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A Study of Grade Distributions and Withdrawal for Selected Courses at a Community College in  
Northeast Tennessee

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A dissertation  
presented to  
the faculty of the Department of Educational Leadership and Policy Analysis  
East Tennessee State University

In partial fulfillment  
of the requirements for the degree  
Doctor of Education

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by  
Candy Campbell-Pritt  
May 2008

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Dr. Pam Evanshen  
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Dr. James Lampley

Keywords: College Student Withdrawal, Grade Distribution, Community College, Instructional  
Delivery, Traditional Classroom Instruction, Internet-Based Courses

## ABSTRACT

A Study of Grade Distributions and Withdrawal for Selected Courses at a Community College in  
Northeast Tennessee

by

Candy Campbell-Pritt

In addition to the ever-changing demands of the workforce and student demands, the community college must address how performance and withdrawal are affected by traditional classroom instructional delivery and the inclusion of alternate instructional delivery settings such as internet-based approaches in courses.

This quantitative study was conducted to provide evidence-based research to a community college in Northeast Tennessee. Specifically, this research study focused on an important aspect of instructional course delivery methods: What are the relationships between traditional classroom and internet-based course instructional delivery methods in relation to withdrawal and grade-distribution patterns for specified courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) at a community college in Northeast Tennessee? Course instructional delivery practice is expensive, regardless of the course delivery method. The community college officials wish to best use their resources and instructional delivery practices. Student withdrawals have a significant effect on the fiscal stability of an institution of higher education. Reducing the number of students who withdraw from a course is instrumental to positive financial health and educational program practices. In this quantitative study, data were gathered through a method of secondary analysis by a community college in Northeast Tennessee and distributed to the researcher for compilation and statistical analysis.

Independent samples  $t$  tests were used to evaluate whether the mean grade point average and percentage of students withdrawing in English 1010, Math 1710, Biology 2010, and Business CSCI 1100 differed between traditional classroom course sections and internet-based course sections taught in the same academic period. Findings from this study indicated that instructional delivery method does not significantly influence mean grade point averages, and students tend to perform consistently regardless of the instructional delivery setting; however, percentage of student withdrawals vary between instructional delivery methods with the analysis of Biology 2010 finding that traditional classroom course sections had higher withdrawals than did the internet-based course sections.

## DEDICATION

This dissertation is dedicated to my wonderful, supportive husband, Christopher Pritt, and my two sons, Izaac and Izaiah, who understood the importance of my time investment in this degree and loved me through the completion of this study. Further dedication is extended to my mother, Loretta McGlothlin, whose commitment to education and untimely death have inspired my aspirations.

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## CHAPTER 1

### INTRODUCTION

*“Education is what survives when what has been learned has been forgotten”*

--B. F. Skinner (Brainy Quote, 2008, n. p.)

The community college system stands as the educational leader in instructional delivery and educational attempts to accommodate an ever-changing society through its open enrollment process and focus on meeting the educational and training needs of the community (Townsend & Dougherty, 2007). The community college system, as a whole, has expanded instructional delivery practices and course curriculum as the population and community needs have changed over time (Bragg, 2001; Roman, 2007). The community college system has made continuous progress in incorporating distance education and technology-driven courses into its already overflowing wealth of junior-level traditional classroom course offerings (Hagedorn, Perrakis, & Maxwell, 2006). Given their junior-level status and their mission of serving large numbers of students and operating with an open-door policy, community colleges have been faced with challenges on a much different scale than those encountered by 4-year institutions of higher education (Bower & Hardy, 2004).

Given the spirit of the community college as the people's college, it is only natural that this institution of higher education has consistently undertaken new ventures in meeting students needs (Hagedorn et al., 2006). According to Miller (1997), the open-door admissions policy of the community college necessarily means that these institutions are going to suffer from students' low grades and withdrawals more so than other institutions of higher education. Harbour and Lewis (2004) continued this argument and added that community colleges must remain committed to serving students from the communities they are embedded in while recognizing the need to diversify their student body. Community colleges are constantly faced

with the burden of meeting the challenges of serving students as well as wrestling issues such as failing grades and student withdrawal (Mahon, 2003).

The community college has exemplified leadership in three prominent areas in the higher education setting. First, the community college has capitalized on the use of instructional technology and other technology media to enhance course offerings and course delivery (Townsend & Dougherty, 2007). Second, the community college has enriched the lifelong learning experiences of adult learners through extended course and program opportunities that enable such students to attend part-time, full-time, at night, on weekends, or online (Hagedorn et al., 2006). Finally, community colleges have continuously collaborated with business and industry to bring workforce needs in the form of specialized courses and programs into needed areas (Bower & Hardy, 2004). Kazis (2006) suggested that these efforts to maintain a leadership role in higher education have become increasingly important to the community college as funding challenges have arisen and more and more colleges and universities cater to students through online courses. The community college has recognized that policies sometimes interfere with best practice and has enforced practices that have promoted success for its students (Kezar & Kinzie, 2006).

As the demand for higher education continues and as more students emerge on the campus scene, additional faculty is required. Most institutions hire part-time faculty members to aid in instructing large populations and off-campus courses (Hagedorn et al., 2006). In today's fast-paced society, differing methods of instructional delivery have emerged. Colleges and universities have been offering courses and programs through distance education services for over 150 years from the slow correspondence courses of previous years to online courses of today (Bower & Hardy, 2004). Predominantly, two instructional delivery settings have provided a classroom environment for students: the traditional classroom setting and internet-based delivery (Rosenbaum, Redline, & Stephan, 2007).

The traditional classroom setting refers to instruction that takes place with students in the face-to-face presence of an instructor. Although this method of instruction continues to play a

vital role in the course delivery process, community colleges around the country have undertaken efforts to capitalize on current technology and increase access to higher education by providing new directions in instructional delivery (Rosenbaum et al., 2007). Seeking to meet the social and economic needs of a changing society has been a force behind the move toward distance education (Bothun, 1998; Kazis, 2006). The United States Distance Learning Association (2007) defined distance education as “The acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance” (n. p.).

Transforming education through the incorporation of distance education has had a significant impact on higher education over the last 150 years. Traditional classroom education was the predominant form of instruction for community colleges with distance education including only samplings of limited correspondence studies until the 1980s (Bower & Hardy, 2004).

Expanding access to underserved and undereducated populations has been a cornerstone of the community college experience (Levin, 2007). Using technology to deliver instruction through internet-based classrooms has expanded the higher education population and provided financial savings, in terms of building costs, to institutions while encouraging a commitment to higher education experiences from nontraditional students (Boettcher & Conrad, 2004; Hagedorn et al., 2006). Although this use of technology has been purposeful, community colleges are faced with the challenges inherent in distance education as well as in analyzing the overall effectiveness of different instructional delivery as it relates to grade distribution and student withdrawal rates.

Community college administrators have always understood that meeting the needs of their educational community and bringing educational services to the community was of fundamental importance (MacBrayne, 1995; Kazis, 2006). As in all institutions of higher education, student withdrawal has been an ever-pressing issue for community colleges. Scoggin and Styron (2006) conducted a study of students enrolled at a community college in southern

Mississippi. Of the students who withdrew from courses, 1,196 voluntarily returned surveys. Scoggin and Styron found that students withdrew primarily for personal reasons followed by work-related issues and financial concerns. The researchers also examined community college withdrawal rates by gender and race and found that both African American and White women and men primarily withdrew for personal reasons.

As the demographics of students attending community college have changed, so has the need to provide new services and meet course demands. Rural community colleges have been impacted more than other institutions of higher education considering they serve such a diverse range of students (Williams, Pennington, Couch, & Dougherty, 2007). In the early 20<sup>th</sup> century, traditional students were served by the community college. As the 20<sup>th</sup> century progressed, nontraditional students and adult learners have increasingly made up a large percentage of the students involved in higher education courses, especially in rural community colleges. MacBrayne (1995) reported that as early as 1970, nontraditional students made up nearly half of the increase in enrollment experienced by community colleges. As the needs of the workplace have changed and as technological advances have been made, the community college has positioned itself to address these ever-changing needs (Williams et al.). Although the traditional classroom maintains an important role in the community college system, rural community colleges increasingly have determined the need for expanding course offerings through various methods of instructional delivery (MacBrayne; Roman, 2007).

According to Fanter (2005), whether instructional delivery is through the traditional classroom, internet-based environment, or a hybrid education built around both models of instructional delivery, the influence on learning has been the same. MacBrayne (1995) reported student achievement has been found to be equal or higher in distance education courses than in those courses taught in a traditional classroom setting. A similar study conducted by Kulik and Kulik (1986) found that learning was not more positively influenced and students' grades were not significantly impacted when taught in the traditional classroom versus instructional delivery via distance education settings. Johnson, Burnett and Rolling (2002) found that students in

internet-based courses achieved higher mean grade point averages than did students involved in traditional classroom courses. They suggested the differences might exist because internet-based instruction places more responsibility on the learner and learners in internet-based courses tend to spend more time on course assignments. Mirakian and Hale (2007) reported that students scored equally well in both internet-based courses and traditional classroom courses and further reported that students' withdrawal rates were not found to be different between instructional delivery methods. They added that studies over time indicated that grade distributions between traditional classroom and internet-based courses varied.

### *Statement of the Problem*

Community colleges are faced with numerous challenges in the 21<sup>st</sup> century including organizing the course structure system and incorporating various instructional delivery methods along with traditional approaches to course section offerings. In addition to the ever-changing stipulations of the workforce and persistent demands from students, the community college must address how student achievement and student withdrawal are affected by course sections taught solely in traditional classroom settings versus the course sections taught via internet-based instructional delivery.

This study was conducted to provide evidence-based research to a community college in Northeast Tennessee. This quantitative study analyzed student withdrawal and grade distribution patterns between traditional classroom course sections and internet-based course sections for the same courses taught at this institution of higher education. Applied research was used to ascertain whether significant differences existed in the withdrawal patterns of students based on the instructional delivery method for each of the four courses under study.

### *Research Questions*

The following research questions were formulated to guide the study:

1. Are there differences in mean grades for the 5 academic years 2002-2007 for each of four courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) with regard to instructional delivery method?
2. Are there significant differences in the percentage of students withdrawing for the 5 academic years 2002- 2007 for each of four courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) with regard to instructional delivery method?

### *Statement of Significance*

The Academic Council at a community college in Northeast Tennessee has discussed the need for empirical evidence as to the grade distribution and withdrawal patterns that exist over a set period of 5 academic years based on instructional delivery method. Course instructional delivery practice is expensive regardless of the course delivery method. Community college administrators have stated a desire to best use their resources in instructional delivery practices. Student withdrawals have a significant effect on the fiscal stability of an institution of higher education. Limiting the number of students who withdraw from a course section is instrumental to positive financial health and educational program practices. Community colleges have a need to determine the most effective method of instructional delivery for each course and, if a difference exists between traditional classroom course sections and internet-based course sections, appropriate their resources accordingly.

The empirical evidence discovered in the analysis of this study might be useful to other community colleges. In addition, community college administrators might find the results of this study useful in guiding a similar study at their own institutions. Therefore, effectively analyzing grade distribution and withdrawal rate patterns involved in courses taught in both traditional classroom and internet-based course formats should prove to be of significance. This study was designed to analyze whether grade distributions and withdrawal differ when course instructional



delivery is offered in an alternative setting from traditional classroom practices, such as via internet-based courses.

If significant differences exist in grade distribution and percentage of students withdrawing between instructional delivery methods of the courses in this study, then the community college, through departmental meetings and the Academic Council, could use findings from this study to develop more effective formats for delivering instruction. The intent of this study was to analyze whether a statistical difference in withdrawal and grade distribution exists in relation to the type of instructional delivery method under which the course was presented. Moreover, community colleges and other institutions of higher education would benefit from the knowledge of whether or not instructional delivery methods contribute significantly to student rates of withdrawal and grade distributions. Specifically, this research study focused on an important aspect of instructional course delivery methods. The purpose of the study was to explore the relationship between traditional classroom and internet-based instructional delivery methods in relation to withdrawal and grade distribution patterns for specified courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) at a community college in Northeast Tennessee.

#### *Scope of Study*

In this quantitative study, materials were gathered through a method of secondary analysis because the data for a set period of 5 academic years were collected by a community college in Northeast Tennessee and distributed to the researcher for compilation and statistical analysis. Further, nonprobability sampling, specifically purposeful sampling, was used as all students' grades and withdrawal rates for specified courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) in this study. The criterion for selecting the chosen courses was that the course must have been taught via both settings of traditional classroom and internet-based online delivery during the period of 5 academic years, 2002-2007. For purposes of this study, academic year pertains only to fall and spring semesters for each of the 5 academic years.

The summer data were not available to the researcher. The research questions and corresponding null hypotheses were formulated to investigate grades and withdrawal based on: instructional delivery method: traditional classroom setting or internet-based.

### *Delimitations and Limitations of the Study*

The results of this study should be interpreted in view of the following limitations:

1. The data for purposes of this applied research were collected from a single, community college in Northeast Tennessee.
2. The data used in this research were specific to the community college from which they were collected.
3. These data were provided to the researcher and are not generalizable to another setting.
4. The unequal sample sizes that existed between the traditional classroom course sections and internet-based course sections occurred because Internet-based course section offerings were much fewer than traditional classroom course section offerings for the same course at this community college. According to Green and Salkind (2005), the independent samples  $t$  test computes an approximate  $t$ -test value to be used with unequal sample sizes as this value does not assume that the samples sizes or variances are equal. This pattern was consistent across the courses under study. According to Williams (2002) and Turner and Crews (2005), the trend of drastically differing numbers of course offerings between traditional classroom and internet-based course sections exists because the internet-based course section offering is a relatively recent method of instructional delivery that is beginning to increase but has not yet achieved the equivalent offering status of the traditional classroom. This limitation is not likely to undermine the conclusions of this study as mean averages were calculated and analyzed for all courses in both methods of instructional delivery (Turner & Crews).

### *Definitions of Terms*

1. *Academic year*: For the purpose of this study, academic year refers to the fall and spring semester for the years under study (fall 2002 and spring 2003; fall 2003 and spring 2004; fall 2004 and spring 2005; fall 2005 and spring 2006; fall 2006 and spring 2007).
2. *Classroom*: For the purpose of this study, a classroom refers to a location where a college course is taught.
3. *Community college*: This refers to a nonresidential public 2-year institution that offers curriculum and programs that lead to a certificate or an associate's degree or that fulfill part of the requirements for a bachelor's degree or higher at a 4-year institution (National Center for Education Statistics, 2008).
4. *Course*: For the purpose of this study, a course refers to structured programs of study for learners taught at the community college level.
5. *Distance education*: This refers to the educational practice in which students and instructors need not be in the same location for course delivery as the course is completed via correspondence, computers, audio, and sometimes two-way instructor to student interaction (National Center for Education Statistics).
6. *Full-time faculty*: This refers to individuals employed in a permanent teaching-research capacity as defined by a given educational institution (National Center for Education Statistics).
7. *Grade points*: For the purposes of this study, grade points refer to the numerical value of a college letter grade.
8. *Hybrid course*: For the purpose of this study, this is a course delivered by an instructor with a blend of face-to-face classroom instruction and online learning (Teaching-Learning Center, 2002).

9. *Instructional delivery*: This refers to skills and programs that promote and facilitate learning through either face-to-face instruction or an alternative delivery format (Center for Education Development and Assessment, 2008).
10. *Instructional delivery setting*: For the purposes of this study, instructional delivery setting refers and is limited to traditional, face-to-face classroom instruction and on-line, internet-based course delivery.
11. *Instructor*: For the purpose of this study, instructor refers to the person developing, teaching, or facilitating a course either in the traditional classroom setting or via the internet for a community college.
12. *Internet-based course*: This refers to educational instruction delivered online, using websites and discussion boards, allowing the entire course to be delivered geographically remote from the higher education institution (Highline Community College, 2006).
13. *Nontraditional student*: For the purpose of this study, this is a student with any of the following characteristics: one who delays enrollment in courses, attends higher education part time only, works full time while enrolled, is considered financially independent for purposes of determining financial aid, has dependents other than a spouse, is a single parent, or does not have a high school diploma (National Center for Education Statistics).
14. *Part-time faculty*: This refers to instructors employed to teach courses at the community college under a term-by-term contract.
15. *Course retention rates*: This is the number of students enrolled in each credit course after the course census date and the number of students who successfully complete the course with an A-D grade at the end of the term (Astin, 2005-2006).
16. *Rural*: For the purpose of this study, this is the territory, population, and housing units not classified as urban constitute "rural." In the 100% data products, "rural" is divided into "places of less than 2,500" and "not in places." The "not in places"

- category comprises "rural" outside incorporated and census-designated places and the rural portions of extended cities. In many data products, the term "other rural" is used; "other rural" is a residual category specific to the classification of the rural in each data product (U.S. Census Bureau, 1995).
17. *Course section*: For purpose of this study, course section refers to the individual classes taught within a given course.
  18. *Student*: This refers to one who is enrolled or attends classes at a school, college, or university (American Heritage Dictionary, 2007).
  19. *Mean grade*: For purpose of this study, mean grade refers to the weighted mean value of all grade points obtained by students in a given course.
  20. *Student withdrawal*: For the purpose of this study, student withdrawal "W" is a mark assigned to indicate withdrawal from a course and is not computed in the overall GPA of the student.
  21. *Traditional classroom*: This is a room or place where classes are conducted (American Heritage Dictionary).
  22. *Undergraduate student*: This is a student who is enrolled in an associate's degree program, vocational or technical program, or a baccalaureate degree program (National Center for Education Statistics).
  23. *Withdrawal*: For purpose of this study, withdrawal refers to the act of a community college student voluntarily terminating his or her participation in a college course before being recorded on a transcript. The withdrawal analyzed in this study was the final end of course withdrawal and is not computed in the final GPA of the student.

### *Organization of the Study*

This dissertation consists of five chapters. Chapter 1 served as an introduction to the study and contained a statement of the problem, research questions, definitions of terms, a statement of significance and scope of the study, and delimitations and limitations of the study.

A review of the relevant literature is presented in Chapter 2. College student withdrawal, grade distribution in higher education, as well as the instructional delivery settings of traditional classroom and Internet-based delivery are included. Chapter 3 contains the research methodology including the population, design of the study, instrumentation, validity, reliability, data collection methods, and statistical procedures. An analysis and interpretation of the data are included in Chapter 4. The summary, conclusions, limitations of the study, recommendations for practice, and recommendations for future research are presented in Chapter 5.

## CHAPTER 2

### REVIEW OF THE LITERATURE

#### *Introduction*

The relationships among college student withdrawal, grade distribution, and instructional delivery methods (traditional classroom setting and Internet-based) were examined in this study. The research focused on the relationships between withdrawal and course grade distribution between the instructional delivery methods for each course under study: English 1010, Math 1710, Biology 2010, and Business CSCI 1100 taught by both part-time and full-time faculty at a community college in Northeast Tennessee.

Three major areas are addressed in the literature review as they pertain to this study: (a) college student withdrawal, (b) grade distribution between course delivery methods, and (c) the instructional delivery settings of traditional classroom and Internet-based courses.

#### *Student Retention and Attrition*

Over the past half century, significant declines in college retention rates were brought to the attention of leaders at institutions of higher education (Scoggin & Styron, 2006). This has become a problem across all institutions of higher education and not solely isolated to community colleges (Scoggin & Styron). Umoh, Eddy, and Spaulding (1994) also noted that college student retention has continued to be a topic of increasing importance to higher education leaders in the late 20<sup>th</sup> century. The escalated problem of retaining students in the courses in which they enrolled reached such proportions that Miller (1997) said over 20% of the grades earned by community college students were reported as course withdrawals. According to Winn and Armstrong (2006), students with 20% of their grades being withdrawals were only 8.5% likely to earn a degree and only 7.5% likely to further their education after community college,

thereby continuing the claim introduced by Miller that retaining students in community college courses is essential to student and institutional success.

Retention has been both a goal and an objective of higher education institutions. Retention has increased the financial stability of higher education systems and promoted consistency within programs of study and degree attainment for individuals. Retention has been commonly defined as the progression of a student from the freshman year through graduation (Seidman, 2005). There has been substantial information regarding retention across universities and community colleges as retention has been a driving motivator for all education systems (Cofer, 2007). The problems surrounding college student retention have gained much attention over time as institutions of higher education have become more diligent about accurately reporting their successes and failures and have sought to eliminate the negative effect that high attrition rates have on institutional revenues and annual reports (Scoggin & Styron, 2006).

Most of the research in the 1940s pertained to student retention and focused on the intelligence and persistence of students. Because higher education systems were mostly elite-focused, financial issues were not considered as prevalent reasons for students to drop out (Seidman, 1989). Many of the early researchers did not provide much evidence geared toward solution-based practices for institutions of higher education, as they tended to discuss what happened and not why it happened. Societal factors as attrition indicators were not considered (Pascarella, Smart, & Ethington, 1986).

Beginning in the 1920s, a college education was still geared more toward the upper class or the elite; however, most studies during this period attributed the student dropout rate to financial troubles as more and more individuals began attending colleges and universities. Indeed, Cofer (2007) found that both financial troubles and matters of intelligence influenced a student's decision to withdraw from programs of higher education. Furthermore, higher education institutions determined that financial struggles evenly affected students regardless of intelligence (Cofer, 2007).



According to Cofer (2007), during the introduction of the *Servicemen's Readjustment Act* of 1944 (GI Bill of Rights), issues of retention and attrition received much less attention in matters of higher education. It was in this stage that the focus of higher education officially shifted. Programs at the college and university level were no longer mainly for the elite; indeed, higher education was open to nearly everyone (Hagedorn et al., 2006). Many of the prior studies on retention and attrition were pushed to the side during this period of open enrollment. It was not until the 1970s that researchers began to include sociological factors in their attempts to analyze the reasoning behind a student's decision to withdraw from college courses or programs of study (Cofer). Seidman (1989) found that beginning with this phase in the postsecondary experience, personal contacts and a student's opportunity to establish meaningful relationships with like-minded peers significantly impacted his or her withdrawal decisions.

Seidman (1989) found that researchers in the 1970s began to consider a student's ability or inability to fit into the culture of the institution as being a primary determinant of a student's likelihood of future success and continuing in the higher education system. How well a student adapted to his or her educational program and setting was the focus of retention studies that began in the 1970s. The social experience of higher education became as much a part of the reality of the acquisition of educational degree attainment as the coursework itself (Pascarella et al., 1986). As higher education evolved to include the masses, the requirements for social atmosphere and social interaction as part of the campus experience emerged and continued to play a major role in the ability of educational institutions to recruit and retain students (Seidman, 1989).

Academic advising became a further point of concern as institutions of higher education recognized that students required guidance and direction in formulating career paths, navigating course registration, and preparing semester schedules for programs of study completion. Institutions of higher education increasingly have determined a need to prepare students for the academic, social, and financial aspects of the college experience. Student support counselors have aided students in the many transitions that take place in the college environment and have

provided a point of access for students who were struggling (Townsend & Dougherty, 2007). Researchers from the 1980s through 2005 have indicated that students who did not receive this support were more likely to withdraw from classes and not reenter higher education than students who received the support of academic counselors (Creamer & Atwell, 1984; National Survey of Student Engagement, 2005; Winston 1994). In addition to social atmosphere, studies beginning in the mid-1900s reflected the need for institutions of higher education to maintain a similarity with students in terms of values and attitude. Colleges and universities have continued to highlight religious and traditional goals and values. The draw for some students to a particular type of institution has been a catalyst to and primary determinant in student retention. According to Seidman (1989), the evolved mindset of the 1970s and early 1980s influencing a student's desire to remain in a program through graduation began with recruitment practices, the success of academic counselors, and the follow-through of the admissions process. Thus, the institution of higher education has contributed to its own success or demise, given its practices in student support services. As the 20<sup>th</sup> century came to a close, researchers found that both social and academic factors related to student withdrawal were important to study and reflect upon, in a effort to meet students needs, increase institutional success, and increase retention (Roman, 2007).

#### *Student Withdrawal From College Courses*

The U. S. Department of Education (2006) reported that between 1994 and 2004, postsecondary enrollment increased at a faster rate (21%) than reported in previous years going from 14.3 million to 17.3 million. The report indicated that much of the growth experienced by institutions of higher education during this decade was in female enrollment. Although the number of men enrolled rose 16%, the number of women increased by 25% during the reported 10-year period. Additionally, part-time enrollment rose by 8% while full-time enrollment showed a 30% increase (U. S. Department of Education, 2006). Student withdrawal continued to gain exposure as the percentages of students enrolled increased. Student withdrawal and the

strategies to lessen withdrawal rates has been a pressing issue for postsecondary institutions for many years (Wohlgemuth et al., 2007).

Alfred (1983) argued that the issue of students withdrawing from courses was largely the responsibility of the institution. McClenney and Waiwaiole (2005) concurred with the argument of Alfred and further added that community colleges must understand best practices in student retention in order to design strategies that meet the needs of the students. How well academic counselors and faculty members enabled students to pursue their academic and social interests and how accurately an institution's characteristics and values were reported to perspective students increasingly has determined whether students would graduate and their potential withdrawal rates. Institutions of higher education, therefore, have been responsible for much of the student withdrawal problem. No longer has lack of choice been an issue for students. As accessibility to higher education and the necessity of the completion of such degrees for the job market ensued, institutions have had the responsibility of recognizing the need to report accurately their cultural, academic, and relational statistics to perspective students (Alfred 1983; McClenney & Waiwaiole).

Two landmark studies were found pertaining to students' commitment to higher education during the 1970s. Tinto (1975) of Syracuse University discovered that a student's willingness to remain involved in courses in postsecondary education was directly reflective of that student's peer-fit along with social and academic connections within the campus environment. Tinto's 1975 and 1993 studies concluded that the more students were engaged in social networks, integrated into their academic department, and afforded opportunities for research in their field, the more committed they were to their program of study and to remaining enrolled through program completion. They were less likely to withdraw from a course and were more focused on loyalty to the institution and the completion of their sought-after degree (Roman 2007; Tinto, 1993). Grites (1979) expounded upon this knowledge of student retention to include the term institutional fit. By this term, Grites meant a student's level of satisfaction with the scholastic programs as well as the social atmosphere. Grites determined that the

increased likelihood of a student remaining loyal to a particular institution until graduation could largely be attributed to whether that student's academic and social needs were met on campus. In 2006, Orchard, Killian, Keller-McNulty, Hirschi, and Koushanfar continued Grites claims and further suggested that students must be proactive in developing a strategy, and communicating that strategy to their academic advisors to ensure that both their social and academic needs are met.

During the 1970s, postsecondary institutions began to further value the role of their admissions counselors in warding off student withdrawal. Lenning and Cooper (1978) found that the more involved campus professionals were in the college lives of students and their academics, the more likely students were to remain at the institution. More importantly, as academic counselors disseminated information to students about available programs and the institution itself and as faculty members saw the need to guide students through their academic curriculum, students said they felt supported and received guidance in selecting courses that were most fitting to their program and career needs. The level of co-respect that existed between a professor and student was important in establishing the kind of rapport necessary for maintaining an atmosphere in which students felt the professor was approachable and understanding of their academic needs and requests for assistance. The admissions staff was noted as being responsible for the development of this culture within their institutions of higher education (Roman, 2007; Seidman, 1989).

Pascarella and Terenzini (1979) conducted what was perhaps the second most notable and influential research into higher education withdrawal rates. Their study was one of the first to determine interactions between students and faculty members as being relational to withdrawal prevention. Pascarella and Terenzini (1979) found that the interactions students had on campus with other students, or, more importantly, with their professors, greatly determined whether they remained enrolled in courses and continued in their chosen program through graduation. A more recent study by Braxton, Hirschy, and McClendon (2004) echoed this notable study and confirmed that positive social and academic interactions between faculty and

students increase student persistence in college courses. In 2005, Pascarella and Terenzini continued into a third decade of research together and elaborated on their 1979 study of student withdrawal. They stated that community colleges are a staple in the academic community and are able to provide access to higher education for many students; therefore, it is incumbent on community colleges to develop and maintain positive social and academic atmospheres, including positive faculty and student interactions, so that the withdrawal rate can be lessened and students can graduate and move into jobs that will have a positive impact on their communities (Pascarella & Terenzini, 2005).

In the 1980s and 1990s, researchers on college student withdrawal rates began exploring the notion, once again, that financial stress was a significant determinant in whether or not a student withdrew from a college course or program. Issues such as course transferability to other institutions of higher education and variety of program offerings were further indicated as reasons for withdrawing from college courses and programs (Price 2004; Seidman, 1989). According to Seidman (1989), other researchers during this time also recognized the importance of involving parents or significant others in the campus visit process prior to admission. This support-system involvement was found to be a valuable tool for connecting with the students and, therefore, aiding in the institution's efforts to prevent student withdrawal (Seidman, 1989).

Studies by Maguire and Lay (1981) and Ramist (1981) identified a student's prior perception of the institution as being a critical factor in not only the choice of the college or university but also in the likelihood that the student would remain enrolled through graduation. Both studies concluded that perception was reality and, in the case of institutions of higher education it further translated to fewer dollars when a student withdrew from a course. These studies attested to the requirement for accurate reporting by such institutions. Students and parents reported that accurate knowledge about the institution, course transferability, and program offerings was information they required prior to enrollment. Roman (2007) further continued the notion that students must have accurate knowledge about institutions and suggested that enrollment management include not only knowledge before a student enters an

institution but also at intermittent stages during a student's program enrollment. Knowledge of the higher education institution and student rate of withdrawal coincided with one another. The Maguire and Lay and Ramist studies indicated that it was incumbent on institution personnel to go beyond answering admission questions accurately prior to student commitment. Getting a higher number of students enrolled has become a secondary focus as institutions realized that preventing student withdrawal was their key to success (Maguire & Lay; Ramist; Roman).

In a study by Chapman in 1981, the researcher found that the increasing number of postsecondary opportunities available to both traditional and nontraditional students increased the gap between student enrollment and student graduation rates. Chapman emphasized the necessity to provide accurate information about college courses and programs to students and their parents before a student's enrollment in a particular institution. Furthermore, a major finding of Seidman's (1989) study was the fact that students strongly directed their higher education commitments to institutions that could afford them the courses necessary for continuing their education beyond an associate's or bachelor's degree into graduate school. Transferability was found to be an essential factor in a student's decision to enroll and remain enrolled in the community college (Milhron & Wilson, 2004).

During this time, rural isolation and lack of transportation rose to the forefront in concerns over efforts to limit student withdrawal. However, as more and more community colleges emerged, the negative impacts of rural isolation and lack of transportation were somewhat diminished. Off-site course offerings provided a way to increase postsecondary educational opportunities to more individuals who could neither attend a larger college or university nor live on campus (Kezar & Kinzie, 2006). In 1982, a study by Bean targeted student withdrawal to the institution's commitment to students in terms of scholastic environment, academic programs, and transferability. More and more postsecondary institutions focused on recognizing the need for student socialization, addressing parent expectations, and meeting the ever-changing demands of the job market. During the 1980s, the workforce had adapted so that

students desiring particular and specialized positions recognized the need for continuing education, lifelong learning, and degrees higher than the traditional 4-year degree (Bean).

Tinto and Wallace (1986) continued the research of Grites from 1979 that assessed institutional fit and student choice. Again, the roles of academic counselors and faculty members in relation to mentoring students effectively was found to be of critical importance in lowering student withdrawal rates and retaining students through graduation. Tinto and Wallace emphasized the necessity of enabling students and their parents to evaluate accurately an institution's social and academic fit for their needs as the most apparent determinant of a student's likelihood of not withdrawing from a course and of remaining continuously enrolled through graduation. By nature of their open enrollment policy, community colleges experienced higher withdrawal rates than 4-year institutions. Students who enrolled in institutions that provided academic guidance and opportunities for active student involvement, in and out of the classroom, were less likely to withdraw (Roman, 2007).

Capturing a student's academic program needs successfully while addressing social inclusion was found to be fundamental during the 1980s (Tinto & Wallace, 1986). As the 1990s emerged, higher tuition raised student withdrawal rates across all institutions of higher education. With more of an eclectic population participating in the postsecondary experience, financial aid offerings made the higher tuition rates more bearable and increased the probability that students would not withdraw from courses and programs and would remain enrolled (Cofer, 2007). In fact, a study of financial aid programs and processes conducted in 1992 found that the increasing availability of financial aid made it possible for students to become more fully integrated into the social and academic life of the institution they attended (Cofer).

Even if students were participating as commuters or attending community colleges that did not offer campus housing, financial aid permitted students to enjoy social experiences with like-minded peers and, thus, according to a study by Frantz and Frantz (2005), increase their participation in scholastic and social experiences in the higher education environment.

According to this and similar-era studies, the positive impact of financial aid programs and the

low-interest payback options associated with college loans increased the persistence factor through graduation and career acceptance (Tinto & Wallace, 1986).

During the last quarter of the 20<sup>th</sup> century, the relevance of first-generation college students' mark on student withdrawal rates became a driving force in studies of academia. Once again, the associational aspects of the college life were impacted. Students lacking family support or familial understanding of the need for higher education often encountered difficulties in maintaining their involvement in courses and programs and persisting in enrollment in each of their courses of study through graduation. According to Cofer (2007), several studies on this topic suggested that low coping skills and negative familial attitudes toward the establishment of higher education significantly impacted students' decisions to withdraw from courses.

In the beginning of the 21<sup>st</sup> century, the reauthorization of the *Higher Education Act* placed an increased focus on accountability across all institutions of higher education. In the limelight of this accountability have been retention, graduation rates, and, in particular, course withdrawal (Burd, 2003). Dunwoody and Frank (1995) drew attention to the fact that it was not only an institution's retention through graduation that mattered; individual course withdrawal must be considered as potentially having the highest impact on overall retention, attrition, and the institution's success. Adams and Becker (1990) examined some elements of individual course withdrawal; however, they mainly focused on demographics as opposed to student's reasons for withdrawing from a course. Dunwoody and Frank deemed it of high importance to research a student's reasons for withdrawing from a course; this was a point of interest they maintained had received little attention until the point of their study.

Dunwoody and Frank's (1995) survey listed five top reasons why students reported withdrawing from individual courses: (a) dissatisfied with grades, (b) lacked understanding of curriculum, (c) the course did not capture the student's attention, (d) students did not think highly of the professor, and (e) a lack of interest in the course in general. Kazis (2006) found other studies that yielded similar results and echoed the necessity for studying not only why students were withdrawing from individual courses but also how institutions could develop



professional development programs for faculty and engagement opportunities for students. Hall (2003) determined that extending student and faculty support for mediation and mentorship could lessen instances of student withdrawal.

Tinto (1993) expounded upon the issue of the increased number of students withdrawing from higher education courses and programs by reporting graduation statistics. Tinto (1993) found that regardless of the efforts of institutions to address attrition and promote an atmosphere that encouraged students to remain in all courses and graduate, only 38.7% of students who enrolled in a community college or 2-year higher education institution graduated. Other researchers, however, determined that a student's fit and involvement in academic and social activities at his or her chosen higher education institution was, perhaps, the leading factor determining whether a student withdrew from an individual course (Umoh et al., 1994). Social and academic dynamics are continuously at play in determining organizational success for any higher education campus. The social community that emerges, whether at a community college commuter setting or a residential university, has been a critical factor in student inclusion and retention as researchers have continually determined (Roman, 2007).

Tinto (1993) found that preventing student withdrawal was best promoted when students were actively engaged in learning activities with social components. Ongoing hands-on learning experiences that bridge classroom learning and social experiences created an environment that challenged college students while offering them an opportunity to explore the real-life world of work. Service-learning programs available through many higher education programs have offered college students these experiences. Service-learning programs have been shown to contribute to higher education's efforts to lower student withdrawal in some instances, as they provided the community and social connections that extended the classroom experience to job-related application (Jones & Hill, 2003). In addition to addressing causes of student withdrawal such as social and interactive learning experiences, service-learning programs enabled students to grow personally and enhance their acquisition of transferable skills that would make them more attractive candidates in the career market (Mundy & Eyler, 2002).

Researchers have demonstrated that service-learning programs have had a positive impact on undergraduate student withdrawal rates; however, most of these studies have targeted groups within student populations only and neglected to study the entire student body (Mundy & Eyler, 2002). Furthermore, the most recent studies have not controlled for student characteristics in studies involving the impact of service learning. Understanding the full impact this arena has on student course withdrawal could offer fundamental knowledge toward integration of community engagement and academic efforts (Mundy & Eyler). Student satisfaction was found to be the key to successful retention. Bridging social, community, career, and academic experiences that enhance the total college experience increased student satisfaction and, thus, provided a catalyst for improving retention attempts (Habley & McClanahan, 2004).

Studies conducted in the late 1980s and early 1990s indicated that several key student characteristics influenced student retention and impacted college withdrawal rates. Students who were deemed most unlikely to withdraw from their college programs included students who entered college with above average high school GPAs, came from a higher socioeconomic class, maintained aspirations toward pursuing higher degrees, and participated in a high school college prep program (Zhai & Monzon, 2001). Although student-campus experiences including programs that offered opportunities to connect with others of similar cultures and background emerged as early as the 1970s, the connection between the diversity of faculty and the student and student attrition was less considered. As the close of the 20<sup>th</sup> century neared, researchers began considering racial and ethnic diversity among faculty and staff as an indicator in college student withdrawal (Ting & Bryant, 2001).

Student demographic characteristics and their impact on student withdrawal have been the focus of many studies. In consideration of student demographic characteristics, Tinto (1993) produced evidence citing nontraditional students, often adult learners, were less likely to graduate or remain enrolled in individual courses whether enrolled in a community college or university setting. However, other researchers (Zhai & Monzon, 2001) determined that community colleges have paved the way for adult learners to become part of the higher

education environment. Because of commitments such as marriage, career, children, and financial obligations, such nontraditional learners have encountered difficulty with maintaining their persistence to graduation in programs of study and often enrolled in courses sporadically in an effort to accommodate their demanding schedules (Zhai & Monzon). Tinto (1993) found that nontraditional students' withdrawal could be attributed to many factors, often individually identified, thus making the challenge of meeting the social and academic needs of such students complex. According to Levin (2007), nontraditional students have continued to make their mark on community college statistics. He reported that 45% of community college students were the first to attend postsecondary education, 41% worked fulltime in addition to attending college classes, and 17% were single parents. Facing these odds, Levin reported that these students had a 75% chance of withdrawing from their courses or programs of study.

Regardless of the age and individual demographic characteristics of the student, Tinto (1993) determined that the pursuit of higher degrees was a driving force in warding off student withdrawal. Long-term goals linked to a consistent, continuous involvement in higher education significantly decreased the likelihood of student dropout. The motivation to acquire a desired career might be linked to continued enrollment and student retention (Tinto, 1993). Although Tinto (1993) found the motivation to achieve a desired degree and career to have an influence on all students, Dabbagh and Bannan-Ritland (2005) concluded that this motivation had an even greater influence on adult learners, especially in Internet-based courses.

Community colleges have faced increased stress when countering the epidemic of student withdrawal. Given the nonresidential approach of the community college, students necessarily maintained lives away from the college campus. Community college students often found their own balance between academic and social experiences as such enhanced program offerings were not available in this type of setting (Beatty-Guenter, 1994). Community colleges, by nature of their catering to a population that does not live on campus, have encountered student withdrawal issues that expanded those found on residential college and university campuses. On-campus programs such as those offered by student support services and career placement offices have

been instrumental in preventing some of the withdrawal of students attending community colleges (Frantz & Frantz, 2005). Students acquainted with such student support opportunities were able to connect with like-minded peers, had a point of connection in times of stress, and developed a sense of involvement in the campus experience. Bonham and Luckie (1993) recognized that courses and programs needed to be offered at times and on days that coordinated with the needs of students who experienced much of their lives away from campus. Offering students an opportunity to participate in night and weekend courses offered positive solutions to some reasons for student withdrawal (Bonham & Luckie; Dabbagh & Bannan-Ritland, 2005).

Hoyt (1999) examined some of the differences in retention rates exhibited by community colleges and other institutions of higher education. Hoyt found that community colleges' open admission policy made tracking retention rates and reasons for withdrawal even more challenging. Hoyt suggested that students withdrew from courses and programs of study for a variety of reasons, including financial issues, negative faculty relationships, academic difficulty, and general disinterest in the course or program. Considering that many students who attended community colleges were considered nontraditional students, the primary reasons for withdrawing from a course were identified as various personal reasons (Hoyt). Cofer and Somers (2001) found that some students chose to withdraw from community college rather than incur high debt and returned only when their finances were more stable. Scoggin and Styron (2006) found that some community college students were academically unprepared for college. Wohlgemuth et al. (2007) found that financial, academic, and environmental factors also influenced retention and student withdrawal.

Zhai and Monzon (2001) discovered four factors that accounted for community college student retention: (a) varied course schedules that included time and date offerings, (b) increased availability of and access to financial aid, (c) enhanced student support services and academic advisement, and (d) resolutions to the dilemma of campus parking. In a study of community college systems, students reported they withdrew from class most often because of an inability to meet the demands of class dates and times with their already overloaded work and family

schedules. Students reported they were less likely to withdraw from programs that offered classes on nights and weekends. When community colleges added diversity in course offerings, such as courses taught on-line, student persistence rates increased. Thus, the hectic schedules, lifestyles, and needs of 21<sup>st</sup> century community college students dictated variety in course schedule, including time and date offerings (Dabbagh & Bannan-Ritland, 2005).

Community college students, more than any other higher education student population, typically experienced greater diversity in socioeconomic status. For this reason, community college students have a tremendous need for financial aid. Students in community colleges reported that lack of financial aid knowledge and options was their second leading reason for course or program withdrawal. Financial difficulties coupled with a lack of knowledge of applying for and receiving financial aid increased the likelihood that a student would not complete a course or program of study in the community college setting (Zhai & Monzon, 2001).

Enhanced student support services and academic advisement have become necessities for students in higher education. Community colleges experienced a great need for student support service efforts, especially considering that students did not live on campus and often encountered persistence issues outside of the scope of those experienced by residential university campus students (Roman, 2007). A lack of student counseling and advisement support on community college campuses was reported as the third most prevalent reason for student course or program withdrawal in community colleges (Zhai & Monzon, 2001).

As community colleges are nonresidential and students do not live on campus and must commute to class, issues involving transportation and campus parking were cited as the fourth leading reason students chose to withdraw from a course or program. Often students were commuting from rural communities, from work locations, and were arriving to class on limited time schedules. Students reported that limited or unavailable campus parking created stress and discouraged regular attendance and persistence through graduation (Zhai & Monzon, 2001).

Community colleges have faced serious retention challenges--many even greater than those faced by 4-year colleges and universities. Scoggin and Styron (2006) suggested that

focusing on improving institutional benefits when designing retention plans was ineffective. Scoggin and Styron suggested that community college administrators, given the diverse population served, should focus their retention efforts on becoming more customer friendly. In other words, recognition of the course offering wants and needs of the student should be at the forefront of retention and attrition efforts. Given that community colleges often experience a greater percentage of nontraditional students entering their courses and programs, the dynamics associated with retention and attrition required interventions that target specific populations.

In the study conducted by Scoggin and Styron (2006), gender was found not to be a factor related to students withdrawing from a college course or program. Rather, both females and males identified personal reasons, work-related issues, and financial barriers as chief reasons for choosing to withdraw from college. Further researchers complemented this study by suggesting that these three grounds for course withdrawal seemed prominent across age, gender, racial, and ethnic demographics (Forward Analytics, 2006).

According to a study conducted by the marketing research firm, Forward Analytics (2006), there were five key factors that determined student retention in individual courses and persistence through graduation. The factors were (a) the level of peer support students received while enrolled, (b) quality and quantity of interactions with faculty and staff, (c) student institution loyalty, (d) student demographic characteristics, and (e) integration of the student into the social and academic culture of the institution. Although most institutions of higher education shared the negative impacts of attrition, the Forward Analytics study underlined the notion that retention efforts necessarily vary across institutions of higher education, thus making it incumbent on the campus administration to specifically target the reasons for withdrawals on their individual campuses.

Forward Analytics (2006) also found that institutions of higher education employed three components in their efforts to limit attrition in the form of student withdrawal: students, the institution, and the community. In successful institution retention efforts, students were integrated into the academic and social life of the campus. Students were encouraged in their

academics and provided opportunities for personal development. The institution, including the faculty and staff, were committed to the student and guided student persistence, including providing financial aid guidance and student support service outreach. The community's support of a higher education institution was found to be critical to student and institutional success. Increased retention and student persistence was found on campuses that had community and business buy-in, loyalty, and support (Forward Analytics).

### *Grade Distribution Between Course Delivery Methods*

Searcy (1993) conducted a study at John C. Calhoun State Community College to determine whether significant differences existed between grade point averages in traditional classroom courses and distance education courses for sections of the course taught by the same faculty member. The findings of the study suggested that there were no significant differences in grade point averages in traditional classroom courses and distance education courses for sections of the course taught by the same faculty member. Searcy found that students withdrew from Internet-based courses more than they did from traditional classroom courses; however, he recommended that further studies should include student withdrawal from each type of course taught to determine if this was an anomaly or a pattern. Two similar studies by McKissack (1997) and Jones (2005) also revealed no significant differences in grade point averages between traditional classroom courses and distance education courses; however, it was found that students tended to withdraw from Internet-based courses more than from traditional classroom courses. In other studies, researchers found that the grade distributions reported in courses taught both in the traditional classroom and via Internet were equivalent (Martin & Bramble, 1996; Sipusic et al., 1999). The number of courses taught in the traditional classroom setting and via Internet-based course delivery method have been disproportional; therefore, according to Green and Salkind (2005), Samuels and Witmer (2003), and Elliot and Woodward (2006), a Levene's test can be used to determine which  $t$  value to report in the findings, given whether the variances are or are not assumed to be equal.

Since the interest in and promotion of online courses emerged and gained popular attention among students of all ages, researchers have focused not only on the overall effectiveness of technologically driven courses but also how students performed academically in online courses versus in the traditional classroom. Clark (1994) wrote that learning could be accomplished through the use of varied forms of instructional media. Thompson (1996) studied overall student performance in both course delivery methods and found that there were no statistically significant differences in the grades and academic performance of students participating in both courses methods. In addition, Thompson reported that students were more satisfied or equally satisfied with both course delivery methods. According to Clark, students participating in courses involving only one instructional delivery method or those involved in courses in which a variety of course delivery methods are used can learn through all forms of instruction.

According to Simonson, Schlosser, and Hanson (1998), Holmberg's theory of distance education revealed that true learning takes place and can be measured through the amount of interaction and the level of interaction between students and their instructors. According to Holmberg's theory, students learn best when they feel at ease in a class setting regardless of the delivery method used. The necessary interactions required for active learning to take place may be lost in course settings outside of the traditional classroom. Simonson et al. reported that Holmberg said distance education courses lacked the personal connection and ease of atmosphere provided in the traditional classroom and online courses might not meet students' needs for establishing a connectedness with the instructor (Simonson et al., 1998).

Since the development of online courses, the affect on student retention in courses and programs of study and the impact of web-based courses on student grades has been of interest to many researchers (Rosenbaum et al., 2007). Researchers have determined distance education and Internet-based courses to be just as effective as traditional classroom courses (Hudspeth, 1993). In studies using grades as the means of measurement for student achievement, such as the one conducted by Smeaton and Keogh in 1999, the results indicated that students have the ability



to and do perform equally as well in courses taught online. Students' grades were determined not to be impacted by the method of course instructional delivery in an undergraduate database course. Whether the instructor taught the course in the traditional classroom setting or via the Internet, the students performed the same academically (Smeaton & Keogh).

Although students performed equally as well academically in classes taught online and in the traditional classroom setting, researchers have reported that students were less likely to pose thought-provoking questions, address class-related needs to the instructor, seek assistance from the instructor after class hours, and interact in class discussions in online courses (Rosenbaum et al., 2007). Students have reported feeling less integrated with the institution of higher education when participating in online courses as opposed to feeling more connected in courses offered in the traditional classroom (Tiene, 1997). This disconnect might be attributed to attrition, which has reported negative implications on student grades when students have dropped a class and or failed to add online sessions of a particular course.

Liao (1998) conducted a meta-analysis of 35 studies. These studies compared student academic performance in courses taught via the Internet and in the traditional classroom setting. In Liao's meta-analysis, students' grades were not reported to be lower when participating in courses taught solely using an online format. In fact, the analysis revealed that students actually achieved slightly higher in courses taught online versus those taught in the traditional classroom format. The positive results found in favor of online course delivery were predominantly found when the same instructor taught both the traditional classroom course and the same course over the Internet (Liao).

In a study conducted at the University of Wisconsin by Schlough and Bhuripanyo (1998), 77% of students reported that they preferred courses taught in the traditional classroom. They also reported that they favored the flexibility and convenience provided when participating in an online course. Although student grades were not significantly different in online courses over traditional classroom courses, students reported student satisfaction to be a major factor in course delivery method, preference, and course continuance (Schlough & Bhuripanyo).

Schnackenberg, Sullivan, Leader, and Jones (1998) found that student satisfaction and preference over course delivery method selection was not the most effective in increasing or sustaining academic performance. While in a teacher preparation course under study, students reported that they preferred the online method of instruction because it did not require as much practice before testing as did the same course in a traditional classroom setting. Although the online course met student satisfaction objectives, students performed less well, academically, in this setting than in the classroom-based course providing more time for practice of instructional materials presented. Institutions of higher education found student success as the goal before instructional delivery preference (Hagedorn et al., 2006).

### *Methods and History of Instructional Delivery*

By increasing access to educational institutions and programs of study and by offering college and university off-campus sites in more and more locations, the higher education system has been meeting the nation's changing social needs. Higher education, once only for the elite, has dramatically increased in accessibility and offerings of programs in a variety of instructional delivery formats to meet the needs of all types of learners (Bower & Hardy, 2004). Over the years, community colleges have taken the lead in providing distance education opportunities for learners (Hagedorn et al., 2006). By introducing off-campus sites and remote locations, education has been extended to those living in remote areas and areas with limited access to educational institutions (Inman, Kerwin, & Mayes, 1999; Williams et al., 2007).

### *Distance Education*

Although distance education offerings have been in existence for a number of years, the 20th century reflected the greatest changes in this process. Bower and Hardy (2004) reported:

Correspondence study, a method of learning via postal mail, was the form of distance education. The earliest record of this type of educational opportunity comes from an advertisement in the Boston Gazette on March 20, 1728, in which a shorthand teacher by

the name of Caleb Phillipps offered to send weekly lessons to prospective students who lived in the country and wished to learn shorthand. (p. 5)

According to Bower and Hardy (2004), in 1840, Isaac Pitman instructed students in shorthand lessons via postal mail in which the students transcribed the Bible using shorthand. The students mailed their transcriptions to Pitman who made corrections and mailed them back to the students. As the 1840s progressed and Pitman's correspondence courses became increasingly popular, the Phonographic Correspondence Society was initiated; however, this name did not last long. In recognition of Pitman's achievements and dedication to the earliest ongoing distance education program, the Phonographic Correspondence Society was renamed Sir Isaac Pitman Correspondence Colleges in the mid-1800s (Bower & Hardy).

Nasseh (1997) reported that Anna Elliot Ticknor initiated the distance education movement in the United States in 1873. She encouraged at-home study programs and found value in the opportunity for students to individualize learning for themselves. Ticknor's programs were originally designed for women, especially elite women who were bound to their home duties. The advent of such distance education and correspondence courses provided these women with the opportunity to be engaged in the educational system while remaining in the home and fulfilling their daily duties. Ticknor's programs included detailed course exams in addition to regular reading and comprehensive lessons (Nasseh). The idea of providing examinations continued to influence the distance education movement (Simonson, Smaldino, Albright, & Zvacek, 2000).

In the late 19th century, distance education continued in the form of correspondence courses at Illinois Wesleyan College, University of Chicago, and the Correspondence University of Ithaca. William Rainey Harper, the father of the American junior college, supported distance education at the Baptist Union Theological Seminary and during his presidency at the University of Chicago (Nasseh, 1997). Harper has been credited with adding the component of distance education in his American community colleges; therefore, the community college system has

since been acknowledged as being the founder and forerunner of the distance education movement (Bower & Hardy, 2004).

According to Nasseh (1997), just before the turn of the 20th century, Thomas Foster recognized the need to retrain men who worked in professions that required additional knowledge and skill sets for advancement. Foster noted that many of these men had been working for years in professions such as mining and were unable to move upward or outward unless they received additional training. For many, returning to an educational setting seemed daunting and out of reach. Foster, through his efforts with the International Correspondence School's distance education courses, offered these individuals who were older, working class, and often in remote locations, the opportunity to learn the advanced skills required for promotions (Nasseh). The International Correspondence School offered distance education opportunities in the United States and extended those offerings to Mexico and Australia before 1895 (Bower & Hardy, 2004).

According to Simonson et al. (2000), advances in technology in the 1920s promoted distance education. From the 1920s forward, distance education became a growing and contributing factor in systems of higher education. Whether through radio or over live television transmission, distance education courses triumphed in their attempts to increase access to higher education to a growing audience. In the 1980s and 1990s, delivery of courses over the Internet skyrocketed distance education opportunities (Nasseh, 1997). Through the introduction of these media, students were not only able to participate in courses in remote locations over the computer but were also able to contribute to their educational experiences by having access to the latest research and current events (Bower & Hardy, 2004). Bower and Hardy attributed instructional access and the possibility of course completion and degree attainment for individuals who might otherwise not have been able to attend classes as being the single greatest impact of the Internet for higher education.

### *Traditional Classroom Instruction*

Instructional delivery based in the traditional classroom was reported by Coleman (2005) to have been the most widely used course delivery platform in higher education until the 1990s. In the traditional classroom, courses tended to be instructor-focused and instructor-lead. Traditionally taught courses involved more passive learning as the instructor delivered knowledge and course information to students in a lecture or discussion format (MacBrayne, 1995). Students had limited interaction with the instructor and other students because of time constraints for course delivery during scheduled class sessions (Coleman).

According to Nasseh (1997), although technology and various media were used in instructional delivery, it was not a prominent method of delivery and was not central to the role of being a learner. In the traditional classroom, a learner-focused framework has been adopted. As demographic shifts and societal changes altered the complex make-up of the student body in higher education, community colleges prepared for the future needs of their students by enhancing traditional classroom instruction with interactive components (MacBrayne, 1995).

In a study researching the variations in teacher-to-student interaction between traditional classroom and Internet-based course instructional delivery, Seale and Cann (2000) found that faculty members spent significant time interacting with students in traditionally taught classroom-based courses. However, Hagedorn et al. (2006) suggested that the individual efforts of the students and the faculty members would play a large role in any level of interaction that exists in any learning environment. Johnson et al. (2002) reported that the ways students and teachers interact in traditional classroom and online courses are important aspects to study. However, the effectiveness of online instruction must be compared with the level of student satisfaction in order to determine if Internet-based courses are a preferable form of instructional delivery or a comparable addition to traditional classroom instruction.

### *Internet-Based Instruction*

Dillon and Cintron (1999) suggested that community colleges, with their influx of distance education course implementations, were on a path to developing a new market for educational instruction long before other higher education institutions. During the 2000–2001 academic year, 56 % of all public and private 2-year, degree-granting institutions offered distance education courses including Internet-based instructional delivery for some of the courses listed in their curriculum. According to the U. S. Department of Education (2003), 12% of all institutions of higher education indicated they planned to start offering some distance education courses by 2003-2004. In 2000-2001, 90 % of public community colleges offered distance education courses (U. S. Department of Education, 2003). Community colleges have offered certain advancements toward a wealth of distance education offerings although the number of Internet-based course offerings does not yet equal the number of traditional classroom courses (Williams, 2002). These advancements have included the community college's responsiveness to (a) meeting the needs of all learners, (b) offering extended off-campus sites, (c) providing educational access to remote locations, and (d) continuing their long-lived mission of an open door policy (Bower & Hardy, 2004).

As the 21<sup>st</sup> century marks the inclusion of more technology and online courses, community colleges have paved the way to challenge the idea of traditional classroom settings as being the most effective method of course instructional delivery. The evolution of online courses has also changed instructor-student roles. These courses and programs were considered to be as credible and as grounded in foundational lecture concepts as were traditional classroom offerings for the same courses (Lewis, 2003). Lilja (2001) conducted a study that analyzed a computer-systems course taught in various instructional delivery settings including traditional classroom, Internet-based, and interactive television. Lilja found that students who participated in the remote instructional delivery settings such as Internet-based courses had a substantially higher course withdrawal rate than did students enrolled in the traditional classroom courses; however, the average grade point averages of students enrolled in the traditional classroom was

lower than that of the students enrolled in the Internet-based and interactive television courses. Lilja concluded that postsecondary institutions must meet the needs concerning the high demand for Internet-based courses and other distance education offerings while addressing the need to bridge the gap in the engagement of students in their own learning that exists in courses not taught in the traditional classroom.

According to Coleman (2005), online courses have been more learner-focused, meaning that more active learning has taken place and the learning has been focused more on the student. Because of the lack of face-to-face interaction and by nature of the course setup, the student has to take a dominant role in his or her learning process. Hagedorn et al. (2006) found that instructors were no longer merely lecturing to students; rather, the students were involved in the interactive learning process. In online course delivery, instructors have guided learners and modeled good skills. Technology has aided students to explore resources and construct their own meanings. Technology could enable instructors to meet a wide variety of learning styles through the inclusion of various types of media (Coleman). Rossman (1992) stated that the process of delivering online courses must be explored and promoted as the traditional classroom has failed to accommodate different learning styles by binding students and instructors to a room at a scheduled time.

Coleman (2005) reported that the number of students enrolled in online programs totaled over four million and was expected to increase by 30% each year. Students of all ages and demographic characteristics appeared to be drawn to this form of learning. Given the evidence gleaned from past studies suggesting that 21<sup>st</sup> century students desire more flexibility in course delivery and scheduling, online courses and programs have capitalized on the academic market (Williams et al., 2007).

Online courses have attracted students for many reasons including an opportunity to attend courses from home or remote locations. According to Lewis (2003), this was found to be beneficial for those living great distances from their chosen institutions of higher education as well as for those with small children and family responsibilities that made attending a traditional

classroom setting unfeasible. By meeting the needs of learners in a format where the course materials can be found at any time, students have discovered that they can review curriculum at their convenience (Rosenbaum et al., 2007). Dziuban and Moskal (2001) found that students were either equivalently likely or less likely to withdraw from an Internet-based course than from a traditional course.

In contrast to some earlier reported research, Lewis (2003) found that student interaction increased in the online classroom as compared to the traditional setting. According to Lewis, with online courses, students are expected to be active participants in the discussions; thus, the atmosphere has made it impossible to sit quietly and fail to offer opinions. Discussion boards have provided a way for students to interact with all class members (Coleman, 2005). Coleman also pointed out that students involved in online learning courses gained exposure to technology and methodologies that could provide them more opportunities to obtain technical skills valuable to them in 21<sup>st</sup> century job searches.

The online classroom has provided an atmosphere that gives all students the flexibility of participation without intimidation. Students have reported that the anonymity in an online classroom provided ease from the stress of student demographic issues such as gender, ethnicity, and age (Lewis, 2003). Because of the nature of online classrooms and because students are required to participate in weekly chats, informal and formal discussions, and correspondence team projects, they have reported a greater sense of bonding and camaraderie in this type of instructional setting (Rosenbaum et al., 2007). According to Lewis, students also reported they felt more connected with the instructors when participating in online courses. Students reported that instructors seemed more at ease and more responsive in responding to them via email and over discussion board formats. According to Coleman (2005), although traditional classroom courses will continue to have a place, online courses have dominated with positives. Educational experiences that include a combination of the traditional classroom setting and online delivery methods (hybrid education) have increased in popularity (Wittmann, Morote, & Kelly, 2007).



### *Hybrid Education*

Hybrid education has been called the wave of the future and is the direction many institutions of higher education have taken in meeting the demands of faculty members, students, and career needs. Hybrid education is a combination of online and traditional classroom instruction and deemed by many to be the future of instructional models (Wittmann et al., 2007). Fanter (2005) stated that hybrid education provided faculty the most unique opportunity to engage students in active learning. This form of instruction was designed to foster the most exemplary educational delivery format by combining the best of both educational settings in one package offering (Wittmann et al.). Fanter pointed out that the greatest benefit of hybrid education was in the flexibility of scheduling. Wittmann et al. stated that although faculty members' and students' misconceptions surrounding hybrid education have prevailed, they have been primarily among individuals who were not familiar with this form of instructional delivery.

### *Summary*

Based on the findings in the review of literature, this chapter focused on the relationships among college student withdrawal rates, grade distribution, methods of instructional delivery, traditional classroom instructional delivery setting, and Internet-based classroom instructional delivery setting. Specific behaviors that led to increased student withdrawal rate have been identified in the literature. The reasons that students chose to withdraw from a course or discontinue a program of study have been varied and multifaceted. The complexity of these reasons involved factors such as sociological and cultural matters, financial stressors, psychological issues, and a student's background. How administrators at institutions of higher education have understood and coordinated efforts to assist students with withdrawal indicators has made a difference in student retention, thus enhancing the success of the college or university (Cofer, 2007). Variables that impacted course grade distribution and instructional delivery method practices have been identified. This researcher attempted to identify in the research the

extent to which course grade distribution is affected or not affected by the course instructional delivery setting.

## CHAPTER 3

### METHODOLOGY

#### *Introduction*

This applied research project was conducted to provide empirical evidence regarding the influence of instructional delivery method on grade distribution and course withdrawal in a community college in Northeast Tennessee. The purpose of the study was to explore the relationship between traditional classroom and Internet-based instructional delivery methods in relation to the percentage of students withdrawing and grade distribution patterns for specified courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) at a community college in Northeast Tennessee. This chapter describes the research design, population, instrumentation, data collection procedures, data analysis, and research questions and hypotheses.

#### *Research Design*

A nonexperimental design was used to conduct this study. Four courses were used for purposes of grade distribution and withdrawal rate analysis. Each course involved in the study exhibited course sections taught by both part-time and full-time faculty providing instructional delivery course sections in traditional classroom and Internet-based delivery over a period of the 5 academic years of 2002-2007. One course from each of the identified curriculum areas of study at the community college level was used: English 1010, Math 1710, Biology 2010, and Business CSCI 1100. A *t* test for independent samples was used in this study. Because of the unequal sample sizes, a Levene's test was used to assess the homogeneity of variances between the two groups. According to Green and Salkind (2005), the Levene's test is used in a *t* test to assess whether the variances for the groups are equal. If the Levene's test is significant at the .05 level, the equality of variances assumption is violated and the *t* value that does not assume equal

variances is reported. However, if the Levene's test is not significant, the sample variances are considered equivalent and the results of the analyses considered valid. Green and Salkind added that an argument could be made to support consistently reporting the  $t$  value for unequal variances, thus eliminating the need to assess whether the groups are equal. The Levene's test was conducted on all samples sizes for all independent sample  $t$  tests to test for unequal variances. Of all the sample comparisons, only four were deemed unequal; thus the  $t$  value that assumes unequal variances was reported so that the analyses would be considered valid. Course section information was coded as: traditional classroom delivery method = 1 and Internet-based delivery method = 2.

The instructional delivery methods used in this study were face-to-face traditional classrooms and Internet-based online course sections taught by both part-time and full-time faculty at a community college in Northeast Tennessee. The study was a quantitative study that analyzed the grade distribution and withdrawal of students participating in four courses providing sections in traditional classroom and Internet-based delivery over a period of 5 academic years from 2002-2007. The sampling of this study was one of nonprobability (purposeful). Data for this study were collected through secondary data analysis. Construct underrepresentation was not an issue as data have been collected on every student in every course section in the study.

#### *Instrumentation and Data Collection Procedures*

As this study was a nonexperimental study involving nonprobability sampling, no instrumentation was used. The data analyzed were collected from a college course database provided by the Office of Institutional Research located at the community college in Northeast Tennessee. Data included all grades and withdrawals recorded in each course section over a period of 5 academic years. Grades used in this study were as follows: A, B, C, D, and F. As all grades were analyzed for purposes of grade distribution analysis, the mean percentage of each grade received by students participating in each course section over the period of 5 academic

years were calculated for each course under study. The grades in each course section were added to calculate the mean for the 5-year total. Grade point average was based on a 4-point scale: A = 4 grade points, B = 3 grade points, C = 2 grade points, D = 1 grade point, and F = 0 grade points. Likewise, the percentage of students withdrawing in each course section were added to calculate the mean for the 5-year total.

### *Data Analysis*

The data in this study were analyzed using the Statistical Program for Social Sciences (Green & Salkind, 2005). This statistical program both analyzes and displays the data (Green & Salkind). The statistical procedure included a *t* test for independent samples.

For research question #1, the data were analyzed using a *t* test for independent samples to evaluate the mean grade assigned in each instructional delivery format for each of the four courses under study (English 1010, Math 1710, Biology 2010, and CSCI 1100). For research question #2, the data were analyzed using an independent samples *t* test to evaluate the percentage of students withdrawing in each course based on each instructional delivery format for each of the four courses under study (English 1010, Math 1710, Biology 2010, and CSCI 1100).

The goal of the researcher was to answer the two research questions in relation to four curriculum courses: English 1010, Math 1710, Biology 2010, and Business CSCI 1100 delivered at a community college in Northeast Tennessee. The following research questions and corresponding null hypotheses were formulated to investigate grades and the percentage of student withdrawal based on instructional delivery method--traditional classroom or Internet-based.

### *Research Questions and Hypotheses*

Research Question #1: Are there differences in mean grades for the 5 academic years 2002-2007 for each of four courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) with regard to instructional delivery method?

Ho:1<sub>1</sub> There is no difference in 2002-2007 mean grades for English 1010 with regard to instructional delivery method.

Ho:1<sub>2</sub> There is no difference in 2002-2007 mean grades for Math 1710 with regard to instructional delivery method.

Ho:1<sub>3</sub> There is no difference in 2002-2007 mean grades for Biology 2010 with regard to instructional delivery method.

Ho:1<sub>4</sub> There is no difference in 2002-2007 mean grades for Business CSCI 1100 with regard to instructional delivery method.

Research Question #2: Are there significant differences in the percentage of students withdrawing for the 5 academic years 2002-2007 for each of four courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) with regard to instructional delivery method?

Ho:2<sub>1</sub> There is no difference in 2002-2007 percentage of student withdrawals for English 1010 with regard to instructional delivery method.

Ho:2<sub>2</sub> There is no difference in 2002-2007 percentage of student withdrawals for Math 1710 with regard to instructional delivery method.

Ho:2<sub>3</sub> There is no difference in 2002-2007 percentage of student withdrawals for Biology 2010 with regard to instructional delivery method.

Ho:2<sub>4</sub> There is no difference in 2002-2007 percentage of student withdrawals for Business CSCI 1100 with regard to instructional delivery method.

### *Summary*

This study focused on the relationships among student withdrawal, grade distribution, and methods of instructional delivery (traditional classroom or Internet-based). Variables that influence course grade distribution and withdrawal and instructional delivery method practices were identified. The researcher attempted to identify the extent to which course section grade distribution and withdrawal are affected or not affected by the course instructional delivery setting. The results were derived from quantitative data obtained from a community college in Northeast Tennessee. Inferential statistics were used. The results are reported in Chapter 4.

## CHAPTER 4

### ANALYSIS OF DATA

The purpose of the study was to explore the relationship between traditional classroom and Internet-based instructional delivery methods in relation to withdrawal and grade distribution patterns for specified courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) at a community college in Northeast Tennessee. This study was designed to analyze whether grade distributions and the percentage of students withdrawing differ when course instructional delivery is offered in an alternative setting from traditional classroom practices, such as via Internet-based course sections.

This study was guided by two research questions presented in Chapter 1 and the corresponding null hypotheses introduced in Chapter 3. The research questions and the null hypotheses are addressed in this chapter.

#### *Data Collection*

The data analyzed were collected from a college course database provided by the Office of Institutional Research located at a community college in Northeast Tennessee. The analyzed data consisted of course sections taught by both part-time and full-time faculty from each of the identified curriculum areas of study at the community college: English 1010, Math 1710, Biology 2010, and Business CSCI 1100. The courses in this study had traditional classroom and Internet-based instructional delivery settings represented for each course section over a period of 5 academic years.

Table 1 shows the number of sections taught in each course, the number of traditional classroom course sections, the number of Internet-based course sections for each course under study, and the number of students enrolled in traditional classroom course sections and Internet-



based course sections. The number of students enrolled is inclusive of those students who withdrew from the course.

Table 1

*Courses and Instructional Delivery Methods 2002-2007*

Course	Sections Taught	Traditional Classroom		Traditional Classroom Students Enrolled for 5-Year period	Internet-Based		Internet Students Enrolled for 5-Year period
		N	%		N	%	
2002-2007:							
English 1010	330	298	90.3	5,564	32	9.7	542
Math 1710	55	45	81.8	838	10	18.2	72
Biology 2010	104	94	90.4	1,989	10	9.6	180
Business CSCI 1100	254	234	92.1	4,722	20	7.9	413

*Analysis of Research Questions*

Inferential statistics were used to analyze the data gathered from the study. Following is an analysis of each research question.

*Research Question #1*

Are there differences in mean grades for the 5 academic years 2002-2007 for each of the four courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) with regard to instructional delivery method?

Four independent samples *t* tests were used to evaluate whether the mean grade point averages in English 1010, Math 1710, Biology 2010, and Business CSCI 1100 differ between traditional classroom course sections and Internet-based course sections taught in the same academic period. Hypothesis 1<sub>1</sub> is related to English 1010.

Ho:1<sub>1</sub> There is no difference in 2002-2007 mean grades for English 1010 with regard to instructional delivery method.

Table 2 shows the English 1010 grade point averages (GPA) for the 5 academic years under study.

Table 2

*English 1010 GPA for 5 Years (2002-2007)*

English 1010 GPA	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	$\eta^2$	<i>p</i>
2002-2007:							
Traditional	298	2.42	.71	1.33	328	.01	.18
Internet	32	2.24	.59				

Table 2 shows, on the average, 2002-2007 English 1010 traditional classroom course sections ( $M = 2.42$ ,  $SD = .71$ ) had minimally higher grade point averages than did internet-based course sections ( $M = 2.24$ ,  $SD = .59$ ). This difference was not statistically significant  $t(328) = 1.33$ ,  $p = .18$ , suggesting that the minimally higher grade point average in the traditional

classroom course sections was not more than would have been expected because of chance. The 95% confidence interval for the difference in means was -.08 to .43. The  $\eta^2$  index was .01, indicating a small effect size. Given the unequal sample sizes, a Levene's test was used to assess the homogeneity of variances between the two samples. The results of the Levene test, .22, was not significant at the .05 level, therefore indicating that the sample variance would be considered equivalent.

Hypothesis 1<sub>2</sub> is related to Math 1710.

Ho:1<sub>2</sub> There is no difference in 2002-2007 mean grades for Math 1710 with regard to instructional delivery method.

Table 3 shows the Math 1710 grade point averages (GPA) for the 5-year period under study.

Table 3

*Math 1710 GPA for 5 Years (2002-2007)*

Math 1710 GPA	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	$\eta^2$	<i>p</i>
2002-2007:							
Traditional	45	2.25	.71	1.40	53	.04	.17
Internet	10	1.88	.82				

Table 3 shows that on the average, 2002-2007 Math 1710 traditional classroom course sections ( $M = 2.25$ ,  $SD = .71$ ) had higher grade point averages than did the Internet-based course sections ( $M = 1.88$ ,  $SD = .82$ ). This difference was not statistically significant  $t(53) = 1.40$ ,  $p = .17$ , suggesting that the higher grade point average in the traditional classroom course sections was not more than would have been expected because of chance. The 95% confidence interval

for the difference in means was -.16 to .91. The  $\eta^2$  index was .04, indicating a small effect size. Given the unequal sample sizes, a Levene's test was used to assess the homogeneity of variances between the two samples. The results of the Levene test, .85, was not significant at the .05 level, therefore indicating that the sample variance would be considered equivalent.

Hypothesis 1<sub>3</sub> is related to Biology 2010.

Ho:1<sub>3</sub> There is no difference in 2002-2007 mean grades for Biology 2010 with regard to instructional delivery method.

Table 4 shows the Biology 2010 grade point averages (GPA) for the 5-year academic period under study.

Table 4

*Biology 2010 GPA for 5 Years (2002-2007)*

Biology 2010 GPA	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	$\eta^2$	<i>p</i>
2002-2007:							
Traditional	94	2.03	.47	.17	102	<.01	.86
Internet	10	2.00	.52				

Table 4 shows that on the average, 2002-2007 Biology 2010 traditional classroom course sections ( $M = 2.03$ ,  $SD = .47$ ) had a minimally higher grade point averages than did the Internet-based course sections ( $M = 2.00$ ,  $SD = .52$ ). This difference was not statistically significant  $t(102) = .17$ ,  $p = .86$ , suggesting that the higher grade point average in the traditional classroom course sections was not more than would have been expected because of chance. The 95% confidence interval for the difference in means was -.29 to .34. The  $\eta^2$  index was <.01, indicating a small effect size. Given the unequal sample sizes, a Levene's test was used to assess the

homogeneity of variances between the two samples. The results of the Levene test, .99, was not significant at the .05 level, therefore indicating that the sample variance would be considered equivalent.

Hypothesis 1<sub>4</sub> is related to Business CSCI 1100.

Ho:1<sub>4</sub> There is no difference in 2002-2007 mean grades for Business CSCI 1100 with regard to instructional delivery method.

Table 5 shows the Business CSCI 1100 grade point averages (GPA) for the 5 academic years under study.

Table 5

*Business CSCI 1100 GPA for 5 Years (2002-2007)*

Business CSCI 1100 GPA	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	$\eta^2$	<i>p</i>
2002-2007:							
Traditional	234	2.42	.53	.85	252	<.01	.40
Internet	20	2.32	.45				

Table 5 shows that on the average, 2002-2007 Business CSCI 1100 traditional classroom course sections ( $M = 2.42$ ,  $SD = .53$ ) had higher grade point averages than did the Internet-based course sections ( $M = 2.32$ ,  $SD = .45$ ). This difference was not statistically significant  $t(252) = .85$ ,  $p = .40$ , suggesting that the minimally higher grade point average in the traditional classroom course sections was not more than would have been expected because of chance. The 95% confidence interval for the difference in means was -.14 to .35. The  $\eta^2$  index was <.01, indicating a small effect size. Given the unequal sample sizes, a Levene's test was used to assess the homogeneity of variances between the two samples. The results of the Levene test, .44, was

not significant at the .05 level, therefore indicating that the sample variance would be considered equivalent.

*Research Question #2*

Are there significant differences in the percentage of students withdrawing for the 5 academic years 2002- 2007 for each of the four courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) with regard to instructional delivery method?

Four independent samples *t* tests were used to evaluate whether the percentage of students withdrawing in English 1010, Math 1710, Biology 2010, and Business CSCI 1100 differ between traditional classroom course sections and Internet-based course sections taught in the same academic period.

Hypothesis 2<sub>1</sub> is related to English 1010.

Ho:2<sub>1</sub> There is no difference in 2002-2007 percentage of student withdrawals for English 1010 with regard to instructional delivery method.

Table 6 shows the English 1010 percentage of student withdrawals for the 5 academic years under study.

Table 6

*English 1010 Percentage of Withdrawals for 5 Years (2002-2007)*

English 1010 Withdrawal Rates	<i>N</i>	<i>M</i> %	<i>SD</i>	<i>t</i>	<i>df</i>	$\eta^2$	<i>p</i>
2002-2007:							
Traditional	298	13.20	11.64	.92	328	<.01	.36
Internet	32	15.19	11.84				

Table 6 shows that on the average, 2002-2007 English 1010 Internet-based course sections ( $M = 15.19$ ,  $SD = 11.84$ ) had a higher percentage of withdrawals than did the traditional classroom course sections ( $M = 13.20$ ,  $SD = 11.64$ ). This difference was not statistically significant  $t(328) = .92$ ,  $p = .36$ , suggesting that the higher withdrawals in the Internet-based course sections was not more than would have been expected because of chance. The 95% confidence interval for the difference in means was  $-.08$  to  $.43$ . The  $\eta^2$  index was  $<.01$ , indicating a small effect size. Given the unequal sample sizes, a Levene's test was used to assess the homogeneity of variances between the two samples. The results of the Levene test,  $.22$ , was not significant at the  $.05$  level, therefore indicating that the sample variance would be considered equivalent.

Hypothesis 2<sub>2</sub> is related to Math 1710.

Ho:2<sub>2</sub> There is no difference in 2002-2007 percentage of student withdrawals for Math 1710 with regard to instructional delivery method.

Table 7 shows the Math 1710 percentage of student withdrawals for the 5 academic years under study.

Table 7

*Math 1710 Percentage of Withdrawals for 5 Years (2002-2007)*

Math 1710 Withdrawal Rates	<i>N</i>	<i>M</i> %	<i>SD</i>	<i>t</i>	<i>df</i>	$\eta^2$	<i>p</i>
2002-2007:							
Traditional	45	18.48	13.50	1.77	10.12	.12	.11
Internet	10	33.39	25.78				

Table 7 shows that on the average, 2002-2007 Math 1710 Internet-based course sections ( $M = 33.39$ ,  $SD = 18.48$ ) had higher withdrawals than did the traditional classroom course

sections ( $M = 18.48$ ,  $SD = 13.50$ ). This difference was not statistically significant  $t(10.12) = 1.77$ ,  $p = .11$ , suggesting that the higher withdrawals in the Internet-based course sections was not more than would have been expected because of chance. The 95% confidence interval for the difference in means was -33.54 to 3.82. The  $\eta^2$  index was .12, indicating a medium effect size. Given the unequal sample sizes, a Levene's test was used to assess the homogeneity of variances between the two samples. The results of the Levene test, .05, was significant at the .05 level, therefore indicating that the variances are not equal. The unequal variances  $t$  test statistic was, therefore, reported.

Hypothesis 2<sub>3</sub> is related to Biology 2010.

Ho:2<sub>3</sub> There is no difference in 2002-2007 percentage of student withdrawals for Biology 2010 with regard to instructional delivery method.

Table 8 shows the Biology 2010 percentage of student withdrawals for the 5 academic years under study.

Table 8

*Biology 2010 Percentage of Withdrawals for 5 Years (2002-2007)*

Biology 2010 Withdrawal Rates	<i>N</i>	<i>M</i> %	<i>SD</i>	<i>t</i>	<i>df</i>	$\eta^2$	<i>p</i>
2002-2007:							
Traditional	94	35.97	34.20	5.10	85.43	.03	<.01
Internet	10	15.84	5.81				

Table 8 shows that on the average, 2002-2007 Biology 2010 traditional classroom course sections ( $M = 35.97$ ,  $SD = 34.20$ ) had a higher percentage of withdrawals than did the Internet-based course sections ( $M = 15.84$ ,  $SD = 5.81$ ). This difference was statistically significant  $t(85.43) = 5.10$ ,  $p < .01$ , suggesting that the higher withdrawals in the traditional classroom course



sections was more than would have been expected because of chance. The 95% confidence interval for the difference in means was 12.22 to 28.03. The  $\eta^2$  index was .03, indicating a small effect size. Given the unequal sample sizes, a Levene's test was used to assess the homogeneity of variances between the two samples. The results of the Levene test,  $<.01$ , was significant at the .05 level, therefore indicating that the variances are not equal. The unequal variances  $t$  test statistic was, therefore, reported.

Hypothesis 2<sub>4</sub> is related to Business CSCI 1100.

Ho:2<sub>4</sub> There is no difference in 2002-2007 percentage of student withdrawals for Business CSCI 1100 with regard to instructional delivery method.

Table 9 shows the Business CSCI 1100 percentage of student withdrawals for the 5 academic years under study.

Table 9

*Business CSCI 1100 Percentage of Withdrawals for 5 Years (2002-2007)*

Business CSCI 1100 Withdrawal Rates	<i>N</i>	<i>M</i> %	<i>SD</i>	<i>t</i>	<i>df</i>	$\eta^2$	<i>p</i>
2002-2007:							
Traditional	234	13.59	9.96	.85	252	<.01	.37
Internet	20	11.55	7.62				

Table 9 shows that on the average, 2002-2007 Business CSCI 1100 traditional classroom course sections ( $M = 13.59$ ,  $SD = 9.96$ ) had a higher percentage of withdrawals than did the Internet-based course sections ( $M = 11.55$ ,  $SD = 7.62$ ). This difference was not statistically significant  $t(252) = .85$ ,  $p = .37$ , suggesting that the higher withdrawals in the traditional

classroom course sections was not more than would have been expected because of chance. The 95% confidence interval for the difference in means was -2.45 to 6.53. The  $\eta^2$  index was  $<.01$ , indicating a small effect size. Given the unequal sample sizes, a Levene's test was used to assess the homogeneity of variances between the two samples. The results of the Levene test, .621, was not significant at the .05 level, therefore indicating that the sample variance would be considered equivalent.

### *Summary*

This chapter included inferential statistics and descriptive statistics to evaluate the two research questions. Chapter 5 provides a summary of the findings, conclusions, and recommendations for further research.

## CHAPTER 5

### SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Community colleges are constantly faced with the burden of meeting the challenges of serving the students enrolled as well as addressing the issues of course grade distributions, failing grades, course withdrawal rates, and student retention (Wohlgemuth et al., 2007). The U.S. Department of Education (2006) found that 6.2 million students were enrolled in programs leading to an associate's degree or certificate at the community college level. Levin (2007) explored these findings and reported that nearly 50% of those students were over the age of 24 and, therefore, considered nontraditional students. The community college has influenced the postsecondary experience by making its mission to provide quality educational experiences for underserved and underrepresented populations (Tagg, 2003). In so doing, the community college has implemented technology and Internet-based instructional delivery in an attempt to meet the needs of the community and encourage higher education experiences for nontraditional students (Boettcher & Conrad, 2004). Although the impact of technology on higher education has been positive, community colleges are faced with the challenges inherent in distance education as well as analyzing the overall effectiveness of varying instructional delivery settings as related to grade distribution and withdrawal rates (Hagedorn et al., 2006).

The purpose of the study was to explore the relationship between traditional classroom and Internet-based instructional delivery methods in relation to student withdrawal and grade distribution patterns for specified courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) at a community college in Northeast Tennessee. The data analyzed were collected from the college course database provided by the Office of Institutional Research at a community college in Northeast Tennessee. The findings of the study were inferential in nature.

Independent samples *t* tests were used to evaluate whether the mean grade point average and withdrawal rates in English 1010, Math 1710, Biology 2010, and Business CSCI 1100

differed between traditional classroom course sections and Internet-based course sections taught in the same academic period. A Levene's test for equality of variances was conducted on each analysis to determine if the variances could be considered equal and support reporting a  $t$  value that assumed equal variances. This could be concurred if the Levene's test was found to be not significant. If the Levene's test was found to be significant, the  $t$  value that related to equal variance not assumed was reported. The  $t$  test allows for this reporting in instances involving variances for the groups and instances in which the sample sizes are unequal (Green & Salkind, 2005). Green and Salkind, Samuels and Witmer (2003), and Elliot and Woodward (2006) further stated that it is acceptable to always report the  $t$  value for unequal variances and avoid the assumption of homogeneity of variances or to report unequal variance when the Levene's test is significant; thereby, the need to list unequal sample size as a limitation to this study would be unnecessary.

### *Summary of Findings*

During the 5 academic years of study, there were no statistically significant differences between the mean grade point averages and percentage of student withdrawals in traditional classroom course sections and Internet-based course sections for English 1010, Math 1710, and Business CSCI 1100 suggesting that the differences found were not more than would have been expected because of chance. During the 5 academic years of study, there was reported a statistically significant difference in the percentage of student withdrawals in traditional classroom course sections and Internet-based course sections for Biology 2010 with traditional classroom course sections experiencing a higher percentage of student withdrawals than Internet-based course sections.

The study was based on two research questions and analyzed using the Statistical Package for the Social Sciences (SPSS) software program. The analyzed data consisted of one course from each of the identified curriculum areas of study at the community college: English 1010, Math 1710, Biology 2010, and Business CSCI 1100. The courses in this study had

traditional classroom and Internet-based instructional delivery settings represented for each course over a period of 5 academic years.

### *Research Question #1*

Are there differences in mean grades for the 5 academic years 2002-2007 for each of four courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) with regard to instructional delivery method?

Independent samples *t* tests were used to evaluate whether the mean grade point average in English 1010, Math 1710, Biology 2010, and Business CSCI 1100 differed between traditional classroom course sections and Internet-based course sections taught in the same academic period.

The results indicated there were no significant differences in the mean grade point averages in traditional classroom course sections and Internet-based course sections for all curriculum courses under study. These findings were congruent with the findings of Lilja (2001) and MacBrayne (1995) who reported that grade point averages of Internet-based course sections were equivalent or higher than those in traditional classroom course sections. Further, these results were analogous with and corroborated the findings of Hudspeth (1993), Jones (2005), Kulik and Kulik (1986), Martin and Bramble (1996), McKissack (1997), Searcy (1993), Sipusic et al. (1999), and Smeaton and Keogh (1999) who found that, overall, instructional delivery method did not impact significantly mean grade point averages.

### *Research Question #2*

Are there significant differences in the percentage of students withdrawing for the 5 academic years 2002– 2007 for each of four courses (English 1010, Math 1710, Biology 2010, and Business CSCI 1100) with regard to instructional delivery method?

Independent samples *t* tests were used to evaluate whether the percentage of students withdrawing in English 1010, Math 1710, Biology 2010, and Business CSCI 1100 differed

between traditional classroom course sections and Internet-based course sections taught in the same academic period.

The results indicated that there were significant differences in the percentage of students withdrawing in traditional classroom course sections and Internet-based course sections for Biology 2010. Traditional classroom course sections for Biology 2010 had higher withdrawals than did Internet-based course sections. This finding was incongruous with the findings of Lilja (2001), McKissack (1997), and Searcy (1993) who reported withdrawals in remote delivery instruction, such as Internet-based delivery, at an equivalent or higher rate than traditional classroom course sections.

In English 1010 and Math 1710, Internet-based course sections indicated higher average withdrawals in the 5 academic year period than did traditional classroom course sections. These findings are analogous with findings of Lilja (2001), McKissack (1997), and Searcy (1993) and incongruous to the findings of Dziuban and Moskal (2001). In the 5-year academic period under study, the average number of students withdrawing from class was higher in the traditional classroom course sections than in the Internet-based course sections for Business CSCI 1100 and Biology 2010. This was analogous with Dziuban and Moskal (2001) and incongruous with the findings of Lilja (2001), McKissack (1997), and Searcy (1993). Therefore the results of the current study suggest that withdrawals vary among course sections taught in both traditional classroom and Internet-based delivery settings. The findings from this study suggest that student withdrawals are balanced between traditional classroom course sections and Internet-based course sections over the 5-year academic period.

### *Conclusions*

This study focused on the analysis of withdrawal percentages and grade distribution patterns between traditional classroom course sections and Internet-based course sections for the same course for a 5-year academic period taught at a community college in Northeast Tennessee. The following conclusions were drawn from this study:

### *Conclusion #1*

Instructional delivery method does not significantly influence mean grade point averages. The analyses of English 1010, Math 1710, Biology 2010, and Business CSCI 1100 showed no significant difference in the mean grade point averages with regard to instructional delivery method. According to Green and Salkind (2005), given the unequal sample sizes, the  $p$  values should be interpreted with caution. Researchers have determined that students enrolled in postsecondary traditional classroom and Internet-based courses tend to perform consistently despite the variation in instructional delivery setting (Hudspeth, 1993; Jones 2005; Kulik & Kulik, 1986; Martin & Bramble, 1996; McKissack, 1997; Searcy, 1993; Sipusic et al., 1999; Smeaton & Keogh, 1999). Over the past 22 years, researchers have found that students' mean grade point averages do not significantly differ based on the instructional delivery method of the course section in which they are enrolled. The current study supports the notion of Turner and Crews (2005) who suggested that traditional classroom delivery and Internet-based delivery could effectively coexist together in the attempts of institutions of higher education to provide quality courses and methods of instruction to students while meeting the technology needs of the 21<sup>st</sup> century.

### *Conclusion #2*

Course section withdrawal is influenced by instructional delivery methods and vary between course sections taught in the traditional classroom and via the internet. The analysis of the percentage of students withdrawing in Biology 2010 showed statistically significant differences in the withdrawals, with the traditional course sections experiencing higher withdrawal than the internet-based course sections. The analyses of English 1010, Math 1710 and Business CSCI 1100 reported no significant differences in the percentage of students withdrawing with regard to instructional delivery method. Researchers' theories differed on the influence of instructional delivery method on student withdrawal. Whereas Lilja (2001), McKissack (1997), and Searcy (1993) found Internet-based course sections had higher average

withdrawal rates than did traditional classroom course sections, Dziuban and Moskal (2001) concluded the converse finding that more students tended to withdraw from traditional classroom course sections than they did from Internet-based course sections. Statistically, the overall results of this study supported both of the opposing theories found in the literature. Overall, the English 1010 and Math 1710 courses under study for the 5-year academic period were found to have more withdrawal from Internet-based course sections than from traditional classroom course sections. For the Biology 2010 and Business CSCI courses under the current study, traditional classroom course sections were reported to have higher withdrawals than the Internet-based course sections, with Biology 2010 showing a significant difference. According to Green and Salkind (2005), given the unequal sample sizes, the  $p$  values should be interpreted with caution. As suggested by researchers Kezar and Kinzie (2006), the multiple differences in course withdrawal rates suggest that factors other than course section instructional delivery method could influence a student's decision to withdraw.

### *Recommendations for Practice*

Based on the results of the study, the following recommendations are proposed to encourage educational leaders to continue offering alternate forms of instructional delivery such as Internet-based courses:

1. the community colleges should offer multiple course section offerings in both the traditional classroom and online, given that there was no significant difference in the mean grade point averages of students enrolled in both methods of instructional delivery; and
2. courses supporting multiple course section offerings in both the traditional classroom and online should be expanded to include other program areas that have been taught solely in the traditional classroom, given that there was no significant difference in the mean grade point averages of students enrolled in both methods of instructional delivery.



### *Recommendations for Further Research*

1. A study should be conducted of student withdrawal to identify opportunities for lowering the rate in both traditional classrooms and Internet-based course sections based on the results of this study that continued to have analogous findings with other current literature suggesting that students are continuing to withdraw in both methods of instructional delivery.
2. A study should be conducted using data from more than one community college to assess the factor of faculty status--part-time versus full-time--in relation to instructional delivery method in terms of both student withdrawal and grade point averages.
3. This study should be replicated to examine a more extensive set of demographic comparisons such as part-time and full-time faculty teaching both Internet-based and traditional classroom course sections using data from more than one community college to indicate any significant differences that might exist in instructional delivery settings.
4. A study should be conducted to examine the percentage of student withdrawal and grade distribution patterns between traditional classroom, Internet-based, and hybrid course sections for the same course over a defined period given the findings of this study that suggested course section delivery does not significantly influence mean grade point averages and that withdrawals vary between delivery method.
5. A study should be conducted using a true experimental design that would allow the researcher to address the problem of unequal group sizes because equal numbers would be assigned to each group thereby avoiding the unequal sample size limitations found in the current study.

The results of the current study indicate that instructional delivery method does not significantly influence the mean grade point averages at a community college in Northeast Tennessee. The results of the current study indicate that withdrawal is influenced by

instructional delivery method, as indicated in the significant difference found in the withdrawal of students in Biology 2010. It is critical that institutions of higher education continue to offer multiple course section offerings of both traditional classroom and Internet-based instructional delivery to meet the needs of their students. It is essential for institutional success, as well as student performance, that educational leaders are cognizant of educational strengths and weaknesses of both the aged-old traditional classroom instructional delivery method and the expanding trend of Internet-based instructional delivery.

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