The Relationship between Student Characteristics and Success in an Online Business Course at West Shore Community College

Amy J. Wojciechowski
Western Michigan University

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THE RELATIONSHIP BETWEEN STUDENT CHARACTERISTICS
AND SUCCESS IN AN ONLINE BUSINESS COURSE
AT WEST SHORE COMMUNITY COLLEGE

by

Amy J. Wojciechowski

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Teaching, Learning, and Leadership

ADVISOR: DR. CARL A. WOLOSZYK

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Acknowledgments—Continued

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Amy J. Wojciechowski
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CHAPTER I

INTRODUCTION

Background

The past five years have borne witness to a revolution in education with acceleration in the use of online technologies to assist or, in many cases, supplant traditional modes of instruction (Björner, 1993; Velsmid, 1997). Online education provides access to information sources and teaching institutions around the world to anyone with access to a computer, modem, and telephone lines. Access to information is especially important to students in rural and other isolated environments. Learning is made more interesting and enriching when new technologies are incorporated into the curriculum (Shrivastava, 1999). Today, educational institutions in every state use a variety of technologies to participate in online learning projects (Dutton, Dutton, & Perry, 2002; Epper & Garn, 2003; Neal, 1998; Phipps & Merisotis, 1999).

The world economy is becoming more reliant on knowledge bases for increasing productivity. Dale Neef (1998) notes there is compelling evidence that the sudden and ever-changing accelerating burst of growth in high-technology and high-skilled services may bring about some of the most profound and unexpected changes to the way in which we live and work. Growth in technology and information is occurring at a phenomenal rate in the classroom as well. Students and faculty alike may experience this growth in the classroom in the form of online educational
opportunities. Such a burst of growth has not been witnessed since 19th-century transition from an agricultural to an industrial society.

Distance educators recognize the need to offer distance education to meet the demands of the student of the 21st century. As more online education opportunities present themselves, more students will have the opportunity to advance their education within the environment they currently inhabit (Howell, Williams, & Lindsay, 2003). However, courses taught in an online format hold many challenges for the learner and educator alike (Holmberg, 1987; Howell et al., 2003). Challenges may include computer literacy, electronic connection capabilities, increased costs, navigating information, and feelings of isolation. In this new pedagogical model students may also feel insecure about their ability to succeed in an online environment because they may not feel skilled in interacting with the delivery system. In this example, the concern is not only in the ability to learn the course material, but also the ability to learn the technology that will be used to present the course. Instructors cannot assume that all students will automatically use online courses effectively. The challenges may be magnified when the learner characteristics are not sufficient to succeed in an online format.

The online learning format places the burden on students to initiate the learning process. Students must assume primary responsibility for the learning experience. However, not all students are self-disciplined, motivated, and active learners. They enjoy the convenience of the online experience, but are ill prepared to initiate the basic tenets of the course work (Dutton et al., 2002; Epper & Garn,
2003). The paradigm shift of the educational experience is a shift from their previous college experience in a traditional classroom to the online environment. The online educational experience can be more stimulating and encourage more critical thinking, if the students are engaged and eager to explore the online environment (Epper & Garn, 2003).

Distance education is a form of education characterized by the physical separation of teacher and learner, with the teacher being in one location and the learner in another. Distance education is not a new phenomenon; it has been a mode of teaching and learning for countless individuals for at least a hundred years (Dutton et al., 2002; Epper & Garn, 2003; Moore & Kearsley, 1996). Throughout this time, the term distance education has taken on many forms such as correspondence education, home study, online education, distance education, and distance learning. With current technology available to so many, students now have the opportunity to take classes virtually anywhere and anytime. These various forms of distance education have provided learning opportunities to students that would otherwise be unable to attend classes. Goss (1996) states, “When you declare a new context, you create a new realm of possibility, one that did not previously exist” (p. 19). However, along with such possibilities comes unforeseen problems, and, of course, the age-old question of whether being different is necessarily better. To this end, many people are wondering what types of impact these new online courses are having within higher education settings.
The obvious benefits of online courses are flexibility, convenience, and cost-effective educational opportunities anywhere and anytime (Carnevale, 2000; Dutton et al., 2002). Online learning is replacing many traditional classroom settings. Twigg and Oblinger (1997) predicted a shift from a campus-centered model of higher education to a consumer-centered model due to a combination of new technologies, changing student demographics, costs associated with residential living, and opportunities for lifelong learning. Many students eager to schedule their busy lives tend to register for online courses for convenience and at times without a clear understanding of the new venue for learning.

Online learning courses require minimal on-campus presence allowing students with job and family responsibilities the ability to take more courses than if their options were limited to traditional face-to-face classes (Halsne & Gatta, 2002). Using technology, students can take classes from home in an online format. This format is therefore appealing to many students (Carnevale, 2000). The online student tends to possess distinctive characteristics, such as they tend to be older, are more likely to be employed full-time, and have family responsibilities (Epper & Garn, 2003; United States Department of Education, National Center for Educational Statistics [NCES], 2003). Such full-time employment limits time available for students to take face-to-face courses. Since a higher percentage of online students expect to work during the time they are enrolled in the course as compared to the face-to-face students, less free time is allowed for educational pursuits (Zirkle, 2003). Online students can learn when it is convenient rather than facing the constraints imposed by
a face-to-face course. Online courses are beneficial for students that would like to avoid conflicts between class meetings and other responsibilities. This online course structure is also appealing to students that want to avoid travel when their residence may be far from campus (Halsne & Gatta, 2002; Zirkle, 2003).

The online classroom continues to evolve rapidly (Boettcher & Conrad, 1999). Such online environments allow educational systems to reduce costs, and become more responsive to the needs of time strapped students (Fitzpatrick, 2001). Various costs normally associated with face-to-face courses are minimized or eliminated and include transportation costs, parking costs, child-care costs, and potentially the costs due to reduction of the time students can be employed. Instructors may teach in one location rather than traveling to off-campus sites, thus saving travel and facility costs (Zirkle, 2003). However, potentially higher administration costs may be incurred in the development of successful courses.

On the negative side, several studies have indicated a higher percentage of students participating in online learning courses tend to drop out before the course is completed when compared to students in a conventional classroom. Oblender (2002) noted that online learning is plagued by high dropout rates, with the average online college course dropout rate in the United States at 50%. In an earlier study by Powell, Conway, and Ross (1990), only 40% of the students originally registered for an online course successfully completed the course. Another study by Cheng, Lehman, and Armstrong (1991) found that students participating in computer-mediated learning had significantly higher incompletion rates (32%) than the on-campus students (4%).
Frankola (2001) indicated that institutions are seeing dropout rates that range from 20 to 50% for distance learners, and administrators of online courses agree that dropout rates are often 10 to 20 percentage points higher than in traditional classroom settings.

Such high dropout rates may be a sign that the online environment is not suitable for all students. Students who are unfamiliar with online courses, or students who are simply eager for a change of venue, often need direction as to which course format to select. In a traditional classroom, courses are taught with no online technology used. Course content is delivered in writing or orally ("Sizing the Opportunity," 2003). An online course delivers the vast bulk of the content online. Typically there are no face-to-face meetings. Since online learning is different from the conventional classroom, many students that were successful in the traditional classroom format are not equally successful in the online format (Cheung & Kan, 2002; Phipps & Mertisotis, 1999; Tucker, 2001).

Although online students have comparable grades to face-to-face students, the online students are less likely to complete the course (Dutton et al., 2002; Snell & Mekies, 1999). Dropping out of a course can be costly and have other negative consequences for a student. Although there is a high dropout rate associated with online courses, most of the research does not adequately address this issue (Phipps & Mertisotis, 1999; Snell & Mekies, 1999). Dropouts may be associated with student persistence rather than the online class format. Also, the students that drop out may be excluded from the research completed on this population. If the students that drop
out of online courses are not included in research that is studied, the outcome findings may be slanting toward those students considered successful.

Statement of the Problem

The evidence is clear that a transformation is occurring in the manner in which courses are offered on campuses of colleges and universities today (Dutton et al., 2003; Epper & Garn, 2003; Phipps & Mertisotis, 1999; “Sizing the Opportunity,” 2003). The shift has begun where courses are being offered online, thus providing students an opportunity to take classes virtually anywhere and anytime. The development of different methods for delivery of instruction has provided many innovative educational opportunities for students (Dutton et al., 2002; Phipps & Mertisotis, 1999; “Sizing the Opportunity,” 2003).

However, courses taught in an online format hold many challenges for the learner and educator alike. As students become more involved with online courses, they may face challenges that may be magnified when their demographic and/or learner characteristics serve as a barrier to success in an online format (Holmberg, 1987). The composition of the student population has changed dramatically since the 1980s, and the student demographic landscape continues to change (Halsne & Gratta, 2002). There is a blurring line between the boundaries of the traditional classroom and online instruction as well. Each year greater numbers of traditional, campus-based students are participating in online courses (Epper & Garn, 2003).
The growth of online learning has been identified in many reports. All types of schools expect to see considerable growth in online courses over the next year (Dutton et al., 2002; "Sizing the Opportunity," 2003). For example, the Michigan Community College Virtual Learning Collaborative (MCCVLC) had a 533% increase in enrollment since their first course offerings in the summer of 1999 through 2004 (MCCVLC Winter 2004 Enrollment Report, 2004). Many students take online courses based on personal preference, but due to high dropout rates in such courses, it is imperative that students most likely to succeed be directed into these online courses (Dutton et al., 2002; Snell & Mekies, 1999). The identification of characteristics associated with successful online students could provide the necessary information for teachers and admissions personnel to suggest or discourage a student from registering for an online course. The assessment of such student characteristics should assist with future guidance and placement of students into the online courses at the postsecondary level. A student mistakenly placed into a course may encounter more difficulties and have reduced chances for success compared to an appropriately placed student (White, Goetz, Hunter, & Barefoot, 1995).

Overall, this study will identify selected demographic or learner characteristics which are related to student success within an online course. This online course is entitled Introduction to Business (BBUS 100), and is offered at a community college in the western part of a Midwest state. This course was selected for examination within this research since it has been offered numerous times since 1998, thus providing an opportunity for data from multiple years to be examined. The BBUS 100
course is a requirement for many Applied Arts and Sciences Associate Degree and Certificate programs at this community college, thus providing a potentially large population of subjects to be studied.

The demographic or learner characteristics examined within this research to determine what relationship they might have to overall student success include: (a) gender; (b) age; (c) previous courses completed online; (d) American College Testing Program (ACT) scores of English, Reading, and Composite; (e) Assessment of Skills for Successful Entry and Transfer (ASSET) scores of Reading and Writing; (f) grade point average of student upon completion of the course; (g) previous withdrawal from other courses enrolled in by students in the study; (h) semester format (16-week versus 8-week); (i) student status (full-time vs. part-time); and (j) attendance at an orientation session. For the purposes of this research, a successful student in the online BBUS 100 course is one that has passed the course with a “C” or better.

Purpose of the Study

The purpose of this study is to examine demographic or learner characteristics of successful online students in order to determine if commonalities can be identified. In many previous studies, the enormous variability of the online student population is disguised by gathering samples of students and amalgamating them into averages, which produces an illusory “typical learner” (Dutton et al., 2002; Howell et al., 2003; Phipps & Merisotis, 1999; Threlkeld & Brzoska, 1994). This proposed study will
focus on how individuals differ, rather than how groups differ. A large portion of the current research on distance learning has been conducted to demonstrate achievement levels between groups of distance and traditional learners (Phipps & Merisotis, 1999). However, there is considerable variance of achievement within the groups, which indicates that learners have a variety of different characteristics (Epper & Garn, 2003; Phipps & Merisotis, 1999; Threlkeld & Brzoska, 1994). This issue is particularly important to online instruction, which is used by a population of learners who have far more heterogeneous backgrounds, in terms of characteristics such as preferences, skills, and needs (Holmberg, 1995; Phipps & Merisotis, 1999). Students in an online course may appear "typical," but there is a great degree of diversity within the online student population (Cheung & Kan, 2002; Dutton et al., 2002; Phipps & Merisotis, 1999).

Online courses are generally the first format of course offerings to fill up during registration. Since many online courses have a high withdrawal rate, it would be beneficial for students to be placed in a course format most conducive to their learning (Dutton et al., 2002). Since there is a vast amount of information available on students that register for various classes, it would appear to be very beneficial to use this information to guide the students into the course that would provide the greatest potential for success.

A student’s ability to succeed in an online course may be based on a variety of factors. These factors may include skill levels that the student has attained or demographic characteristics of the individual. This study will examine the relationship
between success in an online course and various factors. Defining the successful characteristics of online students will assist faculty and admissions personnel in guiding students into registration for a course format that would be best suited for the student in providing a satisfying and effective learning environment.

This research will use a formative approach, which is concerned less with judging and rating a student than with providing information which helps educators learn more about which students have the greatest potential for success in an online environment (Sergiovanni & Starratt, 2002). The ultimate goal is to identify if any significant correlations exist between certain student variables and a student’s successful completion of an online course. Such information could be used to encourage future students with certain characteristics to take an online course. Conversely, it could be used to discourage students whose characteristics don’t match previously successful students.

Research Questions

1. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the gender of the student?

2. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online
Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the age of the student?

3. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the previous online courses taken by the student?

4. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the ACT English scores of the student?

5. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the ACT Reading scores of the student?

6. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the ACT Composite scores of the student?

7. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the ASSET Reading scores of the student?
8. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the ASSET Writing scores of the student?

9. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the grade point average upon completion of the course of the student?

10. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to previous course withdrawals by the student?

11. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the semester format (16-week or 8-week) for which the student has enrolled?

12. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to the student status (full-time vs. part-time)?
13. To what extent, if any, does a relationship exist between those community college students who have successfully completed an undergraduate level online Introduction to Business course (i.e., received a minimum grade of “C”) and those who do not, in reference to attendance at an orientation session by the student?

Limitations of the Study

This study is limited to students enrolled in the online BBUS 100 courses at West Shore Community College in Scottville, Michigan. Generalizations from the findings of this study are limited to the sample from which the subjects were drawn. Any generalization beyond this group will be valid only to the extent that the group is representative of other samples. Also, the study only provides information on the nature of the characteristics being studied. One will not be able to infer causation from correlation. Thus, although a relationship between the variables may be high, there is no way to know whether X causes Y or Y causes X. There also may be unmeasured variables that affect such relationships.

Summary

This study examined the relationship between community college students’ success in an online course and various student demographic and other learner characteristics. Defining the successful characteristics of online students should assist faculty and admissions personnel in guiding students into registration for a course format that will be best suited for them. With a variety of course venues available, it is
important to select the format that provides the greatest opportunity for each individual student. The goal should be to provide a satisfying and effective learning environment for student success. The related research on online education seems to indicate there is limited information on what accounts for individual student differences when taking online courses. This quantitative approach makes it possible to explore relationships between various student characteristics and perhaps to predict student success in online courses using the variables identified.
CHAPTER II

LITERATURE REVIEW

Online education has come to be accepted as a well-recognized mode of education for meeting societal demands. As online education teaching technologies become more widely advocated and employed in higher education, researchers strive to understand the influence of such technologies on student learning. Studies suggest that advanced technologies, which often involve introducing or enhancing the visual aspects of class presentations, are beneficial to students (Welsh & Null, 1991). In a study by Smith and Woody (2000), a multimedia class performed poorly early in the term but slightly exceeded a traditional class toward the end of the term. An interaction between class format and student learning style was also identified. The results of this study suggest that multimedia benefits students with a high visual orientation. There are also studies that found no significant difference between multimedia classes and traditional classes (Lee, Gillan, & Harrison, 1996). Although not all online courses offer multimedia formats, it appears such course enhancements may prove beneficial to students with high visual orientation.

Present day academic institutions are in transition. Institutions are being forced to change due to economic pressures from mounting costs and demands by the business world and increased diversity among the students who are choosing to attend school (Paloff & Pratt, 1999). The Internet has revolutionized the way we educate
people. Ideas are flowing digitally at rapid speeds and changing our educational system in the process. There is growing need for using a variety of teaching approaches to reach students with diverse learning styles. "The success of education depends on adapting teaching to individual differences among learners" notes Corno and Snow's study (1986, p. 605). It should be the teacher's goal to create a nurturing classroom environment for all students. Varying one's teaching is essential for maintaining students' interest and meeting individual needs (Gunawardena & Bowerie, 1993). When used judiciously and with students' needs in mind, the web can serve as a powerful learning tool, providing students with new learning opportunities. Technology innovations involving the Internet require a great amount of energy, creativity, and often, monetary resources for development.

Nontraditional Students

A nontraditional student may be described in a variety of ways—an online learner, returning student, or as a participant in online learning. Typically these students are older and more self-motivated individuals, as compared to traditional students. Many community college students are unable to attend traditional courses due to employment, family obligation, transportation, and other restrictions (Akker & Plomp, 1992; Cohen & Brawer, 1996; Halsne & Gatta, 2002). Further, some people are disadvantaged due to geographic remoteness. The percentage of online students with a long commute (more than 10 miles) is double the percentage for lecture students (Dutton et al., 2002). This nontraditional student tends to be older, more
diverse, female, and display varying degrees of academic readiness (Akker & Plomp, 1992; Gray, Vernex, & Rolph, 1996; Halsne & Gratta, 2002; Institute for Higher Education Policy, 2000).

Fewer than half of the 12 million undergraduates enrolled in United States universities fit the mold of the “traditional” student (Press, Washburn, & Broden, 2001). Of the students currently enrolled in undergraduate and graduate studies, 45% are over age 25 (Miglietti & Strange, 1998). These data hold true for Michigan in that fall enrollment for Michigan Community Colleges also indicate that more than 45% of the undergraduate students are 25 years of age or older (Michigan Community Colleges Data and Evaluation Committee, 2003).

Adult students bring to the classroom unique learning interests, educational goals, and instructional needs (Miglietti & Strange, 1998). In a study by Dutton et al. (2002), tests showed a strongly significant relationship with a higher percentage of online students that expect to work during the time they are enrolled in the course as compared to the face-to-face students. Many are working adults with computer and Internet experience. Because of this highly mobile and computer literate student base, many community colleges have been providing online courses since at least the late 1990s. Some classes, such as the course examined in this study (i.e., BBUS 100), are offered both in an online and face-to-face format throughout the school year.

Numerous institutions are participating in the online environment that is providing a new venue for teaching and learning. A recent study completed by The Sloan Consortium (“Sizing the Opportunity,” 2003) indicated that 81% of all
institutions of higher education offer at least one fully online or blended course. In 2000–2001, 90% of public 2-year colleges offered distance education courses (U.S. Department of Education, NCES, 2003).

Many educators choose to use a wide variety of teaching activities, hoping that they will cover most student learning preferences along the way (Diaz & Cartnal, 1999). Many educators also believe that the same teaching methods that work in their traditional classes will also work for online classes. The underlying assumption is that students who enroll in online classes will have the same learning styles and preferences as those in the traditional face-to-face classes (Diaz & Cartnal, 1999).

Online courses provide a nontraditional method of instruction. This relatively new, flexible online format provides many opportunities for a very diverse student population. The community college plays a multifaceted role, which includes providing terminal and transfer programs along with multipurpose services in the community. Because of their emphasis on serving the community, as well as their capacity for responding quickly to market needs, community colleges have been more successful than 4-year institutions in attracting nontraditional learners (Cohen & Brawer, 1996).

Institutions with the largest overall enrollments have the largest average online enrollments (by virtue of their size); however, small to mid-sized schools have the largest percentage of students taking at least one course online as a percentage of all students enrolled (“Sizing the Opportunity,” 2003).
Previous Research Findings: Strengths and Weaknesses

A considerable amount of information is available regarding the proliferation of online learning. Within this realm of information one can generally find strengths and weaknesses associated with the effectiveness of online education. There are numerous strengths identified which may include increased access to online materials, or the use of online education tools. With increased access to materials, less time is required for travel (Gagne & Shephard, 2001). However, access alone does not ensure a successful online learning experience.

In an online learning environment, the teacher’s interaction with the class may be a much more significant predictor of student satisfaction (Fulford & Zhang, 1993). Students in online courses often feel isolated (Aragon, 2003); consequently, contact made by the instructor enhances the online experience. The contact provides a social presence that can be made via announcements, group or individual email, and synchronous and asynchronous discussions. The interaction generated by the instructor may create a level of comfort in which students feel at ease around the instructor and the other students (Aragon, 2003). Leh (2001) found that when the environment is lacking social presence, the participants see it as impersonal and, in turn, sharing information with others decreases. In other contexts, direct interaction may have no role at all. Although instructors may regard lack of direct interaction as a weakness in online learning, students may feel it is not a detrimental loss and may be compensated for by the added convenience of such classes (Blanchard, 1989).
students may be task-oriented and simply want to complete the course independently with minimal involvement with others.

Students in online learning formats often spend more time collaborating with their classmates online (Dutton et al., 2002; McCollum, 1997; Phipps & Mertisotis, 1999). Online learning students are often required to participate in chat groups and synchronous and asynchronous discussions, whereas students in traditional classrooms tend to work together outside of class only before exams (McCollum, 1997). Newberry (2001) postulates that raising social presence in online courses may help to create impressions of quality related to the experience on the part of the student. When a high level of social presence exists, the online environment is perceived as warm, collegial, and approachable for all involved parties (Rourke, Anderson, Garrison, & Archer, 1999).

In today's world, applications supporting collaborative interactions are critical (Leh, 2001). Students who are self-directed and have the ability to maintain their own pace are best suited for success in the online format. Students that procrastinate or become easily frustrated may find more success in a face-to-face, structured, classroom. Also, students in the online format require a certain level of computer literacy (Dutton et al., 2002; Halsne & Gatta, 2002). Students that do not possess this computer literacy may need additional technological competence to be successful in such an environment.

As new technologies have been developed, academic institutions have added class options to take advantage of those new delivery systems (Lever-Duffy, 1991).
With the influx of online education, the questions of quality and comparability of such instruction with traditional methods logically arise. A study conducted by the University of Phoenix demonstrated standardized achievement test scores of its online graduates were 5% to 10% higher than graduates of competing on-campus (traditional) programs at three Arizona public universities (Gubernick & Ebeling, 1997).

Technology-based and other teaching processes should do more than help organize and structure how time is spent. Issues such as how technology fits into a conceptual framework of principles for how people learn, need to be addressed. One question that has arisen is whether online learning is an effective teaching method. As the practice of online education has grown, so also has the study regarding the effectiveness of online learning experiences (Dutton et al., 2002; Epper & Garn, 2003; Lockee, Burton, & Cross, 1999; Phipps, & Merisotis, 1999). It is in the interest of all involved parties to demonstrate that students in online learning courses receive the same quality of instruction as those involved in the traditional classroom setting. In studies dating back to the 1970s, comparisons were made that show that off campus students are just as academically successful as their traditional counterparts (Monson, 1978).

Media comparison studies have historically formed the basis of much research in online education (McIsaac & Gunawardena, 1996). All media has an inherent degree of richness, although no medium is richest on all media characteristics (Dennis & Valacich, 1999). However, the relationships between communication processes and
media capabilities will vary between established and newly formed groups, and will change over time.

Phipps and Merisotis (1999) found three broad measures of the effectiveness of distance education are usually examined in original research. These measures of effectiveness include student outcomes (such as grades and test scores), student attitudes about learning through distance education, and overall student satisfaction toward distance learning. Most of these studies conclude that distance learning courses compare favorably with classroom-based instruction and enjoy high student satisfaction (Phipps and Merisotis, 1999).

Although online education provides many opportunities, the use of technology entails inherent problems. Empirical evidence on online education’s ability to promote learning is not very robust, and those promoting technology emphasize the “delivery of instruction” rather than the ability of technology to promote a “learning experience” for students (Dutton et al., 2002; Epper & Garn, 2003; Neal, 1998). Neal argues that technology in the classroom leads to less face-to-face contact among students and teachers, which can promote an impersonal atmosphere. Personal contact with teachers and peers is a vital predictor of student retention and also plays a role in the ability of people to learn (Phipps & Merisotis, 1999; “Sizing the Opportunity,” 2003). Do the online students perform better because they spend more time collaborating with their classmates or because of the format of the course?

The strengths associated with online learning include access to online materials, use of online education tools, less travel time, contact made by the
instructor allows for increased social presence, convenience, more time to collaborate with classmates online, quality of instruction is equal to instruction of traditional courses, and students appear to be just as academically successful as their online counterparts (Monson, 1978).

The weaknesses appear to include instructors that lack the ability to create social presence, which could possibly lead to less collaboration, isolation, and an impersonal atmosphere. Technological problems can also be considered a weakness when they impact instruction.

Therefore, it appears to be a multitude of factors that have a positive or negative impact on student success in an online course. Experience and willingness of educators and campus personnel, motivation of the students, communication processes, and media capabilities appear to have an impact on the success of an online student.

Individual Student Differences

It is important to assess the quality of courses delivered online and face-to-face. In face-to-face courses the teacher transfers information to the students in the form of lecture or notes. Students may interact within the realm of the classroom and teachers may become aware of the level of involvement of students. Generally when a teacher poses a question to all students, only one student responds. The teacher does not always know if other students in the course understand the concept. Online courses are delivered utilizing lecture or notes as well. There may be more interaction
between and among students and teachers in online learning than in the traditional classroom setting (Draves, 2000). Tracking devices are available to tally the number of times that students view a particular page, how many minutes the student is on the site, and what portion of the site is viewed most often. Discussions posted in an asynchronous discussion board offer an opportunity for all students, and the instructor, to thoroughly evaluate comments made by members of the class. An asynchronous environment is one in which communication between sender and receiver does not take place simultaneously.

Educators across the country are beginning to realize that “one size does not fit all” when it comes to teaching today’s students (Farrington, 1999, p. 86). Research has shown that individual differences in the classroom affect learning and yet few, if any, classes are ever designed by first asking how students might best learn (Farrington, 1999). Learning and teaching styles are part of our personal make-up. Learning styles summarize the needs, emotions, motives, beliefs, and attitudes we possess about how to learn and how to teach (Grasha & Yangarber-Hicks, 2000). Successful instruction will encourage and reinforce student’s preferred style. When students use their preferred style it will contribute to academic achievement, creativity, productivity, and satisfaction in the classroom (Grasha & Yangarber-Hicks, 2000).

Many ways exist to blend teaching styles and learning styles in technology courses, although the literature on the connections of technology to teaching and learning styles is not well developed. Learning styles should be taken into account
when teaching with technology. Student performance when faced with technology is tied to their particular learning style preferences (Dille & Mezack, 1991; Gee, 1990).

The idea that people learn differently probably had its origin with the ancient Greeks (Wratcher, Morrison, Riley, & Scheirton, 1997). Educators have noticed for many years that some students prefer certain methods of learning to others. These dispositions, referred to as learning styles, form a student's unique learning preference and aid teachers in developing classrooms that enhance the learning experience for the student population (Kemp, Morrison, & Ross, 1998). Teachers need to be aware that there are diverse learning styles within the student population. People do not see the world in the same way and may possess very different preferences for how, when, where, and how often to learn.

Educators need to concentrate more on individual students' cognitive processing patterns and learning styles, because students tend to learn and remember more effectively when they are taught through their learning style preference (Dunn, 1990). There have been many claims that one should teach according to a student's learning style, but much of the research does not support those claims (Stellwagen, 2001). Similarly, Kuvale and Forness (1987) claim that after reviewing 40 different studies dealing with instruction focused on learning styles they found an overall effect size around zero. Although matching teaching styles with learning styles was popular in the 1970s, it has been shown to be ineffective (Tarver, 1996).

One concern of applying learning style concepts is that students may be classified by learning style categories. This classification would be a misapplication of
the ideas and could lead to stereotyping and prejudicial labeling of people (Stellwagen, 2001). Another concern would be to limit the style of teaching to each student based on his or her identified learning style. The Learning Styles and Strategies model by Silver and Hanson does not advocate teaching the student in only their identified learning styles, but rather has the educator address the basic goals of instruction (Silver & Strong, 1998). Educators need to use a balanced approach in their teaching pedagogy. They need to recognize the various learning styles present in the student population and consciously plan for the balanced development of each. Learner characteristics are a major factor in the satisfaction levels on the online student (Phipps & Merisotis, 1999).

Online education provides an opportunity to apply various approaches to teaching as well. Reflecting on online education classes and their conceptual base may help us make better choices about how we teach in the future. If not, those committed to teaching and innovation risk being criticized as “purveyors of pedagogy” and as lacking intellectual substance (Grasha, 1996).

When the conceptual underpinnings of teaching processes are clearly stated a clear distinction between teaching and scholarly methods begin to disappear (Grasha, 1996). Few teachers would select methods or procedures (technology-based or otherwise) simply because they are available. When such issues are clearly stated, they provide a sound rationale for employing certain methods and procedures. We need to ensure that our teaching serves the various learning styles of our students by focusing...
on the conceptual context associated with our methods (Grasha & Yangarber-Hicks, 2000).

If learning is dependent on learning styles, and these styles vary between courses (online classes and face-to-face classes) then faculty should be aware of these differences and prepare their instructional methods accordingly. As online education continues to multiply on campuses around the world, some assurance must be provided that such classes will meet expectations for quality education. Because the dynamic nature of the distance population precludes a "typical" student profile (Thompson, 1998, p. 9), educators should continually assess students' characteristics. Attention must be given for faculty to receive adequate support and time for proper course development.

The Need for a Successful Online Learning Student Profile

Goodwin, Miklich, and Overall (1993) found that faculty perceived online learning students to be more serious, accomplished, and articulate in comparison to on-campus students. The online students also had stronger analytical skills and written communications skills, and were more self-directed than the on-campus students. Student characteristics identified as being correlated with success in computer-mediated learning included, but were not limited to the following: married students, students with high literacy levels, and female students (Dutton et al., 2003; Powell et al., 1990).
Information regarding successful student characteristics in online education can assist educators in becoming more responsive to the differences students bring to the classroom. It can also serve as a guide in the development of learning opportunities that match or mismatch students' styles, depending on the educator's purpose. Identifying students' success characteristics and then providing guidance into appropriate courses consistent with that style should also contribute to more effective learning. Attention should also be given to helping students develop strategies for success in courses that are taught in manners that are incongruent with their identified characteristics. Does online education work better for some students than others? Are there significant relationships between student characteristics and success in the online environment? Despite the large volume of material written on distance learning, there is a relative scarcity of true, original research dedicated to explaining or predicting phenomena related to distance learning as reported in *What's the Difference* (Phipps & Merisotis, 1999). Further, the results appear to indicate that technology is not nearly as important as other factors, such as learning tasks, learner characteristics, student motivation, and the instructor (Phipps & Merisotis, 1999).

Attention to individual characteristics holds promise as a technique for improving student performance. Many students appear to approach learning in different yet consistent ways (Dutton et al., 2002; Phipps & Merisotis, 1999). The ability to recognize and take responsibility for these styles is an essential feature of efficient and effective planning. Online learning must allow students to learn according to their personal styles. The educational system provides a tremendous
opportunity for providing choices to learners with different learning techniques. Presenting materials in a range of venues can help provide opportunities for students to become fully engaged (Dutton et al., 2002; Phipps & Merisotis, 1999). There is a trend that is blurring the boundaries of the description of an online student. The challenge for educators of tomorrow will be to assess the characteristics of each student and to provide teaching interventions that are compatible with those characteristics. The challenge for admissions personnel will be to guide students into appropriate courses that will offer the greatest opportunity for success based on the student's profile.

Student Characteristics

The following student characteristics were identified as factors that may influence performance among online students. Previous research in distance education trends does not often address the differences between the distance and nondistance student (Zirkle, 2003). Information about student characteristics and success in online classes could prove useful for both guidance and course placement purposes. The following 13 variables will be the basis for the research.

Gender of Student

In a study of the performance of online students in a business communications course, gender was significantly correlated \( p = .000 \) with student performance (Cheung & Kan, 2002). In this study, women generally outperformed men. Lipe
(1989) and Launius (1997) also found a significant relationship between gender and student performance where women students outperformed their male counterparts. In another study, male economics students performed better than their female peers (Anderson & Benjamin, 1994). However, many studies have found no consistent gender-related differences in the performance of students (Borde, 1998; Didia & Hasnat, 1998; Durden & Ellis, 1995; Peiperl & Trevelyan, 1997).

Age of Student

The average age of students that register for courses atWSCC is 27 years. The average age of online students in a study by Tucker (2001) was 38 years in comparison to the face-to-face students that averaged 23 years. Studies indicate that online students tend to be older (Dutton et al., 2002; Epper & Garn, 2003; Willis, 1992). Some research has found that the age of the online student is related to course completion (Willis, 1992). Willis also indicated that, generally speaking, students over 30 and less than 50 years of age are most likely to complete an online course successfully. Dutton et al. (2002) found the average age of the online student to be 5 years greater than that of the face-to-face class. Another important point was that once registered, younger students were more likely to complete an online course than older students (Willis, 1992). Didia and Hasnat (1998) found the older a student was, the better he or she performed. However, Cheung and Kan (2002) found no age-related differences in student performance.
Previous Online Courses

Several studies support the hypothesis that the number of online education courses previously completed seemed to significantly relate to future success in online education (Ehrman, 1990; Eisenberg & Dowsett, 1990; Moore & Kearsley, 1996). These studies found that first time students often lacked the necessary independence and time management skills needed for persistence. Ridley and Husband (1998) found a nonsignificant difference for students that completed more than one semester of online course work and the grades earned in the online course.

Achievement Test Scores

In a study by Gubernick and Ebeling (1997), online students scored from 5 to 10% higher on achievement tests than did students in the face-to-face course. Other researchers found no significant differences in grades on achievement tests for online students versus face-to-face students in (Freeman, 1995; Mortensen, 1995). Rossman (1993) indicates that online students tended to be older, self-disciplined, with good verbal skills. Good verbal skills would most likely be associated with a higher achievement score in the ACT and ASSET tests that would be completed by students prior to admission into the course. Generally, there is a belief that online students are achievement oriented (Benshoff & Lewis, 1992; Cross, 1980). A study reported in What's the Difference indicated a correlation between student success and students with a high literacy levels (Phipps & Merisotis, 1999). A student’s ACT and ASSET scores could identify academic strengths and weaknesses and might be used in the
process of determining which type of course, face-to-face or online, would be most appropriate for a student. Since no test can measure educational development with absolute precision, this study combined the scores of five achievement tests (American College Testing Program, 1994).

**Grade Point Average**

Cheung and Kan (2002) found a correlation between student performance and previous academic achievement. Previous academic achievement was positively and significantly related to student performance. The study, as well as that of Anderson and Benjamin (1994), indicated the higher the academic qualification obtained, the better the course result that he or she attained in the course. Moore and Kearsley (1996) found that distance learning students in general tend to have high grade point averages.

**Previous Course Withdrawal**

The option to withdraw from a course is available to students in face-to-face as well as online courses. In a study of computer programming students, online students were less likely to complete the course (Dutton et al., 2002). In many studies, there was evidence that a higher percentage of online students tended to drop out before the course was completed in comparison to students in a face-to-face classroom (Phipps & Merisotis, 1999).
Semester Format

The nontraditional student may challenge the existing institutional traditions that were once appropriate to a younger student. Adult learners may prefer a condensed semester format in which the class meets the required contact hours, but over a shorter duration. Condensed classes are increasingly changing the landscape of many college campuses (Scott, 1996). Many colleges are experimenting with classes scheduling formats with an increase of nontraditional students.

Two semester format options are available to students in the online BBUS 100 course. The fall and winter semesters are 16 weeks in length. The summer semester is offered in a condensed 8-week format. The question naturally arises, “Does a different course format make a difference in the academic performance of the online student?”

No research was found on semester format for the online student. However, Tan (1996) recognized no significant difference between student success in traditional and condensed format in a face-to-face course. Thus, in this study, course format made no difference in academic performance and condensed courses may be just as effective in student success.

Student Status

Semester course loads vary by student. The students in this study were identified as either part-time (1–11 credit hours) or full-time (12+ hours). A previous study by Didia and Hasnat (1998) reveals that semester course loads were positively
correlated with student performance. This study found the heavier a student’s semester course load, the better his or her performance. Cheung and Kan (2002) found no association between semester course loads and student performance.

Orientation

Orientations sessions focus on acclimation to the online environment. The orientation sessions are designed to set the tone for student expectations and to describe the process of the course. This information helps to reduce stress due to uncertainty (Robinson, Burns, & Gaw, 1996). Tinto (1997) postulates that integrating students into the institution is the key to their retention and success.

Orientation is a community building experience for the course. Students that attend an orientation session should feel a sense of connection and commitment to the class (Robinson et al., 1996). Sheets and Zakely (1995) assert that student success is related to the degree to which students feel they belong to the community. Involvement is critical for student persistence and success (Astin, 1993; Pace, 1994).

Summary

As the information in Chapter II illustrates, various resources were reviewed in an attempt to understand the relationship between various characteristics of online students. Research cited in this study indicates not only a lack of systematically collected data but also a call for inquiry in this area. We must ask how identified student characteristics can best be utilized in proper course placement for students.
Much of the research that was identified had been conducted to identify achievement and attitudes between groups rather than within groups. The enormous variability of the student population requires examination of individual student characteristics. Therefore, more information is necessary, and it was to this end that this study was conducted.
CHAPTER III

METHODOLOGY

Setting and Course Background

This ex post facto study examined the following 13 characteristics of students to determine if there are any correlations between such variables and student success in an online course: (a) gender; (b) age; (c) previous courses completed online; (d) ACT scores of English, Reading, and Composite; (e) ASSET scores of Reading and Writing; (f) grade point average of student upon completion of the course; (g) previous course withdrawals of students; (h) semester format; (i) student status (full-time vs. part-time); and (j) attendance at an orientation session. The study investigated the relationship of student characteristics and success in an Introduction to Business (BBUS 100) course offered in an online format at West Shore Community College based in Scottville, Michigan. Within this study, a successful student in the online BBUS 100 course is one that had passed the course with a “C” or better. This chapter begins with an explanation of the research design followed by a description of the research setting and the research participants.

As Table 1 indicates, the population at West Shore Community College includes many nontraditional students. There was a total enrollment of 1,372 students at West Shore Community College, with a total of 12,488 credit hours during the
2003–2004 school year. Nearly 60% of the population was comprised of part-time students. Student enrollment at West Shore Community College is shown in Table 1.

Table 1

2003–2004 Student Enrollment at West Shore Community College ($n = 1,372$)

<table>
<thead>
<tr>
<th>Student Status</th>
<th>$N$</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>557</td>
<td>40.6</td>
</tr>
<tr>
<td>Part-time</td>
<td>794</td>
<td>57.9</td>
</tr>
<tr>
<td>Auditing</td>
<td>21</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,372</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 2 is a classification of the age of the student population at West Shore Community College during the 2003–2004 school year. A large percentage of the population (40.9%) was 25 years of age or older.

Some studies have found that the characteristics of online students mirror many characteristics of the traditional community college students. Even though the demographics of the online student are far from homogenous, many characteristics common to the traditional community college student appear to be present in this online population (Holmberg, 1995). Students that choose to enroll in online courses tend to be an employed adult, persistent, older, and in a part-time student status (Institute for Higher Education Policy, 2000; Schrum & Luetkehans, 1997).

West Shore Community College (WSCC) provides learners with several alternative ways to take college courses: online courses, web-based tele-courses, and
Table 2
Age of Student Population \((n = 1,372)\)

<table>
<thead>
<tr>
<th>Classification of Age</th>
<th>(N)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18</td>
<td>180</td>
<td>13.1</td>
</tr>
<tr>
<td>18–24</td>
<td>631</td>
<td>46.0</td>
</tr>
<tr>
<td>25–29</td>
<td>133</td>
<td>9.7</td>
</tr>
<tr>
<td>30–39</td>
<td>212</td>
<td>15.5</td>
</tr>
<tr>
<td>40–49</td>
<td>143</td>
<td>10.4</td>
</tr>
<tr>
<td>50–59</td>
<td>42</td>
<td>3.1</td>
</tr>
<tr>
<td>Over 60</td>
<td>24</td>
<td>1.7</td>
</tr>
<tr>
<td>Unreported Age</td>
<td>7</td>
<td>.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,372</td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

interactive television (ITV). Online courses offered at West Shore Community College are delivered totally over the Internet. In this type of class, students log on from home to send and receive assignments, participate in virtual class discussions, and interact with other students as well as the instructor. Although students are working independently, the Internet provides an opportunity for students to work together on class projects and participate in discussions synchronously or asynchronously.

At WSCC, online learning courses have the same goals and objectives as on-campus courses and the credits from these courses are completely transferable to other institutions. West Shore Community College is a member of the Michigan
College Community Virtual Learning Collaborative (MCCVLC) that the Michigan Community College Association has created among Michigan's community colleges. This collaborative is designed to allow current West Shore Community College students to take courses from other member colleges while still receiving support services at a convenient "home" college. All courses offered through the Michigan Community College Virtual Learning Collaborative (MCCVLC) have been evaluated by participating member colleges to indicate the transfer credit equivalency that will be granted. As indicated on the MCCVLC web site, the WSCC online courses are equivalent to 24 other Michigan Community College courses (MCCVLC, 2004).

The popularity of the MCCVLC continues to grow. The initial collaborative offering in the summer of 1999 provided 47 courses by 12 provider colleges, with a total enrollment of 45 students (MCCVLC, 2004). In the fall of 2003, 25 provider colleges, with a total enrollment of 285 students, provided 644 courses. This represents an increase of over 500% in a just over a 4-year period of time. The online BBUS 100 course in this study has been offered on MCCVLC site since the initial offering by the collaborative in the summer of 1999. Students from around the state of Michigan, as well as around the world, have enrolled in this BBUS 100 course.

Online education has been popular at WSCC, since its inception in 1998. The popularity of online education at WSCC has increased to the point that the online courses are often the first to fill and require the instructor to contemplate adding additional students that may increase the capacity level of the course.
The BBUS 100 course is organized into 15 weekly models that include weekly assignments, and then an overall final exam. Weekly assignments include reading chapter lecture notes and a corresponding chapter in the text, completing chapter quizzes, and completing discussion assignments.

The Blackboard platform is used to offer the BBUS 100 course in a user-friendly format. This educational software platform allows students to manage their own internet-based file space on a central system and to collect, share, discover, and manage important materials. The course was organized into weekly segments. The Blackboard site for the course, included a syllabus, lecture notes, reading assignments, weekly discussion topics, calendar, related links, quizzes, tests, and announcements. Students follow a calendar, which lists weekly assignments. Assignments include quizzes for each chapter covered in the text; a test, which is provided on the 4th, 8th, 12th, and 16th week; and discussions. Discussions are completed weekly in an asynchronous format. An asynchronous format allows for interaction between a sender and receiver that does not take place simultaneously. The asynchronous discussion may begin at any time. Students may read and respond asynchronously to the discussion postings at times that are convenient.

Research Design

This study involved the examination of 13 student demographic or learner characteristics that were identified from available data at West Shore Community College, for students who had completed the BBUS 100 course between fall semester
2000 and summer semester 2003. An ex post facto design was used to explore possible relationships among variables that were not manipulated by the researcher (McMillan & Schumacher, 1989). This nonexperimental method allows for no direct control over causation and attempts to identify only causal relationships.

Of the 13 identified variables, 12 have been correlated with the grade variable. The grade variable for this study is the final grade that the student received in the online course. This procedure was used to identify strong associations between the independent variables with the dependent measure of the grade the student received in the course. Statistical significance will be identified at $p = .05$ alpha level. This indicates that one can be 95% sure that a difference or relationship exists. The evaluation of the strength of the relationship was evaluated once significance was determined.

Population for the Study

West Shore Community College is a rural community college in the Midwest section of the United States. Online courses have been offered at West Shore Community College since the spring of 1998. The online BBUS 100 course was first offered in the fall of 1999 and has been offered every semester since its inception. Thus, the data for this study were drawn from nine different semesters.

The population for this survey included all students registered for online BBUS 100 course offerings beginning with the fall 2000–2001 school year, and each subsequent online BBUS 100 class has been included. This includes the fall, spring,
and summer online BBUS 100 course for the 2000–2001, 2001–2002, and 2002–2003 school years. The same instructor using the same textbook offered all courses. This consistency minimized the potential of data contamination. This study did not include the data for the 1998 and 1999 school year. The course was offered using an instructor-developed web site during this period of time. Blackboard was used beginning in the 2000 school year and provided consistency for evaluation.

A total of 179 students were included in this study. All participants were students who had registered for the BBUS 100 online course at WSCC. Twenty seats were available in the course each time the course was offered. One 8-week semester course and two 16-week semester courses were provided each school year.

Data Collection

West Shore Community College collects some personal data on individual students when such students initially apply for admission. Data include items such as gender, date of birth, and achievement test scores. This information is entered into the campus database using the integrated Jenzebar, Teams 2000 software. In addition, the Student Services Office, located on West Shore’s campus, maintains permanent student records, including a West Shore Community College transcript, an admission application, test results, correspondence, high school transcript, and transfer credit transcripts. In addition, new information for enrolled students is added each semester, such as the courses each student has enrolled in, grade point average, withdrawal from courses, semesters students are enrolled, and the number of credit hours
registered for per semester. All but one of the independent variables used for this study were extrapolated from this database. The final independent variable, attendance at an orientation session, was identified from the grade book of the instructor.

Research involving human populations may present possible sources of ethical problems. Therefore, the first step in the data collection was to obtain the approval of the Western Michigan University Human Subject Institutional Review Board. In addition, approval needed to be obtained from the president of West Shore Community College (Appendix A). This research involved the investigation of existing data, and the information obtained was recorded in a way to ensure anonymity and confidentiality of the subjects.

Independent Variables

*Gender*

The student identified the independent variable of gender on the application blank. The choices were male and female.

*Age*

Age brackets for this study included 17 and under, 18–20, 21–30, 31–40, 41–50, and over 50.
**Previous Online Coursework**

At the time of the research study, there were 37 online courses available for students to enroll in offered by West Shore Community College's campus. There were online courses offered in business, communications, humanities and fine arts, social sciences, mathematics, and science. Such online courses may be taken as an elective or as a requirement of a program. The online courses have been identified by section number, which may vary by semester. Semester coding is as follows: course sections numbered in the 20s represent fall course offerings, course sections numbered in the 40s represent spring course offerings, and course sections numbered in the 50s represent summer offerings. Students registered for the fall online BBUS 100 course would register for the BBUS 100 21. Students registering for the fall traditional BBUS 100 course would register for the BBUS 100 22 course.

**ACT Assessment Scores**

The ACT Assessment consists of four tests: English, Math, Reading, and Science Reasoning. A score, with a scale from 1 to 36, is produced for each test. In addition, the English, Math, and Reading scores have subscores that range from 1 to 18. The Composite is an average of the four scores. The English, Reading, and Composite tests were used in this study.
ASSET Scores

ASSET is a guidance-oriented assessment program, which may be used for academic planning and advising, course selection and placement, career exploration and planning, and institutional planning and state/regional accreditation reporting. Originally developed in 1982, the ASSET system became available for use by community and technical colleges across the country (American College Testing Program, 1994).

The West Shore Community College Assessment Testing Program employs basic skills assessment tests developed by American College Testing (ACT) and the West Shore Community College faculty that are designed to assess students' basic skill levels for entering college. West Shore's goal is to help students succeed in their educational program. Students' skills in writing, reading, and basic mathematics are assessed through a series of short tests. Assessment testing is required of all incoming declared or undecided certificate or degree-seeking students, except for students who meet certain criteria. The ASSET tests provides information about a student's likelihood of success in a particular course.

ASSET test scores are used to place students into appropriate courses when they first enroll at West Shore Community College. The rationale for this procedure follows: (a) the ASSET tests measure the skills and knowledge students need to succeed in specific courses, (b) students without prerequisite the skills or knowledge necessary for a course will likely perform unsatisfactorily, and (c) greater skill levels are related to greater chances of satisfactory performance in the course. If course
placement is a valid use for these tests, and if course grades are valid measures of course performance, then one could expect a significant and positive statistical relationship between ASSET test scores and course grades (American College Testing Program, 1994, p. 45).

ACT estimates the reliability of the ASSET test in a variety of ways. The first was to estimate the internal consistency of each test. A measure of internal consistency reflects the degree to which each item on a test relates to all other items on the test and to the test as a whole (American College Testing Program, 1994, p. 22). The Kuder-Richardson Formula 20 (KR-20) reliability estimates of internal consistency are reported for forms of each of the ASSET tests. A second indicator of internal consistency is the Standard Error of Measurement, which is calculated using the standard deviation of the observed raw scores and the KR-20 reliability estimate. The third measure of reliability is accomplished by administering the same test to the same examinees at two different points in time and comparing the rank ordering of the examinees for the two administrations which would focus on the stability of a student’s performance over time (American College Testing Program, 1994, p. 22).

ASSET-Reading Skills Test

The ASSET Reading Skills Test measures reading comprehension that requires students to derive meaning from several texts. The prose passages used in the test are representative of the level and kinds of writing commonly encountered in community college freshman curricula.
*ASSET-Writing Skills Test*

The ASSET Writing Skills Test measures the student's understanding of the conventions in three major writing skills areas: usage and mechanics, sentence structure, and rhetorical skills.

*Grade Point Average*

Grade points are used to determine scholastic standing, and are based on a 4-point scale. These points are computed by multiplying the appropriate grade points for the grade received in a course by the credits earned in that course. Thus, a three-credit course with a grade of A would earn 12 grade points.

West Shore Community College calculates the grade point average (GPA) for each student. The total grade points accumulated are divided by the number of credits attempted, and the result is the cumulative GPA. Each time a course was taken, both the credit hours attempted and the grade points are included in computing the GPA. Students must have a cumulative GPA of 2.0 or higher to graduate.

The grade point average of students in this study was identified as that after completion of the BBUS 100 course.

*Previous Withdrawals*

A student receives a "W" when that student elected to withdraw from a course after the add/drop period and had filed the necessary application for withdrawal in the Student Services Office. Students have the option of withdrawing
from a course through the 11th week of fall or spring semesters, and through the 5th week for summer semester. A designator of "W" is placed on the integrated Jenzebar, Teams 2000 software and on the academic transcript next to the course(s) from which the student has withdrawn. This study identified whether each student had any previous withdrawals (prior to taking BBUS 100) and if so, how many.

**Semester Format**

The fall and winter courses are offered in 16-week formats. The summer semester is a compressed 8-week format. The BBUS 100 online course follows the same process using the same material in a compressed time frame during the summer semester. This study identified which semester each student took the BBUS 100 online course.

**Classification of Students**

Full-time students must carry 12 or more credits per semester, although veterans receiving educational benefits may have lower requirements for the summer semester. Part-time students carry fewer than 12 credits per semester. The BBUS 100 course is a three credit hour course. This study identified students as being either a full-time or part-time student.

**Orientation**

At the onset of every semester, two 1-hour orientation sessions are offered to students enrolled in BBUS 100. These orientation sessions explain the online course
in detail. Students meet in a computer laboratory with each student having access to an individual computer. Students are required to log in to the computer and in to the Blackboard server, which are used as a platform for the course. The orientation session offers an opportunity for students to review the class using links, and for the instructor to observe quiz and test-taking.

Data Analysis

The dependent variable used in this study was the grade each student received in the BBUS 100 course. A student achieving a 2.0 “C” grade, or better, was determined to be successful. The 13 independent variables examined included: gender; age; previous online coursework; ACT English, Reading, and Composite scores; ASSET Reading and Writing scores; grade point average; previous withdrawals; semester format; student status; and attendance at an orientation attendance.

The independent variables of gender, previous online course completed, semester format, student status, and orientation attendance are categorical and dichotomous. Age, ACT and ASSET scores, and grade point average are categorical. The dependent variable of student success is continuous in nature.

Both descriptive and inferential statistics were used to analyze the data and test the research questions. At the descriptive level, simple means and frequency distributions were employed. At the inferential level, Pearson product–moment correlation coefficients (Pearson r) were used to answer the following question: “Are there statistically significant relationships between each selected independent variable
and the dependent variable, for students in the online course?" Correlations were computed between each independent variable and the dependent variable. Statistical significance was established at the .05 level. Data were entered in *The Statistical Package for the Social Sciences* (SPSS) to analyze the 13 characteristics for the 179 students.
CHAPTER IV

DATA RESULTS

Descriptive Statistics

The purpose of this ex post facto study was to explore the relationship of student success in an online Introduction to Business course, with each of the following variables: (a) gender; (b) age; (c) previous courses completed online; (d) ACT scores of English, Reading, and Composite; (e) ASSET scores of Reading and Writing; (f) grade point average of student upon completion of the course; (g) previous withdrawals of students; (h) semester format; (i) student status (full-time vs. part-time); and (j) attendance at an orientation session. It was hypothesized that there would be no statistically significant relationships between the dependent variable, grade in an online course, and these independent variables.

This chapter begins by profiling the demographic data for students enrolled in the online course between fall semester 2000 and summer semester 2003. The chapter continues with details of the correlation coefficients obtained between the dependent variable and each of the 13 independent variables.

Table 3 profiles the grading scale at West Shore Community College, and the frequency of such grades for the online students in this study. The grade of “W” is included in the grading system. The “W” indicates the student elected to withdraw from the course after the add/drop period and had filed the necessary application for
withdrawal in the Student Services Office. There were 125 students that were successful in the course as identified with a grade of “C” or better, out of a total of 179 students.

Table 3

BBUS 100 Student Grades (n = 179)

<table>
<thead>
<tr>
<th>Grade</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30</td>
<td>16.8</td>
</tr>
<tr>
<td>A-</td>
<td>24</td>
<td>13.4</td>
</tr>
<tr>
<td>B+</td>
<td>21</td>
<td>11.7</td>
</tr>
<tr>
<td>B</td>
<td>21</td>
<td>11.7</td>
</tr>
<tr>
<td>B-</td>
<td>8</td>
<td>4.5</td>
</tr>
<tr>
<td>C+</td>
<td>8</td>
<td>4.5</td>
</tr>
<tr>
<td>C</td>
<td>13</td>
<td>7.3</td>
</tr>
<tr>
<td>C-</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>D+</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>D</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>D-</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>F</td>
<td>26</td>
<td>14.5</td>
</tr>
<tr>
<td>W</td>
<td>17</td>
<td>9.5</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Demography of the Population

Table 4 illustrates that the majority of the students (69.3%) in the study were female.

Table 4

<table>
<thead>
<tr>
<th>Gender</th>
<th>All Students (n = 179)</th>
<th>Successful Students (n = 125)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>Male</td>
<td>55</td>
<td>30.7</td>
</tr>
<tr>
<td>Female</td>
<td>124</td>
<td>69.3</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The age of the student population is identified in Table 5. Students ranged in age from 16 years to 52 years of age. Students are permitted to enroll at West Shore Community College at the age of 16 under the High School Guest Program.

The successful student age remained proportionate to the general population enrolled in the BBUS 100 course.

Previous Online Courses Completed

Table 6 represents completion of previous online courses at West Shore Community College. Previous online courses may have been completed at other institutions but are not identified here, since courses identified on transcripts from other institutions do not identify the course format. There were 68 students,
representing 38% of the students registered for the course, who had not completed a previous online course.

Table 5

<table>
<thead>
<tr>
<th>Classification of Age</th>
<th>All Students (n = 179)</th>
<th>Successful Students (n = 125)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>Under 18</td>
<td>15</td>
<td>8.4</td>
</tr>
<tr>
<td>18–20</td>
<td>62</td>
<td>34.6</td>
</tr>
<tr>
<td>21–30</td>
<td>62</td>
<td>34.7</td>
</tr>
<tr>
<td>31–40</td>
<td>27</td>
<td>15.0</td>
</tr>
<tr>
<td>41–50</td>
<td>12</td>
<td>6.7</td>
</tr>
<tr>
<td>Over 50</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 6 represents completion of previous online courses at West Shore Community College for successful students as well. This was the first online course taken by 42 students representing 33.6% of the successful students enrolled in the BBUS 100 course.

ACT English

Not all West Shore Community College students are required to complete the ACT tests. The information provided for the following ACT variables represent the
Table 6
Completion of Previous Online Courses at West Shore Community College

<table>
<thead>
<tr>
<th>Previous Online Courses</th>
<th>All Students ($n = 179$)</th>
<th>Successful Students ($n = 125$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N$</td>
<td>Percentage</td>
</tr>
<tr>
<td>0</td>
<td>68</td>
<td>38.0</td>
</tr>
<tr>
<td>2</td>
<td>55</td>
<td>30.7</td>
</tr>
<tr>
<td>3</td>
<td>26</td>
<td>14.5</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>6.1</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>3.4</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>100.0</td>
</tr>
</tbody>
</table>

scores for the students that did complete this assessment. The ACT English Skills assessment has a scale score that ranges from 1 to 36. The standard error of measurement is about 2 points for each test score (ACT online). A high score in English may suggest a good chance of success in related college majors and careers. Conversely, a low score may indicate that students needs to develop their skills more in English. Table 7 represents the ACT English Skills scores by the population of students in the BBUS 100 course. In this study, 63 students completed the test with a
range in scores from 10 to 32. For the 51 successful students, the range was from 13 to 32.

Table 7

ACT English Skills Scores

<table>
<thead>
<tr>
<th>Classification of Score</th>
<th>All Students (n = 63)</th>
<th>Successful Students (n = 51)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>Under 16</td>
<td>11</td>
<td>17.5</td>
</tr>
<tr>
<td>16–20</td>
<td>21</td>
<td>33.3</td>
</tr>
<tr>
<td>21–25</td>
<td>17</td>
<td>27.0</td>
</tr>
<tr>
<td>26–30</td>
<td>12</td>
<td>19.0</td>
</tr>
<tr>
<td>31–36</td>
<td>2</td>
<td>3.2</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>100.0</td>
</tr>
</tbody>
</table>

ACT Reading

The ACT Reading Skills assessment has a scale score that ranges from 1 (low) to 36 (high). The standard error of measurement is about 2 points for each test score (ACT online). A high score in reading may suggest a good chance of success in related college majors and careers. Conversely, a low score may indicate that students need to develop their skills more in reading. Table 8 represents the ACT Reading scores by the population of students in the BBUS 100 course. In this study, 63 students completed the test with a range in scores from 10 to 36. For the 51 successful students, the range was also from 10 to 36.
Table 8

ACT Reading Skills Scores

<table>
<thead>
<tr>
<th>Classification of Score</th>
<th>All Students (n = 63)</th>
<th>Successful Students (n = 51)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>Under 16</td>
<td>8</td>
<td>12.7</td>
</tr>
<tr>
<td>16–20</td>
<td>22</td>
<td>34.9</td>
</tr>
<tr>
<td>21–25</td>
<td>22</td>
<td>34.9</td>
</tr>
<tr>
<td>26–30</td>
<td>5</td>
<td>8.0</td>
</tr>
<tr>
<td>31–36</td>
<td>6</td>
<td>9.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>63</td>
<td>100.0</td>
</tr>
</tbody>
</table>

ACT Composite

The ACT Composite Skills assessment is an average of the four ACT test scores (English, Math, Reading, and Science), rounded to the nearest whole number. The Composite Skills assessment has a scale score that ranges from 1 (low) to 36 (high). The standard error of measurement is smaller in Composite, approximately 1 point for the test score (ACT online). A high score in Composite may suggest a good chance of success in related college majors and careers. Conversely, a low score may indicate that students need to develop their skills prior to taking specific courses. Table 9 represents the ACT Composite Skills scores by the population of students in the BBUS 100 course. In this study, 63 students had an identified Composite score.
with a range from 12 to 34. The 51 successful students had the same range of 12 to 34.

Table 9
ACT Composite Skills Scores

<table>
<thead>
<tr>
<th>Classification of Score</th>
<th>All Students (n = 63)</th>
<th>Successful Students (n = 51)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>Under 16</td>
<td>7</td>
<td>11.1</td>
</tr>
<tr>
<td>16–20</td>
<td>24</td>
<td>38.1</td>
</tr>
<tr>
<td>21–25</td>
<td>22</td>
<td>34.9</td>
</tr>
<tr>
<td>26–30</td>
<td>9</td>
<td>14.3</td>
</tr>
<tr>
<td>31–36</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>100.0</td>
</tr>
</tbody>
</table>

ASSET Reading

Not all West Shore Community College students are required to complete the ASSET tests. The information provided for the following ASSET variables represent the scores for the students that did complete this assessment. The ASSET Reading Skills assessment is designed to assess the readiness of incoming first-year college students for standard entry-level courses in reading. The test is a 24-item test that measures reading comprehension as a combination of referring and reasoning skills. The test items require students to derive meaning from several texts. The test consists of three prose passages of about 375 words each that are representative of writing
commonly encountered in community college freshman curricula (American College Testing Program, 1994). The test score ranges from 0 (low)–53 (high). A high score in ASSET Reading may suggest a good chance of success when encountering reading assignments as an entry-level community college student. Conversely, a low score may indicate that a student needs to develop their skills in reading. A score of 0–39 would require that a student complete a reading improvement course prior to registering for English Composition I. A score of 40–43 would generate a recommendation that an incoming student complete the College Learning Strategies course. A score of 44–53 would indicate a higher level of reading skill and no course requirement or recommendation would be made. Table 10 represents the ASSET Reading scores by the population of students in the BBUS 100 course. In this study, 77 students completed the test with a range in scores from 31 to 53.

Table 10

ASSET Reading Skills Scores

<table>
<thead>
<tr>
<th>Classification of Score</th>
<th>All Students (n = 77)</th>
<th>Successful Students (n = 42)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>0–39</td>
<td>19</td>
<td>24.7</td>
</tr>
<tr>
<td>40–43</td>
<td>16</td>
<td>20.8</td>
</tr>
<tr>
<td>44–53</td>
<td>42</td>
<td>54.5</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>100.0</td>
</tr>
</tbody>
</table>
As indicated in ASSET Reading Skills scores for successful students, 66.7% of all successful students passed the ASSET Reading test with the highest level of scores. Overall, 42 students that completed the ASSET Reading test received a grade of “C” or better in the BBUS 100 course.

ASSET Writing Skills

The ASSET Writing Skills assessment is designed to assess the readiness of incoming first-year college students for standard entry-level courses. The test measures the student’s understanding of the conventions in three major writing skills areas: usage and mechanics (punctuation and grammar), sentence structure, and rhetorical skills (organization, strategy, and style of standard written English). The test is a 36-item, 25-minute test. The test consists of three prose passages selected from four possible content classifications: humanities, social sciences, fiction, and recreation (American College Testing Program, 1994). The test score ranges from 0 (low)–55 (high). A high score in ASSET Writing Skills may suggest a good chance of success when encountering reading assignments as an entry-level community college student. Conversely, a low score may indicate that students need to develop their skills in reading. A score of 0–40 would require that a student complete a Fundamentals of English course prior to registering for English Composition I. A score of 41 – 45 would generate a possible recommendation that an incoming student complete the Fundamentals of English course. A score of 46–55 would indicate a higher level of writing skill and would allow for immediate entry into the English
Composition I course. Table 11 represents the ASSET Writing Skills scores by the population of students in the BBUS 100 course. In this study, 77 students completed the test with a range in scores from 32 to 52.

Table 11

ASSET Writing Skills Scores

<table>
<thead>
<tr>
<th>Classification of Score</th>
<th>All Students (n = 77)</th>
<th>Successful Students (n = 42)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>0–40</td>
<td>22</td>
<td>28.6</td>
</tr>
<tr>
<td>41–45</td>
<td>24</td>
<td>31.1</td>
</tr>
<tr>
<td>46–55</td>
<td>31</td>
<td>40.3</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Overall, 42 students who completed the ASSET Writing Skills test received a grade of "C" or better in the BBUS 100 course. Of the successful student population, 47.6% received a score of 46–55.

Grade Point Average

The grade point average mean was 2.6698 for the population of the BBUS 100 course with a standard deviation of 1.1158. The grade point average for successful students was 3.1307 with a standard deviation of .62626.
Previous Withdrawals

Students have the option of withdrawing from a course up to one week prior to the last scheduled day of the class. Table 12 represents the number of withdrawals from any West Shore Community College course by the students enrolled in the BBUS 100 course. Over 50% of the population for both groups had never withdrawn from a WSCC course.

Table 12
Withdrawal From Previous Courses at West Shore Community College (n = 179)

<table>
<thead>
<tr>
<th>Number of Withdrawals</th>
<th>All Students (n = 179)</th>
<th>Successful Students (n = 125)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>0</td>
<td>94</td>
<td>52.5</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
<td>16.8</td>
</tr>
<tr>
<td>2</td>
<td>17</td>
<td>9.5</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>5.0</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>5.0</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>3.9</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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Semester Format

Courses are offered at West Shore Community College in the fall, spring, and summer. WSCC operates on a schedule offering 16-week fall and spring semesters and an accelerated 8-week summer semester. The fall semester runs September through December, and spring semester runs January through May. The summer semester begins in June and runs approximately 8 weeks. The semester format when students took BBUS 100 is represented in Table 13.

<table>
<thead>
<tr>
<th>Format</th>
<th>All Students (n = 179)</th>
<th>Successful Students (n = 125)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>16 Week</td>
<td>117</td>
<td>65.4</td>
</tr>
<tr>
<td>8 Week</td>
<td>62</td>
<td>34.6</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>64.0</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>36.0</td>
</tr>
<tr>
<td></td>
<td>125</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 13 represents the semester format the successful students had enrolled in BBUS 100. The successful student semester format remained proportionate to the general population enrolled in the BBUS 100 course.

Student Status

West Shore Community College students are classified as full-time if they are enrolled in 12 or more credits per semester. A part-time student is enrolled in fewer
than 12 credits per semester. Table 14 summarizes the classification of students at the time they were enrolled in BBUS 100. The majority (74.3%) of the enrolled students were considered part-time.

<table>
<thead>
<tr>
<th>Status</th>
<th>All Students (n = 179)</th>
<th>Successful Students (n = 125)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>Part-time</td>
<td>133</td>
<td>74.3</td>
</tr>
<tr>
<td>Full-time</td>
<td>46</td>
<td>25.7</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 14 also represents the student status by successful students in the BBUS 100 course. The part-time student represented a larger percentage of the population for both groups.

*Orientation Attendance*

The orientation session is an especially valuable tool that provides guidance for the online course and answers many questions that students may have. The orientation is scheduled two different times each semester. One session is offered during the day and the other session is offered in the evening. The 1-hour session guides the student through the requirements of the course. The attendance at
orientation is identified in Table 15. There were no records for students enrolled in the first two BBUS 100 courses in this study as evidenced by the missing data.

Table 15
Orientation Attendance

<table>
<thead>
<tr>
<th>Attended Orientation</th>
<th>All Students (n = 179)</th>
<th>Successful Students (n = 125)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percentage</td>
</tr>
<tr>
<td>Yes</td>
<td>107</td>
<td>59.8</td>
</tr>
<tr>
<td>No</td>
<td>32</td>
<td>17.8</td>
</tr>
<tr>
<td>Missing</td>
<td>40</td>
<td>22.4</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>100.0</td>
</tr>
</tbody>
</table>

As illustrated in Table 15, the percentage of successful students that attended orientation is higher (73.6%) than for the general population (59.8%) of the course.

Inferential Findings

The product–moment coefficient of correlation, the Pearson \( r \), was the correlation index used to measure the degree of relationship between the selected independent variables and the dependent variable of grade in the BBUS 100 course. The Pearson \( r \) correlation was used to measure the degree of relationship between the independent variables and the dependent variable to determine whether a statistically significant correlation existed. The significance of each relationship between the
An investigation between grade and each of the 13 independent variables was performed using Pearson’s product–moment correlation to determine if a relationship

### Table 16

Pearson Correlation Coefficients \((n = 179)\)

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>All Students ((n = 179))</th>
<th>Successful Students ((n = 125))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(r)</td>
<td>Significance</td>
</tr>
<tr>
<td>Gender</td>
<td>.137</td>
<td>.068</td>
</tr>
<tr>
<td>Age</td>
<td>.157</td>
<td>.036*</td>
</tr>
<tr>
<td>Previous Online Courses</td>
<td>.177</td>
<td>.018*</td>
</tr>
<tr>
<td>ACT English</td>
<td>.253</td>
<td>.046*</td>
</tr>
<tr>
<td>ACT Reading</td>
<td>.169</td>
<td>.184</td>
</tr>
<tr>
<td>ACT Comprehension</td>
<td>.189</td>
<td>.138</td>
</tr>
<tr>
<td>ASSET Reading</td>
<td>.307</td>
<td>.007*</td>
</tr>
<tr>
<td>ASSET Writing</td>
<td>.121</td>
<td>.297</td>
</tr>
<tr>
<td>GPA</td>
<td>.697</td>
<td>.000*</td>
</tr>
<tr>
<td>Previous Withdrawals</td>
<td>-.226</td>
<td>.002*</td>
</tr>
<tr>
<td>Semester Format</td>
<td>.092</td>
<td>.220</td>
</tr>
<tr>
<td>Student Status</td>
<td>.141</td>
<td>.061</td>
</tr>
<tr>
<td>Orientation Attendance</td>
<td>.338</td>
<td>.000*</td>
</tr>
</tbody>
</table>

*\(p = <.05\).*
exists. Correlation is a measure of association between the variables in the study. The value of a correlation coefficient can vary from -1 to +1. A correlation of zero means there is no relationship between the variables in the study. For a negative correlation between two variables, one variable will increase while the value of the other variable will decrease (Walonick, 1998). In a positive correlation, the value of one variable will increase as the other variable increases as well. Table 16 presents results of the correlation. Results indicate that a statistically significant relationship exists between the student's grade and age, previous online courses, ACT English, ASSET Reading, GPA, previous withdrawals, and orientation attendance for all students in the study. The variables found significant for the successful students include age, GPA, previous withdrawals, semester format, and orientation attendance.

A regression analysis was performed to obtain an estimate of the percentage of variance accounted for in the grade a student receives and selected independent variables. Another goal of completing the regression analysis was to create a predicting equation that comes close to representing reality without using more variables than necessary to make an accurate prediction of student success.

Regression analysis in SPSS can only be done on variables that have no missing data. Regression analysis is difficult because if data are missing from one variable, it is necessary to exclude that variable from the analysis (Walonick, 1998). In an effort to use as many independent variables as possible (so as much of the collected data could be used as possible to create the regression analysis, thus providing a better statistical representation or picture of the data), the number of variables was...
limited to those with complete data or those that could be configured so as to minimize the effect of missing data. In this manner as few cases as possible would be excluded in the analysis.

"Dummy" or "indicator" variables were used to be able to include variables that were categorical in nature (such as gender) which typically could not be used because regression analysis assumes continuous, and not categorical variables (Draper & Smith, 1966). The variables used in a regression analysis may be interval, ratio, or dichotomous and cannot be nominal or ordinal that contain more than two categories (Walonick, 1998). With the use of dummy variables (dichotomous variables that have values of only 1 and 0) all variables met the requirements for inclusion in the analysis. A total of 141 subjects had all of the necessary variables needed to perform this regression analysis.

A number of regressions were completed for this study. Multiple regression analysis was used to predict the value of the dependent variable, grade, using some or all of the independent variables. The goal of this regression analysis is to explain the dependent variable accurately with as few independent variables as possible (Walonick, 1998). Only the two most significant contributors to the regression were used. These independent variables were orientation attendance and grade point average. This regression was significant $p < .001$. An $R^2 = .692$ was achieved. The analysis indicated that approximately 69% (.692) of the variability in the resulting grade for the course could be accounted for by two variables: (a) orientation attendance, and (b) the grade point average of the student.
This is the predicting equation: Course Grade = \(-0.529 + \{0 \text{ if no orientation;} \)
\(0.525 \text{ if orientation}\} + 1.011 \times (\text{GPA})\). Thus, a student that has attended orientation
and has a GPA of 2.0 would use the following equation: \(2.018 = -0.529 + 0.525 +
1.011 \times 2.0\). Their grade for the course would be predicted to be 2.018.

Summary

This chapter presented a descriptive analysis of data collected, significant
correlations of the independent variables, and a regression analysis indicating
predicting power of two independent variables. The descriptive demographics of the
population are displayed in Tables 1–15. Correlation analysis was used to address
each of the 13 research questions. These findings have been displayed in Table 16.
The variables found to be statistically significant for the general population include
age, previous online courses, ACT English, ASSET Reading, grade point average,
previous withdrawals, and attendance at orientation. The variables found to be
statistically significant for the successful student population include age, grade point
average, previous withdrawals, semester format, and orientation attendance. The
variables statistically significant to both groups include age, grade point average,
previous withdrawals, and attendance at orientation. Regression analysis provided a
prediction equation using the independent variables of orientation attendance and
grade point average.
CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to examine demographic or learner characteristics of successful online Introduction to Business students at West Shore Community College. The characteristics of gender, age, previous online courses, ACT English, Reading, and Composite, ASSET Reading and Writing, grade point average, withdrawal, semester format, student status, and orientation attendance were analyzed. The subjects were 179 students enrolled in the online BBUS 100 business course from the years 2000-2003. Data for the study were obtained from the integrated AS400 Jenzebar, Teams 2000 software at West Shore Community College.

The Statistical Package for the Social Sciences (SPSS) was used to analyze the 13 characteristics for the 179 students. A complete descriptive analysis of the total population was completed. Correlation coefficients were derived for each independent variable when compared with the dependent variable of the grade received in the BBUS 100 course.

Statistically significant correlations were found between the variables of age, previous online courses, ASSET Reading, grade point average, withdrawal, and orientation attendance for the total population. Statistically significant correlations were found between the variables of age, grade point average, previous withdrawals, semester format and orientation attendance for the successful students. Educators and
admission personnel need to be cognizant of online student characteristics related to success in the course. This study adds to the growing body of research regarding online education.

Key Findings

Descriptive findings were based upon the 179 students enrolled in the online Introduction to Business course at West Shore Community College. The findings for the total population were as follows:

1. A majority (69.3%) of the students were female. Many studies indicate a larger proportion of female students enroll in the online environment (Halsne & Gatta, 2002; Zirkle, 2003). Powell et al. (1990) found female students had high success rates in computer-mediated learning. However, this study did not show statistically significance between gender and success in the online course, \( p = .068 \).

2. The students in this study ranged in age from 16 to 52. The largest population of students was age 19 (26 students representing 14.5% of the total population), followed by 20-year-olds (19 students representing 10.6% of the total population). These findings are different than some previous studies, which indicated that online students tend to be older (Dutton et al., 2002; Epper & Garn, 2003; U.S. Department of Education, NCES, 2003; Tucker, 2001; Willis, 1992). The average age of the online student in this study is 25 years old, which tends to be younger than the students identified in the previous findings. This shift in student age corresponds to the study by Wallace (1996) that suggests that the demographics of distance
learners may be changing over time. This study indicated that the online population was shifting towards a younger student. Willis (1992) also found that younger students were more likely to complete an online course. Statistical significance was found between success in the online course and the age of the student, $p = .036$. Statistical significance was also found between success in the online course and the age of the successful student population, $p = .000$. It appears the older the student, the higher the grade in the course. Conversely, the younger the student, the lower the grade in the course. Cheung and Kan (2002) found no age related differences in student performance, which is contradictory to the findings of this study.

3. The online BBUS 100 course is generally considered an entry-level course at WSCC. There are no prerequisites required for the student to complete prior to registration. There were 68 students (38%) enrolled who had not completed a prior online course. There was a positive statistically significant relationship, $p = .018$, between previous online courses and their grade in the course. The relationship between previous online courses and the successful student population was not statistically significant, $p = .438$.

Overall, the results of this study are comparable to some of the previous studies that have been completed regarding previous online courses. Eisenberg and Dowsett (1990), and Ehrman (1990) found that first time online students differ in their level of independence and time management skills. Online courses require self-discipline and motivation (Dutton et al., 2002; Phipps & Merisotis, 1999). And therefore, the results of this study indicate that the more online courses a student
enrolls in prior to the BBUS 100 online course, the better the grade they receive in the course. The previous online courses may have increased the level of independence and improved the time management skills of students.

4. All ACT tests have scores that range from 1 (low) to 36 (high) for each of the tests in this study. ACT English achievement test scores in this study ranged from 10 to 32. There were 116 students that did not complete the ACT English test. Only 35.2% of the population of this study completed the test. The mean score was 20.63 with a standard deviation of 5.12. There was statistical significance associated with ACT English scores and success in this online course, \( p = .046 \). There was no statistical significance between grade in the course and ACT English scores for the successful student population, \( p = .090 \). This indicates that the successful student population didn’t necessarily score highly on the ACT English test, and potentially the higher the ACT English test score for the general population, the higher the grade in the course. More significant may be the lower the ACT English test score, the lower grade the student achieved in the course. It would be wise to take into account individual strengths and weaknesses in proper placement for students in online courses. A score could be identified as an indicator of minimal ability that would be required to place students in online courses appropriate to their knowledge and skills.

5. Achievement test scores for ACT Reading ranged from 10 to 36. There were 116 students that did not complete the ACT Reading test. Only 35.2% of this population completed the test. The mean score was 21.24 with a standard deviation of 5.59. There was no statistical significance associated with ACT Reading scores and
success in this online course, \( p = .184 \). No statistical significance was identified in the successful student population as well, \( p = .407 \). This nonsignificant relationship for both groups indicates that ACT Reading test scores have no relationship to the success of a student in the online BBUS 100 course.

6. The ACT Composite score is the average of the four ACT test scores (English, Mathematics, Reading, and Science) earned during a single test administration, rounded to the nearest whole number. Achievement test scores for ACT Composite ranged from 12 to 34. There were 116 students that did not complete the ACT Composite test. Only 35.2% of this population completed the test. The mean score was 21 with a standard deviation of 4.39. There was no statistical significance associated with ACT Composite scores and success in this online course, \( p = .138 \). There also was no statistically significant relationship in the successful student population as well, \( p = .439 \). This nonsignificant relationship for both groups indicates that ACT Composite test scores have no relationship to the success of a student in the online BBUS 100 course.

7. Achievement test scores for ASSET Reading Skills ranged from 31 to 53. There were 77 students that completed the ASSET Reading Skills test. The mean score was 43.92 with a standard deviation of 5.26. Reading Skills test scores fall into three categories. The first category score range is 0–39. At this level, recommended courses for students include Reading Improvement before English Composition. The second category range is 40–43. At this score, a course called College Learning Strategies is highly recommended prior to or at the same time as the English
Composition. A score above 43 does not require a student to enroll in any course prior to English Composition.

In this online course the instructor and learners are separated by physical distance, and it is the responsibility of the student to read all documents (lecture notes, textbook chapters, and asynchronous discussions). Although currently there is no cut off score of ASSET Reading levels for online students, it may be a very important area to explore. What is the definition of online literacy and what are the necessary skills for individuals in an online course? Knowing how to access, evaluate, and apply information in the online course is necessary for success. A goal to be developed may be to establish cutoff scores in ASSET Reading scores in order to place students in courses appropriate to their knowledge and skills.

There was statistical significance associated with ASSET Reading scores and success in this online course, $p = .007$, but no significance was found in the successful student population, $p = .145$. This correlational significance is similar in nature to the ACT English scores, in that the statistical significance involved only the total population in the study and not the successful student population. This indicates that the successful student population did not necessarily score highly on the ASSET Reading test, and the higher the ASSET Reading test score for the general population, the higher the grade in the course. This statistical relationship for the general population may also indicate that the lower the ASSET Reading test score, the lower grade the student achieved in this online course. It would be wise to take into account individual strengths and weaknesses in proper placement for students in
online courses. A score could be identified as an indicator of minimal ability that would be required to place students in online courses appropriate to their knowledge and skills.

8. Achievement test scores for ASSET Writing Skills for the online students in this study ranged from a minimum of 32 to a maximum of 52. There were 77 students that completed the ASSET Writing Skills test. The mean score was 43.34 with a standard deviation of 5.48. Writing Skills test scores fall into three categories. The first category score range is 0–40. At this level, all full-time students are required to enroll in Fundamentals of English the semester the student completed the ASSET test. With a score ranging from 41–45, each student will be considered on a one-to-one basis. Students that score in the range of 46–55 will be placed in the English Composition 1 course. There was no statistical significance associated with ASSET Writing scores and success for the general population in this online course, \( p = .297 \), and also no significance was found in the successful student population, \( p = .694 \). This nonsignificant relationship for both groups indicates that ASSET Writing test scores have no relationship to the success of a student in the online BBUS 100 course.

9. Student grade point average is based on a 4-point scale. The mean grade point average was 2.67 with a standard deviation of 1.12. The grade point average was calculated upon completion of the course. There was a statistically significant relationship between grade point average and success in the online BBUS 100 course, \( p = .000 \) for both the population of this study and the successful student population.
identified in the study. Students that have a higher grade point average will be more successful in the online BBUS 100 course.

10. The withdrawal characteristic reflects the number of withdrawals a student has completed during their tenure at West Shore Community College. There was a minimum of zero withdrawals (93 students) and a maximum of 11 withdrawals (2 students). There were 86 students that had a minimum of one withdrawal prior to enrolling in the course. The withdrawal rate of the student had a negative correlation of \(-.226\) for the general population and a \(-.198\) for the successful student population. Both coefficients provided a statistically significant relationship to the success in the online BBUS 100 course, \(p = .002\) (general population), and \(p = .027\) (successful student population). As the number of withdrawals decreased, the student’s grade increased. This negative relationship occurred indicating students that are more likely to remain in a course will have a better grade than those with a history of course withdrawal.

11. Students enrolled at West Shore Community College were in a 16-week traditional length course or a compressed 8-week course. The 16-week format was offered during the fall and spring semesters, and the compressed format was offered during the summer semesters. Students that enroll during the summer format may complete the course for transfer and not be a program completer at WSCC. The students that register for the summer course may be less likely to have characteristics similar to the students that enroll during the fall and spring semesters. There was no statistical significance, \(p = .220\), for the population of this study, but there is statistical
significance for the successful students identified in this study, \( p = .036 \). This indicates that the successful student population are more inclined to take one format over another. This significant relationship may reflect university students that register for a shortened format in the summer while they are on break.

12. Student status had no statistically significant relationship with success in the online course for the population of the study, \( p = .061 \), or for the successful students, \( p = .402 \). There were 117 part-time students (65.4%) enrolled in the course. A part-time student is registered for less than 12 credit hours. There were 62 students (34.6%) enrolled as full-time students.

13. Attendance at an orientation session was statistically significant for the population that was studied, \( p = .000 \), and for the successful students, \( p = .012 \). Orientation sessions are offered prior to the start of the semester. Sessions are not mandatory but are highly recommended. The orientation session includes information on assignments, usage of Blackboard, social presence, and also provides an opportunity to develop community within the course. Each orientation must be tailored to the needs of the students. Robinson et al. (1996) surveyed 273 colleges across the country and found many different orientation programs are evident. An instructor must conduct a thorough assessment of the needs of incoming students in order to provide a valuable experience in enhancing the learning of students. It is apparent that attendance at the orientation sessions is associated with the grade a student receives in the course. Students that are interested in improving their chances of success in the course will attend the orientation session.
Conclusions

Age is an important and statistically significant variable in the success of online BBUS 100 students. It would appear that the older the student in the online course, the more successful that student will be. As students show interest in registering for the online course, it may be that age should be considered in the recommendation process. Younger students may be successful in the online courses; however, older students appear to be more successful. Many studies indicate that the online student population demographics are changing. Will an increase in the younger student population reflect a lower overall average grade for the course?

There was a positive and statistically significant relationship between previous online courses and the grade in the course, although the successful student population did not reflect significance. It would appear that students that are successful would have experienced other online courses prior to enrolling in the BBUS 100 online course. Additionally, it would appear that the fewer the number of previous online courses, the lower the course grade. While studies have indicated that the web can serve as a powerful learning tool, they also indicate that the students in the online format require a certain level of computer literacy (Dutton et al., 2002; Halsne & Gratta, 2002). Such computer literacy may be obtained from previous online courses. If previous online courses have not been completed, it may be beneficial to provide new students an opportunity to complete a prerequisite technology course or seminar.

Potential minimum requirement score in ACT English and ASSET Reading could be established for students that wish to enroll in an online Business course.
Students interested in enrolling in an online course could be advised and counseled on choice of course format based on their ACT and ASSET scores.

The online learning environment is a separate experience and quite different from a traditional classroom. Attendance at orientation sessions has been identified as statistically significant in the success of the online student in this study and should be highly recommended. Orientation sessions may or may not be equally valuable in other online courses. A standardized, or uniform, set of guidelines should be established for online students and then tailored to the needs of the incoming class. Certain elements may need to be prescribed or mandated in such a session.

Student success could be predicted and evaluated with the data presented in this study. Results of such potential grade predictions should be fairly accurate with a prediction that represents $R^2 = .692$. Guidance for enrollment into online courses may be completed using the prediction analysis variables of grade point average and orientation attendance. Such predictions could prove valuable to students that are interested in an online course but fear that they will not be successful in the online environment.

**Recommendations for Future Studies**

As a result of this study, the following recommendations are offered:

1. Further research should be conducted on various student characteristics, in other online courses, to determine the relationship to student success. There is increased diversity among students who are choosing to attend school, which makes it
more challenging to provide an online course that best meets the needs of everyone involved (Paloff & Pratt, 1999). Como and Snow's (1986) study recognizes that success of education is dependent on adapting to learner differences.

2. The chosen research method could be improved with a triangulation approach of data gathering. Qualitative methods probe more deeply by collecting more naturalistic data and may have been another method to explore. A survey of the online students could have provided more robust data and more confidence in the conclusions. Phipps and Merisotis (1999) argue that factors other than the use of technology primarily affect student learning in distance education and have important implications for future studies in a continuing line of investigation.

3. Social presence theory would be an area to explore for future studies in success in online courses. The interactions among faculty and students provide a social presence that was not evaluated in this study. How important is personal contact or the lack of it within the online environment? Leh (2001) argues that the amount of information shared with others will decrease when the participants see the environment as impersonal and lacking in social presence. Aragon (2003) postulates that creating a social presence may create a level of comfort for the students in the course. It would appear to be beneficial to all involved parties that social presence exists to the highest degree possible.

4. Involve counselors in data findings. Their role in guidance of students into course placement has an impact on student success in the course. Students are often unaware of their abilities in a new environment. Counselors may provide guidance
based on an awareness of what characteristics are often associated with success in an online course. Other school personnel would also benefit by becoming informed of the research on online student success. Regression analysis may also be useful for this group of school personnel in the determination of, or predicting the success of, future online students. Given the prediction formula, this group of individuals may offer more specific guidance for future online students.

Online courses will continue to be popular for higher education students, have the potential to meet the needs of more individuals, and provide opportunities for lifelong learning ("Sizing the Opportunity," 2003). Given this increased interest in online education, this study adds new knowledge regarding an important topic in today's literature. Certainly, there are many factors which can contribute toward student academic performance. This multivariable approach identifies several significant factors, which impact student success in an online course. Therefore, additional studies need to be completed to verify the data in this study and to fully utilize the data.

Although the results of this study are based on data collected for one online business course, they have offered some insights on factors related to performance of students enrolled in an online course. Given the widespread interest in this rapidly growing phenomenon, and the enormous variability of the student population, research has generated a better understanding of the factors influencing student performance in online courses. Such research may prove valuable to those involved with counseling and educating students of tomorrow.
Appendix A

Human Subjects Institutional Review Board
Letter of Approval
Date: February 18, 2004

To: Carl Woloszyk, Principal Investigator  
    Amy Wojciechowski, Student Investigator for dissertation

From: Mary Lagerwey, Ph.D., Chair

Re: HSIRB Project Number: 04-02-07

This letter will serve as confirmation that your research project entitled “The Relationship Between Student Characteristics and Success in an Online Business Course at West Shore Community College” has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: February 18, 2005
Appendix B

West Shore Community College
Letter of Approval
November 30, 2003

Dr. Charles Dillon, President
West Shore Community College
3000 Stiles Rd.
Scottville, MI 49454

Dear Dr. Dillon,

In addition to my work as Professor of Business at West Shore Community College, I am a doctoral candidate at Western Michigan University. My dissertation topic concerns student success in the online Introduction to Business courses. I would like to use data that has been previously collected by the Student Personnel Department in my study. All information will be in compliance with the 1974 Family Educational Rights and Privacy Act (FERPA). I would appreciate your permission to allow the research to take place and to share the student data on the West Shore Community College database.

The data collected will be held in the strictest confidence. There will be no identification of students by name or social security number in any written material. All of the data will be reported in the aggregate.

It is my hope that this study will provide valuable information about success in online Business courses at West Shore Community College. I would be pleased to share the results of this research when the study is complete.

Sincerely,

Amy Wojciechowski
Professor of Business
West Shore Community College

Permission Granted:

[Signature]

Charles T. Dillon, President
West Shore Community College

Date: 12/9/03
REFERENCES


