admission	12– 30		31 – 59		60 or more	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
	Attrition	4	13.3	10	29.4	16
Retained	<u>26</u>	<u>86.7</u>	<u>24</u>	<u>70.6</u>	<u>10</u>	<u>38.5</u>
Total	30	100.0	34	100.0	26	100.0

The strength of the relationship as measured by Cramer's V was moderate (.407).

Analysis of Required Developmental Courses

Effectiveness of developmental education can also be gauged by graduation rates. Students completing required developmental education courses are expected to graduate at rates comparable to non-developmental students. This study compared the attrition rates of students who were required to take developmental course work to students without required

developmental courses before admission into the Walters State Community College's Respiratory Care Program. Stated in the null form, the hypothesis tested was:

Ho6: There is no difference in the graduation rates of students based on requirement of developmental courses before admission into the Respiratory Care Program.

From 1999 to 2003, Walters State Community College had 90 students in the Respiratory Care Program. Of the 90 students studied, 55 (61.1%) required developmental course work, and 35 (38.9%) had no developmental course requirements. Thirty of these students did not graduate. The results of this analysis are reported in Table 17.

Table 17

Attrition Status by Year and Developmental Coursework Versus No Developmental Courses

	Developmental Coursework		No	
	<i>N</i>	Yes %	<i>N</i>	%
1999				
Attrition	6	46.2	4	50.0
Retained	<u>7</u>	<u>53.8</u>	<u>4</u>	<u>50.0</u>
Total	13	100.0	8	100.0
2000				
Attrition	4	40.0	0	0.0
Retained	<u>6</u>	<u>60.0</u>	<u>7</u>	<u>100.0</u>
Total	10	100.0	7	100.0
2001				
Attrition	4	50.0	1	16.7
Retained	<u>4</u>	<u>50.0</u>	<u>5</u>	<u>83.3</u>
Total	8	100.0	6	100.0
2002				
Attrition	8	61.5	1	16.7
Retained	<u>5</u>	<u>38.5</u>	<u>5</u>	<u>83.3</u>
Total	13	100.0	6	100.0
2003				
Attrition	1	9.1	1	12.5
Retained	<u>10</u>	<u>90.9</u>	<u>7</u>	<u>87.5</u>
Total	11	100.0	8	100.0

Comparison of Attrition Rate by Developmental Requirements

A 2 by 2 crosstabulated table was created to analyze this hypothesis. The chi-square test was significant, $X^2(1) = 4.582$, $p = .032$. These findings support rejecting H_06 : There is no difference in the graduation rates of students based on requirement of developmental courses before admission into the Respiratory Care Program. The data showed that among students with

developmental education requirements, 41.8% did not graduate as compared to 20% of students with no developmental requirements. The crosstabulated table for attrition by developmental courses is shown in Table 18.

Table 18

Crosstabulated Table for Attrition by Developmental Courses

Developmental Coursework Required	Yes		No	
	<i>N</i>	%	<i>N</i>	%
Attrition	23	41.8	7	20.0
Retained	<u>32</u>	<u>58.2</u>	<u>28</u>	<u>80.0</u>
Total	55	100.0	35	100.0

The strength of the relationship as measured by Phi was weak (.226).

Summary

In summary, the study's findings showed there was no difference in the attrition rates of students who graduated from city and county high schools. In addition, there was no difference in attrition rates of male and female students. Finally, there was no difference in the attrition rates based on age.

There was a significant difference in the attrition rates between students who had a GPA less than 3.0 prior to entry into the program and students who had a GPA of 3.0 and higher:

Students with a GPA of less than 3.0 had a higher attrition rate. There was also a significant difference in attrition between students who were required to take developmental coursework and those who were not. Students who were required to take developmental coursework prior to entry into the program had a higher attrition rate than those who were not required to take developmental coursework. Finally, there were differences in the attrition rates of students based on the number of college credit hours prior to admission into the program: As the number of college credit hours prior to admission to the program increased, so did the attrition rate.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Findings

This study focused on attrition rates of students at Walters State Community College who attended classes for the Respiratory Care Associate of Applied Science degree. The program served 90 students over a five-year period consisting of 1999 through 2003. The researcher examined the attrition rate of students who graduated from a city or county high school. The students were also compared on gender, age, GPA, hours earned, and if developmental courses were required before entering the Respiratory Care Program.

In this study, there was no significant difference in the attrition rates of students who graduated from city and county high schools. Among students who graduated from city high schools, 30% left the program as compared to 34.3% of the students who graduated from county high schools.

The findings of this study also showed there was no significant difference in the attrition rates of males and females. Among male students, 31.3% did not graduate whereas 33.8% of the females admitted failed to graduate.

The researcher found that age did not have a significant difference on graduation and attrition in the Respiratory Care Program. Among students aged 18 to 24 (the traditional college student), 73.8% graduated from the program. Only 58.3% in the age group of 25 to 34 graduated. However, 66.7% of the students granted admission into the Respiratory Care Program in the age group of 35 and over graduated. Although not statistically significant, it should be noted that there was little difference between the attrition rates of traditional students

(26.2%) and students 35 years old and over (33.3%). However, among students aged 25 to 34, almost 42% did not graduate.

The researcher found significant differences in cumulative college-level GPAs between students who had graduated and those who had not graduated. The study revealed that among students with a GPA of less than 3.0 before admission to the program, 47.9% did not graduate as compared to only 16.7% of students with a GPA of 3.0 or higher.

The findings of this study with regard to persistence as measured by cumulative college-level credit hours earned revealed significant differences. There were 30 students granted admission into the Respiratory Care Program with 12 to 30 college-level credit hours. There were 34 students granted admission into the Respiratory Care Program with 31 to 59 college-level credit hours. There were 26 students granted admission into the Respiratory Care Program with 60 or more college-level credit hours. Among students with 60 or more college-level credit hours earned before admission into the program, 61.5% did not graduate. Among students with 31 to 59 hours, 29.4% did not graduate. Among students with 12 to 30 hours, only 13.3% did not graduate.

The researcher found significant differences with regard to persistence as measured by developmental education course requirements. Of the 90 students entering the Walters State Respiratory Care Program, 55 students required developmental education course work. Among students with developmental education requirements, 41.8% did not graduate as compared to 20% of students with no developmental requirements.

Conclusions

The conclusions that were drawn from this study are outlined below:

1. There were 20 city students and 70 county students granted admission into the Respiratory Care Program during the years of 1999 through 2003. The study indicated no significant difference in city and county high school graduates in the attrition rate from the Respiratory Care Program.
2. There were 16 males and 74 females granted admission into the Respiratory Care Program during the years of 1999 to 2003. Male students graduated at rates that were not significantly different from graduation rates of females.
3. The age of students granted admission into the Walters State Community College's Respiratory Care Program varied year to year. Students started the program as early as 19 years old up to 52 years of age. The study indicated that age did not have a significant impact on graduation and attrition in the Respiratory Care Program.
4. The cumulative college-level GPA before admission in to the program was indicated to be a factor in graduation or attrition from the Respiratory Care Program. Students with a GPA of 3.0 or higher had a significantly lower attrition rate than did students with a GPA of less than 3.0
5. The college-level credit hours earned before admission into the Walters State Community College's Respiratory Care Program was indicated to be a factor in attrition from the program. The greater the number of college credit hours prior to admission into the program, the higher the attrition rate.
6. A majority of students entering the Walters State Community College's Respiratory Care Program required developmental education courses. The study indicated a significant difference in the attrition rate of students needing developmental courses

before admission into the program: Students who required developmental coursework had a higher attrition rate than students who did not.

Recommendations for Future Research

The findings of this study are considered benchmark findings. For this study to be useful for future decision-making, it must be compared with results of future studies designed to measure retention and attrition. Therefore, it is recommended that the analysis conducted on Walters State Community College's Respiratory Care Program students be continued and updated annually.

Additional research studies need to be designed to answer questions beyond the scope of this study. These would include but are not limited to the following:

1. Research designed to explore the relationship of retention and attrition in the age group of 25 to 34 is needed to ascertain the extent other variables such as concurrent employment, marital status, child care, financial ability, and transportation influence the success of the student in this age group.
2. Research designed to investigate the relationship between cumulative college-level GPAs and GPAs in required health science classes is needed to ascertain the extent this variable has on retention and attrition in the health profession degrees.
3. Research designed to explore the relationship between cumulative college-level credit hours earned and attrition is needed in order to determine if major changing increases attrition.

4. Research designed to investigate the relationship between the initial level of developmental deficiency and the success potential of a health profession degree is needed.

One of the Healthy People 2010 goals is to “increase the proportion of degrees awarded to members of underrepresented racial and ethnic groups in the health professions, allied and associated health profession fields, and the nursing field” (U.S. Department of Health and Human Services, 2000, p. 19). Currently, minorities constitute 25% of the United States population, but only about 10% work as health professionals (Strayhorn, 2000). Mario Manecchi, the acting director of the Division of Health Profession Diversity of the Bureau of Health Professions, Health Resources and Services Administration stated, “If we can recruit from areas that are underrepresented, hopefully those (health professionals) will return and provide services to that population” (as cited in Hellinghausen, 2000, p. 1).

Recommendations to Improve Practice

This researcher recommends that the Walters State Community College’s Respiratory Care Program faculty members review the GPAs, college-level credit hours, and developmental education requirements of students applying for entrance into the program. The program should incorporate weighted values into a revised ranking model for entry into the program based on these variables. The rewards of quality respiratory therapists and increased academic persistence within the respiratory care program will be realized by the faculty and the accreditation body (CoARC).

REFERENCES

- Adelman, C. (1992). *The way we are. The community college as American thermometer*. Washington, DC: U.S. Department of Education.
- Augelli, A. R., & Hershberger, S. L. (1993). African American undergraduates on a predominantly White campus: Academic factors, social networks, and campus climate. *Journal of Negro Education, 62*, 67-81.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bean, J. P., & Bradley, R. K. (1986). Untangling the satisfaction-performance relationship for college students. *Journal of Higher Education 57*, 393-412.
- Bean, J. P., & Metzner, B. S. (1985). A conceptual model of non-traditional undergraduate student attrition. *Review of Educational Research, 55*, 485-540.
- Berger, J. B., & Braxton, J. M. (1998). Revising Tinto's interactionist theory of student departure through theory elaboration: Examining the role of organizational attributes in the persistence process. *Research in Higher Education, 39*, 103-119.
- Bers, T. H., & Smith, K. E. (1991). Persistence of the community college students: The influence of student intent and academic and social integration. *Research in Higher Education, 32*, 535-556.
- Braxton, J. M., Vesper, N., & Hossler, D. (1995). Expectations for college and student persistence. *Research in Higher Education, 36*, 595-612.
- Brown, T., & Rivas, M. (1994). The prescriptive relationship in academic advising as an appropriate developmental intervention with multicultural populations. *NACADA Journal, 14*, 108-111.

- Cabrera, A. F., & Nora, A. (1994). College students' perceptions of prejudice and discrimination and their feelings of alienation. *Review of Education, Pedagogy, and Cultural Studies, 16*, 387-409.
- Cabrera, A. F., Castaneda, M. B., Nora, A., & Hengstler, D. (1992). The convergence between two theories of college persistence. *Journal of Higher Education, 63*, 143-164.
- Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39*, 3-7.
- Claggett, C. A. (1996). Correlates of success in the community college: Using research to inform campus retention efforts. *Journal of Applied Research in the Community College, 4*, 49-68.
- Creamer, E. G., & Scott, D. W. (2000). Assessing individual advisor effectiveness. In V. N. Gordon & W. H. Habley (Eds.), *Academic advising. A comprehensive handbook* (pp. 339-347). San Francisco: Jossey-Bass.
- Crookston, B. B. (1972). A developmental view of academic advising as teaching. *Journal of College Student Personnel, 13*, 12-17.
- Duke, M. P., & Nowicki, S. (1974). Locus of control and achievement--the confirmation of a theoretical expectation. *The Journal of Psychology, 87*, 263-267.
- Earl, W. R. (1988). Intrusive advising of freshmen in academic difficulty. *NACADA Journal, 8*, 27-33.
- Edwards, J. W., & Waters, L. K. (1982). Involvement, ability, performance, and satisfaction as predictors of college attrition. *Educational and Psychological Measurement, 42*, 1149-1152.
- Eimers, M. T., & Pike, G. R. (1997). Rural and nonrural adjustment to college: Differences or similarities. *Research in Higher Education, 38*, 77-98.
- Ender, S. C. (1994). Impediments to developmental advising. *NACADA Journal, 14*, 105-107.

- Feldman, M. J. (1993). Factors associated with one-year retention in a community college. *Research in Higher Education, 34*, 503-511.
- Fielstein, L. L. (1989). Developmental versus prescriptive advising: Must it be one or the other? *NACADA Journal, 9*, 33-38.
- Foote, B. (1980). Determined and undetermined-major students: How different are they? *Journal of College Student Personnel, 21*, 29-31.
- Frost, S. H. (1991). *Academic advising for student success. A system of shared responsibility* (ASHE-ERIC Higher Education Report No. 3). Washington DC: The George Washington University School of Education and Human Development.
- Frost, S. H. (1993). Developmental advising: Practices and attitudes of faculty advisors. *NACADA Journal, 13*, 15-20.
- Glennen, R. E. (1995). Obtaining presidential support for advising. In R. E. Glennen & F. Vowell (Eds.), *Academic advising as a comprehensive campus process*, (pp. 11-14). Manhattan, KS: National Academic Advising Association.
- Glennen, R. E., & Vowell, F. N. (Eds.). (1995). *Academic advising as a comprehensive campus process*. National Academic Advising Association Monograph Series (No. 2).
- Glennen, R. E., Farren, P. J., & Vowell, F. N. (1996). How advising and retention of students improves fiscal stability. *NACADA Journal, 16*, 38-41.
- Gordon, V. (1994). Developmental advising: The elusive ideal. *NACADA Journal, 14*, 71-75.
- Gordon, V. N., & Habley, W. R. (2000). *Academic advising: A comprehensive handbook*. San Francisco: Jossey-Bass.
- Gray-Barnett, N. (2001). *An analysis of the academic success achieved by five freshman cohorts through a community college developmental education program*. Ed.D. Dissertation, East Tennessee State University: Department of Educational Leadership and Policy Analysis, Johnson City.

- Grites, T. J. (1982). Advising for special populations. In R. B. Winston, S. C. Ender, & T. K. Miller (Eds.), *Developmental approaches to academic advising* (pp. 67-83). San Francisco: Jossey-Bass.
- Habley, W. R. (1986). Show us the future: The challenges facing academic advising. *NACADA Journal*, 6, 5-11.
- Habley, W. R., & Crockett, D. S. (1988). The third ACT national survey of academic advising. In W. R. Habley (Ed.), *The status and future of academic advising* (pp. 11-76). Iowa City, IA: American College Testing Program.
- Hatcher, L., & Stepanski, E. (1994). *A step-by step approach to using the SAS system univariate and multivariate statistics*. Cary, NC: SAS Institute.
- Hauser, R. M., & Anderson, D. K. (1991). Post-high school plans and aspirations of Black and White high school seniors: 1976-86. *Sociology of Education*, 64, 263-277.
- Hellinghausen, M.A. (2000). *Closing the gap: Program aims to add more minorities to health care professions*. Retrieved March 13, 2005, from <http://www.nurseweek.com/features/00.03/vision.html>
- Holmes, S. (2000). *Student recruitment, retention and monitoring*. Retrieved March 13, 2005, from http://www.diversityweb.org/Leadersguide/RRAA/Student_Retention/intrusive.html
- Hurtado, S., Milem, J. F., Clayton-Pedersen, A. R., & Allen, W. R. (1998). Enhancing campus climates for racial/ethnic diversity: Educational policy and practice. *Review of Higher Education*, 21, 279-302.
- Jones, D. J., & Watson, B. C. (1990). *"High risk" students and higher education: Future trends*. (ASHE-ERIC Higher Education Report No. 3). Washington, DC: The George Washington University School of Education and Human Development.
- Kasworm, C. E. (1990). Adult undergraduates in higher education: A review of past research perspectives. *Review of Educational Research*, 60, 345-372.

- Kirschenbaum D. S., & Perri M. A. (1982). Improving academic competence in adults: A review of recent research. *Journal of Counseling Psychology, 29*, 76-94
- Lewallen, W. (1993). The impact of being undecided on college-student persistence. *Journal of College Student Development, 34*, 103-113.
- Lockard, J., Abrams, P. D., & Many, W.A. (1997). *Microcomputers for twenty-first century educators* (4th ed.). New York: Longman.
- Moline, A. E. (1987). Financial aid and student persistence: An application of causal modeling. *Research in Higher Education, 26*, 130-147.
- Naretto, J. A. (1995). Adult student retention: The influence of internal and external communities. *NASPA Journal, 32*, 90-100.
- National Academic Advising Association. (2000). *Institutional program abstracts*. Retrieved March 13, 2005, from <http://www.nacada.ksu.edu/Awards/archives2.html>
- Noel, L., Levitz, R., & Saluri, D. (1985). *Increasing student retention*. San Francisco: Jossey-Bass.
- Nora, A., & Cabrera, A. F. (1996). The role of perceptions of prejudice and discrimination on the adjustment of minority students to college. *Journal of Higher Education, 67*, 119-148.
- Nunn, G. D. (1994). Adult learners' locus of control, self-evaluation and learning temperament as a function of age and gender. *Journal of Instructional Psychology, 21*, 260-264.
- Nutt, C. L. (2000). One-to-one advising. In V. N. Gordon & W. H. Habley (Eds.), *Academic advising: A comprehensive handbook* (pp. 220-237). San Francisco: Jossey-Bass.
- Pardee, C. F. (1994). We profess developmental advising, but do we practice it? *NACADA Journal, 14*, 59-61.
- Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students*. San Francisco: Jossey-Bass.

- Pascarella, E. T., Edison, M., Nora, A., Hagedorn, L., & Terenzini, P. (1996). Influences on students' openness to diversity and challenge in the first year of college. *Journal of Higher Education, 67*, 174-195.
- Pascarella, E. T., Smart, J. C., & Ethington, C. A. (1993). Long-term persistence of two-year college students. *Research in Higher Education, 24*, 47-71.
- Peidmont, R. L. (1989). The life activities achievement scale: An act-frequency approach to the measurement of motivation. *Educational and Psychological Measurement, 49*, 863-874.
- Peterson, J. V., & Nisenholz, B. (1999). *Orientation to counseling* (4th ed.). Boston: Allyn & Bacon.
- Polansky, J., Horan, J. J., & Hanish, C. (1993). Experimental construct validity of the outcomes of study skills training and career counseling as treatments for the retention of rural students. *Journal of Counseling and Development, 71*, 489-492.
- Porter O. F. (1990). *Undergraduate completion and persistence at four-year colleges and universities*. The National Association of Independent Colleges and Universities. Retrieved March 13, 2005, from <http://www.naicu.edu>
- Pucik, V., Tichy, N. M., & Barnett, C. K. (1992). *Globalizing management: Creating and leading the competitive organization*. New York: John Wiley & Sons.
- Reiff, H. B. (1997). Academic advising: An approach from learning disabilities to research. *Journal of Counseling and Development, 75*, 433-441.
- Richardson, J. T. (1994). Mature students in higher education: Academic performance and intellectual ability. *Higher Education, 28*, 373-386.
- Schultz, R. A., Dickman, M. M., Campbell, N. J., & Snow, B. M. (1992). Assessing a short-term intervention to facilitate academic success. *NASPA Journal, 30*, 43-50.
- Sheehan, E. P., McMenamin, N., & McDevitt, T. M. (1992). Learning styles of urban and rural university students. *College Student Journal, 26*, 486-490.

- Soils, E. (1995). Regression and path analysis models of Hispanic community college students' intent to persist. *Community College Review*, 23, 3-15.
- St. John, E. P. (1994). *Prices, productivity, and investment: Assessing financial strategies in higher education*. ASHE-ERIC Higher Education Reports (Report #3). Washington, DC: George Washington University Press.
- Strayhorn, G. (2000). A pre-admission program for underrepresented minority and disadvantaged students: Application, acceptance, graduation rates, and timeliness of graduating from medical school. *Academic Medicine*, 75, 355-361.
- Thompson, J., Samiratedu, V., & Rafter, J. (1993). The effects of on-campus residence on first-time college students. *NASPA Journal*, 31, 4147.
- Tinto V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: University of Chicago Press.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45, 89-125.
- Tinto, V. (1982). Limits of theory and practice in student attrition. *Journal of Higher Education*, 53, 687-700.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed). Chicago: University of Chicago Press.
- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *Journal of Higher Education*, 68, 599-623.
- Tomlinson-Clarke, S., & Clarke, D. (1996). Institutional effects on alienation and student effort at three campus environments. *Journal of College Student Development*, 37, 60-67.
- U.S. Department of Health and Human Services. (2000). *Healthy people 2010*. Retrieved March 13, 2005, from <http://www.health.gov/healypeople/>
- Vogt, W. P. (1997). *Tolerance and education: Learning to live with diversity and difference*. London: Sage.

- Walters State Community College. (1999). *Walters state community college 1999 – 2000 catalog/student handbook*. Morristown, TN: Author.
- Walters State Community College (2000). *Walters state community college 2000 - 2001 catalog/student handbook*. Morristown, TN: Author.
- Walters State Community College (2001). *Walters state community college 2001 - 2002 catalog/student handbook*. Morristown, TN: Author.
- Walters State Community College (2002). *Walters state community college 2002 - 2003 catalog/student handbook*. Morristown, TN: Author.
- Walters State Community College (2003). *Walters state community college 2003 - 2004 catalog/student handbook*. Morristown, TN: Author.
- Weissman, J., Bulakowski, J., & Jumisko, M. K. (1997). Using research to evaluate developmental programs and policies. In J. M. Ignash (Ed.), *Implementing effective policies for developmental and developmental education* (pp. 73-80). San Francisco: Jossey Bass.
- Wilcox, L. (1991). Evaluating the impact of financial aid on student recruitment and retention. In D. Hossler (Ed.), *Evaluating student recruitment and retention programs* (pp. 47-60). San Francisco: Jossey-Bass.
- Winefield, H. R. (1993). Study-work satisfaction and psychological distress in older university students. *Work and Stress*, 7, 221-228.
- Winston, R. B., Miller, T. K., Ender, S. C., & Grites, T. J. (Eds.). (1982). *Developmental approaches to academic advising*. San Francisco: Jossey-Bass.
- Wolfe, J. S. (1993). Institutional integration, academic success, and persistence of first-year commuter and resident students. *Research in Higher Education*, 34, 321-326.
- Wyckoff, S. C. (1999). *The academic advising process in higher education: History, research, and improvement*. Retrieved March 13, 2005, from http://www.magnapubs.com/R_R/the.htm

APPENDIX

Exit Questionnaire

Walters State Community College

Respiratory Care Program

Exit Questionnaire

Instructions: Your assistance in completing this questionnaire will enable the Program to better understand the factors leading to your leaving the Program. In doing this the faculty are attempting to improve where we need to and how to plan better in the future. Please accept our appreciation in advance. **Completion is required if you ever choose to re-enter the program in the future. Please follow the guidelines for readmission requests noted in the Student Handbook.**

Name _____ Date _____

A. Demographics

Semester You Left the Program _____

Approximate Semesters You Attended College _____

Age _____ Sex _____ Marital Status _____

Commuting Distance Round Trip _____ miles

Do you work? No _____ Yes _____, if Yes: Full-time _____ part-time _____

Did you receive financial aid? No _____ Yes _____

B. Reasons for Leaving Program (check as many as applicable)

Academic problems with respiratory care coursework _____

Academic problems with other college coursework _____

Problems with clinical coursework _____

Finances _____

Personal _____

Learning Style Differences from other college work _____

Personality Conflict with the Faculty _____

Other _____

C. As specifically as possible describe in a sentence or two what the reason for your leaving is.

D. Did the orientation day program, course syllabi and faculty consultations explain well enough the realities associated with the Program? If not, what could be done better to explain what new students should understand about the program.

E. If you could eliminate the problems that you encountered this term, would you consider re-applying for the program in the future? _____

VITA

DONNA DIANE LILLY

Personal Data: Date of Birth: March 25, 1964
 Place of Birth: Carter County, Tennessee
 Marital Status: Married

Education: Public Schools, Erwin, Tennessee

 East Tennessee State University, Johnson City, Tennessee;
 Certificate, Certified Respiratory Care Technician
 1985

 Northwestern University Medical School, Chicago, IL;
 Certificate, Registered Respiratory Therapist;
 1987

 East Tennessee State University, Johnson City, TN;
 A.A.S.;;
 1996

 East Tennessee State University, Johnson City, TN;
 B. S.;;
 1998

 East Tennessee State University, Johnson City, TN;
 M. A. Liberal Studies;
 2005

Professional Staff Respiratory Care Technician;
Experience: Sloop Memorial Hospital, Crossnore, NC;
 1985-1987

 Respiratory Care Supervisor;
 St. Joseph's Hospital, Ashville, NC;
 1986-1987

Professional
Experience:

Intensive Care Unit Therapist;
Bristol Regional Medical, Bristol, TN;
1987-1992

Instructor & Director of Clinical Education Respiratory Care;
Cumberland Valley Health Technology Center;
Pineville, KY
1992-1997

Associate Professor & Director of Clinical Education;
Respiratory Care, Walters State Community College;
Morristown, TN
1997- Present