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Contributing Factors to the Successful Completion of

Online Courses at the Community College Level

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College of Education

Dissertation submitted to the Faculty of the College of Education

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Belle Booker-Zorigian, Ph.D., Faculty Chair Dissertation Committee

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Abstract

This study sought to determine if the discrepancy between successful completion rates of online and face-to-face courses at the community college level is partially due to differences in the proportion of part-time students and the proportion of students without clear academic goals in each modality. In addition, this study looked to see if relationships exist between successful completion of online courses and the proportion of coursework taken online in a given term. An archival data set containing 20,119 student records for the fall of 2016 from a community college in the western United States was utilized for this study. The data supported that part-time students successfully complete their courses at a lower rate than full-time students ($p<.01$) and proportionally there are more part-time students in online courses than in face-to-face courses ($p<.01$), students without clear academic goals successfully complete their courses at a higher rate than students with clear academic goals ($p<.01$) and proportionally there are more students without clear academic goals in online courses than in face-to-face courses ($p<.01$), and successful completion of online courses is related to the proportion of coursework taken online in a given term for both full-time students ($p<.01$) and part-time students ($p<.01$). In addition, the evidence supported that the proportion of coursework taken online in a given term is related to successful completion of face-to-face courses for full-time students who take online courses ($p<.01$) and also for full-time students in general ($p<.01$). The same conclusions were not supported for part-time students.

Keywords: online education, success, proportion of online coursework

Dedication

I dedicate this work to my family: Todd, Jake, and Josh.

Thank you for all your love, support, and understanding during this journey.

Acknowledgments

I want to take this opportunity to acknowledge those outside of my family who have been there for support and guidance as I navigated my way through this doctoral program. First, I want to express extreme gratitude to Dr. Belle Booker-Zorigian, my committee chairman, for her professionalism, kindness, and timeliness during this process. I always felt I hit the jackpot in getting her as my chairman. Next, I would like to thank both Dr. Keith Aldred, my content specialist, and Dr. Ralph Spraker, my content reader, for always using a positive tone when giving me suggestions for improvement. Because of them, my dissertation process has been an enjoyable one. Lastly, I want to acknowledge my classmate, Carrin Blythe. Carrin and I have taken every course in the doctoral program together since we started over three years ago. Not only has she has been a constant source of support, she has become a dear friend.

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Chapter 1: Introduction

Introduction to the Problem

Online education has become a substantial component of higher education. Students who work and/or have family commitments no longer must forego a college education because attending classes conflicts with their busy lives (Xu & Jaggars, 2014). In addition, online courses have allowed many students who primarily take on-campus courses to shorten their times to degree completion (Shea & Bidjerano, 2016). Students have expressed that squeezing an extra class into a full load is doable if it is online as there are no specific class meeting times that must be adhered to. Because of this flexibility, online course offerings continue to grow even while overall enrollment in colleges and universities is declining (Allen & Seaman, 2016).

One drawback does exist for online courses, though. While student learning outcomes have been shown to be similar between online and face-to-face formats (Ashby, Sadera, & McNary, 2011; Cavanaugh & Jacquemin, 2015; Gulacar, Damkaci, & Bowman, 2013; Jones & Long, 2013; Means, Toyama, Murphy, Bakia, & Jones, 2010; Stack, 2015), successful completion rates are lower in online courses (Atchley, Wingenbach, & Akers, 2013; Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014). This discrepancy is particularly apparent at the community college level (Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014).

Background, Context, and History

According to Xu and Jaggars (2014), it is in the community college systems where online course offerings have increased most rapidly. They surmise this growth is due to the large number of nontraditional students who attend these institutions due to their cost-effectiveness and open enrollment nature. Nontraditional students are defined as minorities, first-generation college students, and low-income students (Wildavsky, Kelly, & Carey, 2011). Since a primary

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mission of community colleges is to increase access to all who wish to pursue higher education (American Association of Community Colleges [AACC], 2015), an increase in online courses has substantially enabled community colleges to fulfill this goal. Unfortunately, because successful completion rates in these courses are significantly lower than for traditional, face-to-face classes (Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014), online courses are falling short in their role in another primary goal of community colleges: to increase the number of certificates and degrees earned (AACC, 2015).   Since community colleges do not want to decrease access, which reducing the number of online courses would do, it is important to understand why this discrepancy exists. If this gap can be shown to be partially due to the characteristics and situations of students who enroll in online courses, programs that target and offer support for these students can be instituted.

Conceptual Framework

The conceptual framework used to drive this study was Kember's (1989) theory of dropout from distance education. According to Kember's theory, the likelihood that students will successfully complete distance education courses is due to several factors such as personal characteristics, academic and social integration, family and work commitments and support, and benefits of completing their goals. Using concepts from Kember's theory, it was surmised that there is a greater proportion of part-time students and students without clear academic goals in online courses than in face-to-face courses because these students have greater family and/or work commitments. Per Kember, students with outside obligations such as these usually have less academic and social integration in their college communities, and this lack of connection makes it more likely that they will drop from distance education courses.

Furthermore, the proportion of coursework taken online may also affect academic and

social integration in online courses and this may differ for full-time and part-time students. Possibly, full-time students who take both online and face-to-face courses have greater involvement in their institutions and therefore are more likely to complete their online courses. On the other hand, if these students are predominantly taking face-to-face courses, they may not log into their online courses often which makes them less academically and socially integrated in their online courses; per Kember (1989), if this is the case, their online courses are more likely to be dropped than their face-to-face courses. Similar arguments can be made for part-time students. Essentially, since academic integration in online classes may differ due to the proportion of coursework taken online, it was surmised that successful completion of online courses will vary due to this variable.

Statement of Problem

Although there is evidence that student learning outcomes are the same for online and face-to-face courses (Ashby et al., 2011; Cavanaugh & Jacquemin, 2015; Gulacar et al., 2013; Jones & Long, 2013; Means et al., 2010; Stack, 2015), at the community college level, successful completion of online courses is significantly lower than for face-to-face courses (Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014). In Johnson and Mejia's (2014) study, they found this discrepancy to be true for students of all demographics. Although the authors did not delve into why these differences exist, they suggested that online courses could be more attractive to students who are not academically prepared and to students who have limited time to study due to work and other obligations. Also, when Johnson and Mejia limited their study to students seeking certificates/degrees or transfer to four-year institutions, they found that the likelihood of achieving these goals went up as the number of online courses taken by these students increased. These findings suggest that the discrepancy between the overall successful

completion rates in online courses and face-to-face courses may in part be due to (a) a difference in proportions of part-time students and full-time students in each modality and (b) a difference in educational goals of these students. In addition, since taking online courses has been shown to increase the likelihood that students will complete their academic goals, it is quite possible that there is a relationship between the proportion of online courses taken in a given term and success in online courses.

Purpose of the Study

The purpose of this study was to determine if the discrepancy between successful completion rates of online and face-to-face courses at the community college level is partly due to the types of students who enroll in online courses and the proportion of students' coursework that is taken online. This study sought to ascertain if part-time students successfully complete their courses at a lower rate than full-time students and if proportionally there are more part-time students in online courses than in face-to-face courses. In addition, this study endeavored to determine if students with no clear academic goals successfully complete their courses at a lower rate than students with clear academic goals and if proportionally there are more students without clear academic goals in online courses than in face-to-face courses. Lastly, this study strived to determine if successful completion of online courses is related to the proportion of coursework taken online in a given term.   To sum up, the goal of this study was to determine if part-time students and students without clear academic goals are overrepresented in online courses and if this overrepresentation is bringing successful completion rates of online courses down. In addition, this study looked to see if the proportion of coursework taken online in a given term is related to successful completion of online courses with the goal of showing that an optimal proportion for success may exist.

Research Questions

1) What is the difference between successful course completion rates of part-time students and full-time students at the community college level?

2) What is the difference between the proportion of part-time students in online courses and face-to-face courses at the community college level?

3) What is the difference between successful course completion rates of students with no clear academic goals and students with clear academic goals at the community college level?

4) What is the difference between the proportion of students with no clear academic goals in online courses and face-to-face courses at the community college level?

5) For full-time students at the community college level, what is the relationship between successful completion of online courses and the proportion of coursework taken online in a given term?

6) For part-time students at the community college level, what is the relationship between successful completion of online courses and the proportion of coursework taken online in a given term?

Rationale, Relevance, and Significance of the Study

Even though the body of literature regarding online education provides a comprehensive picture of success in online classes (e.g. being close to achieving a degree or having previous online experience), there are still gaps in the knowledge. Little is known about the percentage of online and face-to-face courses taken by part-time students, full-time students, and students with and without clear academic goals. Also, not much has been studied on the proportion of coursework taken online in a given term and successful completion in online courses.

Discoveries in these areas would add to the current body of knowledge which could help institutions in creating support programs and further assist academic advisors in helping students with their academic plans. At the community college level, this is particularly important as this is where the greatest discrepancy in successful completion rates exists between online and face-to-face classes (Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014). Community colleges do not want to decrease access, which online courses provide, so understanding further what contributes to success in online classes is important.

Definition of Terms

Clear academic goals. This term is defined as the intention to earn or maintain a certificate, earn or maintain a degree (high school, community college, or four-year), or transfer to a four-year university.

Face-to-face course. This term is defined as a course that is taught entirely on campus.

Full-time student. This term is defined as a student enrolled in 12 or more units in a given term (Johnson & Mejia, 2014).

Hybrid course. This term is defined as a course with both online and face-to-face components.

Online course. This term is defined as a course that is taught fully online.

Non-successful completion. This term is defined as earning a grade of D, F, W, or no credit in a course (Johnson & Mejia, 2014; Xu & Jaggars, 2011).

Part-time student. This term is defined as a student enrolled in less than 12 units in a given term (Johnson & Mejia, 2014).

Successful completion. This term is defined as earning a grade of A, B, C, or credit in a course (Johnson & Mejia, 2014; Xu & Jaggars, 2011).

Assumptions, Delimitations, and Limitations

   Assumptions. Data from a community college in the western United States for the fall of 2016 was analyzed using z-tests for comparing two proportions and chi-square tests for independence. This college obtains demographic information, such as academic goals and gender, from a statewide community college application system. It obtains college-driven information, such as units attempted and grades, from an inhouse, self-developed information system. It was assumed that students honestly answered the questions asked of them when they filled out their statewide community college application and that the records reported from the college's office of research and planning were accurate. In addition, it was assumed that all samples were random for all statistical tests conducted, and that all samples were independent of each other for all z-tests for comparing two proportions.

   Delimitations. The delimitations, or parameters set for this study, were restricted to successful completion of face-to-face and online courses with respect to the percentage of students' course loads that were online, enrollment status (part-time versus full-time), and academic goals. For convenience purposes, the study was limited to the college the researcher was employed at.

   Limitations. There were several limitations in this study. First, the variable of academic goal was only asked of students when they first applied to the college and was not necessarily updated if students changed their goals; it is possible that there may be some inaccuracy in students' academic goals. Second, students who took hybrid courses were removed from the data set because it was not possible to determine if each hybrid course was predominantly online or predominantly face-to-face, and this omission may have skewed results. Third, secondary data was utilized from one semester at one institution and results may not be generalizable to all

community colleges and all timeframes. Lastly, when researchers are not the primary collectors of data, they cannot verify the authenticity of the data or the thoroughness of the data collection techniques.

Summary

At the community college level, successful completion of online courses is significantly lower than for face-to-face courses (Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014). Using Kember's (1989) theory of drop out from distance education, it was theorized that this discrepancy is partially due to a greater proportion of part-time students and students without clear academic goals taking online classes compared to face-to-face classes. In addition, because Kember stated that success in distance education is dependent on both academic and social integration of students in these programs, it was hypothesized that there is a relationship between success in online classes and the proportion of online classes taken by students in a given term. Data from a community college in the western United States for the fall of 2016 was analyzed to test these concepts.

Chapter 2: Literature Review

Introduction

Online education is dramatically changing the face of higher education. According to Allen and Seaman (2016), while overall enrollment in colleges and universities is declining, enrollment in online courses continues to experience significant growth with nearly six million students currently taking some or all of their coursework online. Students are drawn to the flexibility that online courses offer and many colleges and universities are replacing a portion of their face-to-face courses with online classes in an effort to capture greater enrollment. An added plus to online programs is they allow postsecondary institutions to grow in a cost-effective manner since no new expensive buildings are needed for online courses (Rudden, 2010). Although expenditures are required for the technology needed to run online courses, it is much cheaper than building and maintaining physical structures. Overall, increasing online course offerings helps both students and the institutions they attend; students have greater flexibility in scheduling classes, and colleges and universities gain enrollment and save on overhead costs.

With online education becoming a substantial component of higher education, there has been increasing interest in its effectiveness. Numerous studies have been conducted in the area and there are both negative and positive results. Several longitudinal studies have indicated that successful completion rates in online courses are significantly less than in face-to-face courses, particularly at the community college level (Atchley et al., 2013; Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014). Successful completion is described as receiving a grade of C or better and students who receive a W for withdrawing are considered unsuccessful. However, the difference in successful completion rates between online and face-to-face courses may be due more to the type of students who select online courses than to the modality itself. For instance, a meta-

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analysis conducted by Means et al. (2010) found no significant difference in student learning outcomes between students who complete fully online and fully face-to-face courses, and when Cavanaugh and Jacquemin (2015) controlled for confounding variables, such as demographics and academic preparedness, their results also indicated that there was no significant difference in learning outcomes between the two modalities. Given that evidence is suggesting that student learning outcomes in online and face-to-face courses are comparable but successful completion rates vary, a closer look at the differences between students in online and face-to-face courses is warranted.

Research topic. The topic of this study is the discrepancy between successful completion rates in online courses and face-to-face courses in community colleges. The goal of this study was to determine if this variation is partly due to differences in the proportion of courses taken by part-time students and students with no clear academic goals in each modality. Students with clear academic goals have declared that they intend to earn a certificate, a degree, or transfer to a four-year university. In addition, this study sought to discover if there is a relationship between the proportion of courses taken online in a given term and success in online classes for both full-time and part-time students.

Context. According to the AACC (2015), community colleges are an important aspect of the American higher education system as they provide open and equal access to all students who wish to attend them. Students enroll at community colleges for a plethora of reasons including but not limited to improving or learning new skills for work, obtaining vocational certificates or associate degrees, and completing coursework for transfer to four-year institutions (Wildavsky et al., 2011). Although the initial focus of community colleges was to provide access to education to all who needed it, in the last decade or so, the focus has been shifting to

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student success (AACC, 2015). In 2010, the AACC along with the Association of Community

College Trustees, the National Institute for Staff and Organizational Development, the League

for Innovation in the Community College, Phi Theta Kappa, and the Center for Community

College Student Engagement "stated a bold goal for the community college field: 'to produce 50

percent more students with high quality degrees and certificates by 2020, while increasing access

and quality'" (p. 1).

A significant component to increasing access to courses at the community college level is

to offer more online courses. In fact, according to Xu and Jaggars (2014), community colleges

are where enrollments in online courses have increased most rapidly, most likely due to the large

numbers of nontraditional students that attend community colleges. Nontraditional students are

defined as minorities, first-generation college students, and low-income students. As stated by

Oakley (2010), because online courses can be accessed any time of day, any day of the week,

they allow students who work and have family obligations to attend college. Unfortunately, as

found by Johnson and Mejia (2014) and Xu and Jaggars (2011, 2014), this increase in access is

not coupled with an increase in success. At the community college level, successful completion

of online courses is significantly less than in face-to-face courses. This inverse relationship

between access and success leaves community college decision-makers in a tough situation

regarding online education.   If they reduce online offerings to increase success, they decrease

access, an important part of their missions. Therefore, it is crucial that community college

leaders find a solution that allows them to continue growing online education while improving

successful completion rates.

Significance. Since studies show that comparable learning outcomes exist between

online and face-to-face courses (Ashby et al., 2011; Cavanaugh & Jacquemin, 2015; Gulacar et

al., 2013; Jones & Long, 2013; Means et al., 2010; Stack, 2015) but that there are significant

differences in successful completion rates at the community college level (Johnson & Mejia,

2014; Xu & Jaggars, 2011, 2014), identifying students who are more likely to succeed in online

courses would be beneficial to both community colleges and their students. Understanding how

student characteristics, enrollment patterns, and educational goals contribute to success in online

classes could inform colleges of where additional student support services are needed and assist

college counselors in advising students with their academic plans. When students ill-equipped

for online coursework withdraw from online classes, not only may they be wasting limited

financial aid, they may become frustrated and drop out of college altogether (Wildavsky et al.,

2011). When colleges lose students because of bad experiences with online courses, they lose

enrollment and money, either from tuition or state-allocated funds based on full-time equivalent

students. In addition, much of community colleges' reputations are based on how their students

perform. Increasing performance of students in online courses will not only help students

achieve their goals and hopefully keep them in college, it also helps boost the financial situations

and reputations of community colleges.

  Statement of problem. As stated earlier, although there is significant evidence that

student learning outcomes are the same for online and face-to-face courses, at the community

college level, there is a significant difference in successful completion rates of the two

modalities. In particular, in a recent study of a community college system in the western United

States, Johnson and Mejia (2014) found that successful completion rates of students in online

courses were 11% to 14% lower than in face-to-face courses. Instead of comparing learning

outcomes, Johnson and Mejia looked to see if students succeeded in passing the courses they

signed up for with a grade of C or better; students who received a W for withdrawing were

considered unsuccessful. Johnson and Mejia found that successful completion rates in online

courses were lower than in face-to-face courses for students of all demographics. However, the

authors' study was descriptive in nature and therefore unable to delve into statistically significant

differences among students from different backgrounds or experience levels. Furthermore, the

authors were unable to explore why these differences existed; however, they suggested online

courses could be more attractive to students who are not academically prepared for coursework

regardless of modality, and students taking online courses may not have the proper time to

devote towards studies due to work and other obligations. Hence, it is very possible that online

courses are just as effective as face-to-face courses in their delivery, but the population of

students in online courses differs from the population of students in face-to-face courses, which

might explain the difference in successful completion rates.

When Johnson and Mejia (2014) limited their study to students seeking degrees,

certificates, or transfer to four-year institutions, their study narrowed from about 530,000

students of which 19.5% took online courses to about 130,000 students of which one third took

online classes. Then they looked to see how many of these students succeeded in completing

their goals within a 6-year period. Not only did they find that as students complete more units,

regardless of delivery, they are more likely to earn their degrees or transfer, they found that the

likelihood of degree completion or transfer went up as the number of online courses taken by

these students increased. These findings suggest that the discrepancy between overall successful

completion rates in online courses and face-to-face courses may in part be due to (a) a difference

in proportions of part-time students and full-time students in each modality and (b) a difference

in educational goals of these students. Therefore, this study sought to examine these attributes to

add to the current body of literature. In addition, because Johnson and Mejia's findings showed

that taking more online courses increased students' likelihoods of reaching their academic goals, this study sought to determine if there is a relationship between the proportion of coursework taken online in given term and success in online courses.

      Organization. Following this introduction, this literature review is organized into the following sections: conceptual framework, review of research literature and methodological literature, review of methodological issues, synthesis of research findings, critique of previous research, and summary. The conceptual framework explains the theoretical point of view that drives this study. The review of the research literature and methodological literature supplies a comprehensive summary of what published researchers have discovered on the topic and which types of statistical methods and analyses were predominantly used, and the review of the methodological issues delves into the strengths and weaknesses of these methods. The synthesis of research findings offers a concise generalization of the overall findings in the body of literature, and the critique of previous research discusses areas that are lacking in the current body of research. The literature review will conclude with an overall summary.

Conceptual Framework

      Even though several longitudinal studies have found that successful completion rates in online courses are significantly less than in face-to-face courses (Atchley et al., 2013; Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014), when non-completers are removed from statistical analysis, or confounding variables, such as academic preparedness and demographics, are controlled, learning outcomes of students in online courses and face-to-face courses are not significantly different (Cavanaugh & Jacquemin, 2015; Means et al., 2010). These findings suggest that the gap between successful completion rates of the two modalities may in part be due to the types of students who enroll in online courses and whether they persist in these

courses. Because of this reason, the conceptual framework for this dissertation study was based

on Kember's (1989) theory of drop-out from distance education. Although online education was

not the predominant form of distance education during the 1980s, Kember's model is still

relevant today (see Figure 1). Below is a description of the components of Kember's model

along with justification of its relevance in online education in current times.
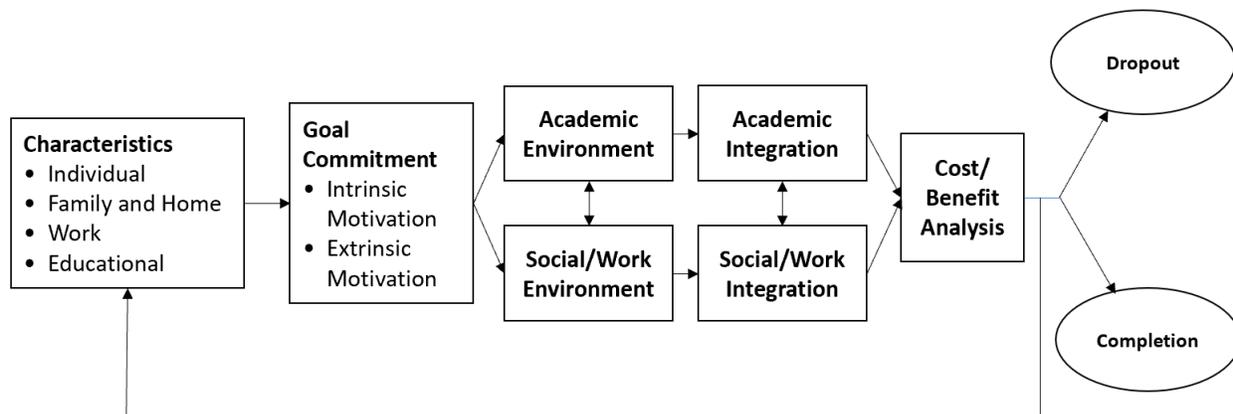
Figure 1. Kember's (1989) model of drop-out from distance education. Adapted from "A Longitudinal Model of Drop-Out from Distance Education," by D. Kember, 2008, *The Journal of Higher Education, 60*(3), p. 286. Copyright 1989 by Ohio State University Press.

Characteristics. The first input in Kember's (1989) model accounts for student

characteristics. Kember found that characteristics of students before they enter college, such as

age, gender, living conditions, outside support, and area of residence, had a small but significant

impact on attrition. For example, a stronger high school grade point average (GPA) was an

indicator of persistence and older students with less academic qualifications showed the ability to

persist and succeed in distance education. Although online education has revolutionized the

notion of distance education since 1989 and traditional students are often taking online courses in

addition of face-to-face courses (Allen & Seaman, 2016), studies of online learners indicate that

the characteristics defined by Kember are still relevant today. Many studies have found that

GPA, both high school and college, is a significant indicator of success in online courses

(Cochran, Campbell, Baker, & Leeds, 2014; Dotterweich & Rochelle, 2012; Guidry, 2013; Harrell & Bower, 2011; Lint, 2013; Morris & Finnegan, 2009; Wilson & Allen, 2011; Xu & Jaggars, 2014). Also, studies have shown that women and older students do better than their counterparts in the online environment (Dotterweich & Rochelle, 2012; Xu & Jaggars, 2014), veterans outperform non-veterans in online classes (Downs & McAllen, 2014), and foreign-born students fare better than native-born students (Wladis, Conway, & Hachey, 2016). In addition, internal locus of control and self-regulated learning have been found to be strong predictors of success in online courses (Dabbagh, 2007; Kirmizi, 2015; Morris & Finnegan, 2009; Yukselturk & Bulut, 2007). Individuals with an internal locus of control believe that their successes or failures are due to their own hard work or lack of it, and self-regulated learners are those that "systematically direct their thoughts, feelings and actions toward the attainment of their goals" (Yukselturk & Bulut, 2007, p. 73). Altogether, the individual characteristics students bring with them upon entrance into online courses contribute to their success and persistence.

Goal commitment. The second part of Kember's (1989) model is goal commitment which contains two components: extrinsic motivation and intrinsic motivation. Deci and Ryan (1985) described extrinsic motivation as drive due to external factors such as gaining rewards or avoiding punishment. They defined intrinsic motivation as the desire to complete a task for the enjoyment or challenge of it. In Kember's model, students are extrinsically motivated when seeking degrees or increased salaries at work, and students are intrinsically motivated when they are enrolled in classes because they desire to learn something new and enjoy the process. Goals can also be proximal or distal. An example of a short-term goal is taking a course to learn a new skill for work, and a typical long-term goal is earning a college diploma. In the online environment, extrinsic and intrinsic motivation also relate to persistence: students with well-

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defined reasons for seeking degrees are much more likely to persist in online classes (Muller, 2008; Shaw, Burrus, & Ferguson, 2016), and students who find course subject matter relevant to their own lives have lower attrition rates (Park & Choi, 2009).

Academic and social and work aspects. Once students are enrolled in distance education courses, Kember (1989) stressed that both their academic and social environments affect performance and dedication to studies. Kember based this part of his model on Tinto's (1975, 1982) models of student integration. Tinto claimed that both social integration and academic integration are indicative of persistence in college. Students who have a sense of belonging to a college community are much less likely to withdraw and thus are more likely to stay on an academic course than students who feel alone in the process. Because Tinto's model was based on traditional, full-time college students in face-to-face courses, Kember adjusted his model for students in distance education courses using four components that interrelate: academic environment, academic integration, social and work environment, and social and work integration.

Academic environment and integration. Kember (1989) defined the academic environment of distance education to include instructional design, frequency and nature of contacts, use of local tutorials, use of teleconferencing, and administrative support. Academic integration is the amount a student partakes in each of these elements. Kember surmised that the more students interact and have positive experiences with available academic programs, the more likely they will persist. Studies are showing this also to be true for online courses. Higher academic integration is associated with higher persistence (Lint, 2013), frequency of interaction in online courses is predictive of student success (Shelton, Hung, & Lowenthal, 2017), and insufficient interaction with faculty increases attrition (Muller, 2008).

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Social and work environment and integration. In Tinto's (1975, 1982) models, social integration was defined as the degree in which a student is socially connected to others on campus. Kember (1989) claimed that this type of social integration was irrelevant for distance learners and that the social environment outside of their academics was more important to persistence. Kember stressed that having support from family and work were crucial for success in distance courses as students are less likely to be distracted by outside pressures. In online courses, social aspects have shown to still be of importance. According to Park and Choi (2009), students who lack family and/or institutional support have higher drop-out rates in online courses, and Liu, Gomez, and Yen (2009) and Muller (2008) found that the more students create a social presence and engage in their online communities, the more likely they are to persist. Although, the variables may be slightly different than in Kember's model, the model still holds up in its general design.

Cost/benefit analysis. The last component of Kember's (1989) model is a cost/benefit analysis. It is at this stage that a "student has to decide whether the opportunity costs of time spent studying are worthwhile in view of the perceived benefits of the eventual qualification or other benefits the student might derive from studying" (Kember, 1989, p. 295). Kember noted that many aspects of students' lives will contribute to the decision to drop out or persist. He pointed out that lack of time to study was the most common reason students withdrew from distance education courses and emphasized that as students get closer to completing a degree/certificate, the benefits of persisting become greater. Students must weigh out the pros and cons of course completion and the implication on degree attainment and possible salary increases with time away from family, work, and social activities. These same attributes still exist in online education. According to Fetzner (2013), the top three reasons students withdraw

from online courses are that they get too far behind to catch up, personal issues arise, and it becomes too difficult to balance school, work and/or family. In addition, the closer students are to degree completion, the more likely they are to persist in online courses (Cochran et al., 2014; Greenland & Moore, 2014).

Recycling loop. Because students' situations are continually changing, Kember (1989) included a recycling loop in his model. He stated that with each passage through the cycle, the conditions of each stage of the model will modify due to students' experiences, accomplishments, and failures. As students persist in school, they may become more academically and socially integrated, in addition to accumulating more units. As stated earlier, these factors contribute to persistence. With respect to online classes, Hachey, Wladis, and Conway (2012) found that successful completion of online courses increases the likelihood that students will take and succeed in further online courses. Essentially, students' profiles are continually changing, adding or subtracting from their chances at succeeding in an online environment.

Applicability towards research questions. The research questions posed in this study largely deal with the differences in successful completion in online courses of part-time students compared to full-time students, degree/certificate/transfer seeking students compared to those not seeking these goals, and the proportion of coursework taken online. Using principles from Kember's (1989) theory, it was surmised that there is a greater proportion of part-time students and students without clear academic goals in online courses than in face-to-face courses because these students have greater family and/or work commitments. In turn, these students may have less time to become academically and socially integrated in their college communities which, per Kember, makes it more likely that they will drop from distance education courses. In addition,

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of students wishing to transfer or earn a degree or certificate, part-time students may be further away from their goals than full-time students and based on Kember's theory may be more likely to withdraw from online courses. Similarly, students without clear academic goals may have a higher probability of withdrawing from online courses than their counterparts since they have no academic goal in sight keeping them motivated. Also, completion rates in online courses may vary due to the proportion of coursework taken online in a given term since the amount of time students spend online and/or on campus affects both academic and social integration. It is for these reasons that Kember's theory of drop-out from distance education was used to drive this study.

Review of Research Literature and Methodological Literature

An important part of the research process is to review what others have discovered on the topic to be studied. A thorough review of the literature regarding online education and its effectiveness was conducted and below is a summary of the findings. A history of distance education is provided to inform readers of where online education is today and how it got to its present state. Next, the effectiveness and successful completion rates of online education are discussed along with components that promote and hinder success in online courses so that a determination of what is known and unknown can be made. A section pointing out that there is very little research regarding the proportion of courses taken online and success rates in online courses is given along with a justification for further study in this area. Lastly, a summary of methodological procedures utilized in the body of research is presented so that an understanding of applicable research techniques can be reached.

History of distance education. Throughout the history of colleges and universities, the communication medium of the time has been used to reach students in remote areas. In the

1890s, the University of Chicago used the mail system to offer correspondence courses to individuals living in distant geographic locations (Gayton, 2007). In the 1920s, colleges and universities began broadcasting courses over the radio and in the 1950s television became the new medium allowing Coastline Community College to become the first virtual campus (Miller, 2014). When the internet and email became preferred ways of relaying information and communicating, online education became the new norm. This new modality saw rapid expansion in the 1990s and 2000s (Means et al., 2010), and by the year 2013, nearly 7 million college and university students were taking at least one online class (Allen & Seaman, 2013). Online education continues to grow dramatically as face-to-face courses are declining in number (Johnson & Mejia, 2014). Being able to complete coursework out of one's home or office at all hours of the day is allowing many nontraditional students to pursue a college degree. According to Oakley (2010), "online education does not discriminate on any basis – age, race, color, caste, culture – when it comes to admitting students" (para. 8).

Effectiveness of online education. Numerous studies have been conducted on the effectiveness of online education. In a meta-analysis, Means et al. (2010) reviewed over 1,000 articles that were published between 1996 and July 2008 and identified 45 with rigorous research designs that compared student learning outcomes of online and face-to-face instruction. Five of the studies involved K-12 learners with the remaining studies evenly divided among college students, both undergraduate and graduate, and professional training for adults. The subject matter varied over the disciplines with health care and medicine being the most common. The key finding in Means et al.'s meta-analysis was that there was no significant difference between student learning outcomes in purely online and purely face-to-face courses. They did find, however, that blended learning that uses both modalities showed a small, but significant increase

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in outcomes.

Case studies conducted after Means et al. (2010) have exhibited mixed results. When discrepancies in outcomes are found between online and face-to-face versions of courses, much of the differences may be attributed to the types of students who choose the online modality. For example, Helms (2014) compared the results of one face-to-face psychology course and one online psychology course he taught and found that students in his online course earned significantly lower grades than in his face-to-face course. He did note, however, that students in his online course were less academically prepared with lower overall GPAs. Moreover, Johnson and Palmer (2015) compared performance on assessments in online and face-to-face linguistics courses at a large university and their results indicated that face-to-face students outperformed their online counterparts; they also pointed out that students who chose to take the course online had significantly lower overall GPAs.

In another case study, self-selection bias was removed when the course schedule at a research university failed to differentiate between an online and face-to-face version of a criminology class and all students thought they were enrolling in a face-to-face course (Stack, 2015). Self-selection bias occurs when individuals select themselves into a group causing non-representative samples of the overall population. When students were made aware of the mistake after both classes were full, only one student dropped the online version and only two withdrew from the face-to-face class. When the academic performances of each class were compared, no significant differences were found. In other words, it may be inferred that student learning outcomes in online and face-to-face courses are similar when the groups of students taking each type of course have similar academic abilities.

Other case studies have also found there to be no significant differences in student

learning outcomes between online and face-to-face courses. Jones and Long (2013) compared seven semesters of online versus face-to-face college business mathematics courses and found there to be no significant difference in final course percentages. The results of a study by Ashby et al. (2011) indicated that final exam scores were the same for a developmental math course regardless of whether it was taught online or face-to-face. Gulacar et al. (2013) analyzed exam scores of a chemistry course for non-majors at their university and discovered that online and face-to-face students performed the same on questions requiring analysis and online students performed better on questions requiring memory. To summarize, even though the case studies mentioned above produced mixed results, when differences in learning outcomes between online courses and face-to-face courses exist, they appear to be due to a higher proportion of students choosing online courses who are less academically prepared.

Longitudinal studies have also shown mixed results with respect to student learning outcomes in online courses, but when selection bias is controlled, results agree with the meta-analysis of Means et al. (2010). For example, Xu and Jaggars (2011) collected data on the entire Virginia Community College System and found that students completing non-transferable prerequisite online math and English courses had a significantly lower chance of earning a C or better than students in the same courses in the face-to-face format. In an attempt to measure the effectiveness of online education, Cavanaugh and Jacquemin (2015) analyzed over 5,000 courses at a large public university and controlled for confounding variables, such as demographics and academic preparedness. They only included courses that were taught in both online and face-to-face formats by the same instructor, and their results indicated that there was no significant difference in student learning outcomes between the two modalities. Again, as with Stack's (2015) case study mentioned earlier, when instructors are the same and self-selection bias from

the students is removed, online and face-to-face courses produce similar results.

Success rates in online courses. Although there is evidence that learning outcomes are similar for online and face-to-face courses, some studies indicate that there is a significant difference in successful completion rates, particularly at the community college level (Atchley et al., 2013; Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014). According to Atchley et al. (2013), at the university level, students in online courses had a small, but significantly lower completion rate compared to students in face-to-face courses. In a study of the Virginia community college system, Xu and Jaggars (2011) found that students taking non-transferrable prerequisite English and/or math courses online had a significantly greater chance of withdrawing from the course than did face-to-face students. In a later study of Washington State's community and technical colleges by Xu and Jaggars (2014), data indicated that the success rates of students in online courses are significantly lower than in face-to-face courses in all subject areas. A study by Johnson and Mejia (2014), which modeled their approach after Xu and Jaggars (2014), produced similar results for California: successful completion rates of California community college students in online courses are 11% to 14% lower than in face-to-face courses. Overall, longitudinal studies are showing that the proportion of students who successfully complete online courses is significantly less than in face-to-face courses.

Components that promote success in online courses.

Student characteristics. Multiple studies have found that a student's GPA is one of the strongest predictors of success in online courses (Cochran et al., 2014; Dotterweich & Rochelle, 2012; Guidry, 2013; Harrell & Bower, 2011; Lint, 2013; Morris & Finnegan, 2009; Wilson & Allen, 2011; Xu & Jaggars, 2014), and SAT and ACT scores are also predictive (Guidry, 2013; Morris & Finnegan, 2009). According to Morris and Finnegan (2009), higher GPAs coupled

with SAT math scores are indicative of success in online courses. Guidry (2013) found that students are more likely to do well in online quantitative classes when they have strong GPAs and score well on the math portion of the ACT, and individuals are more likely to do well in online qualitative courses when they receive high scores on the reading portion of the ACT. Studies show that women and students 25 years old or older do better than their counterparts in the online environment (Dotterweich & Rochelle, 2012; Fetzner, 2013; Gregory & Lampley, 2016; Xu & Jaggars, 2014). In addition, veterans outperform non-veterans in online classes (Downs & McAllen, 2014), and foreign-born students fare better than native-born students (Wladis et al., 2016).

Although none of the authors gave reasons why women typically outperform men in online courses, Xu and Jaggars (2014) surmised that older students have developed better time-management skills due to balancing work and family obligations which transfers into the online environment. According to Downs and McAllen (2014), veterans do well in online courses because their prior military training required discipline and excellence which is needed in online classes. Wladis et al. (2016) noted that because of cultural norms and language issues, foreign students have difficulty participating fully in face-to-face classes so therefore put greater effort into online classes than native-born students. Furthermore, internal locus of control, self-regulated learning, and good time management skills have been found to be strong predictors of success in online courses (Dabbagh, 2007; Fetzner, 2013; Kirmizi, 2015; Morris & Finnegan, 2009; Shaw et al., 2016; Yukselturk & Baturay, 2012; Yukselturk & Bulut, 2007). In sum, the individual characteristics students bring with them upon entrance into online courses attribute to their success.

Degree goals and academic experience. Studies show that students with defined

academic goals and who are closer to completing these goals are more likely to succeed in online courses. According to Muller (2008) and Shaw et al. (2016), students with clear motives for seeking their degrees are more likely to be successful in online courses. Furthermore, Johnson and Mejia (2014) found that the closer students are to completing their degrees, the more likely they are to complete their online courses. At the university level, seniors are the most likely to complete online courses in which they enroll (Cochran et al., 2014), and at the community college level, sophomores persist the most (Gregory & Lampley, 2016). Fetzner (2013) and Greenland and Moore (2014) both found that as students earn more credit hours, the probability of them completing online courses goes up. Greenland and Moore also pointed out that the highest withdrawal rates in online courses are in introductory courses, and Wladis, Wladis, and Hachey (2014) observed that higher pass rates exist in online courses that fulfill degree requirements. In sum, when the importance of passing an online course increases, such as being needed to stay on a defined academic plan, to complete a degree in the near future, or for a degree requirement, the likelihood of passing the course increases as well.

Studies also indicate that students with previous successful experience in online courses are more likely to pass future online courses. The results of a study by Hachey et al. (2012) showed that students that have completed all previous online courses successfully have a very high likelihood of succeeding in upcoming online courses. Johnson and Mejia (2014) found that as the number of previous online courses increases so does the probability of passing future courses. In addition, in a survey conducted by Yukselturk and Baturay (2012), students expressed that having previous online experience significantly contributed to their success in their current online courses. Hence, it can be surmised that once students have successfully passed previous online courses, they have obtained skills that increase their chances of doing

well again.

Academic and social integration. Contact, both academically and socially, affects the likelihood of successful completion in online courses. According to Lint (2013), students with higher levels of interaction with their academic institutions have increased persistence in online courses. Types of interaction described by Lint are regular and effective academic exchanges with students and faculty, including meaningful feedback on assignments from faculty. Morris and Finnegan (2009) not only found that successful online students spend more time online working on coursework than students who do not fare well, but successful online students also log in more often. The results of Shelton et al.'s (2017) study showed that although total time spent online was important, frequency of interaction in online courses was a much stronger predictor of success. In other words, even though total time spent in an online course may be the same, students who break that time up over several days tend to outperform students who work those hours in one sitting. Adding to the evidence, both Muller (2008) and Liu et al. (2009) discovered that increased social presence and engagement in an online community are also indicative of success in online classes. Essentially, students who interact on a regular basis with their faculty and peers have a higher likelihood of successfully passing their online courses than students who do not.

Components that hinder success in online courses. Although most studies focus on success in online courses, a few studies have delved into why students do not succeed. According to Fetzner (2013), who surveyed students who had dropped community college online courses, the top three reasons students withdraw from online courses are that they get too far behind to catch up, personal issues arise, and it becomes too difficult to balance school, work and/or family. Shaw et al. (2016) also found that procrastination contributes significantly to

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attrition. In addition, Park and Choi (2009) surveyed students who had withdrawn from job-related, university online courses. They learned that students are more likely to withdraw from online classes when they lack family and/or institutional support and when they do not find the course subject matter relevant to their own lives. Furthermore, interviews conducted by Yukselturk and Bulut (2007) showed that non-successful students often underestimate the amount of time and effort needed to succeed in an online course environment. Altogether, poor time management, lack of awareness of the time commitment necessary for online classes, and absence of support from family, work, and/or school contribute to the likelihood that students will not succeed in online courses.

Some learning styles have also been found to not be conducive to online learning. Harrell and Bower (2011) discovered that auditory learners, defined as students who learn from listening, have lower persistence rates in online courses. Shaw et al. (2016) found students with verbal learning styles, who learn by speaking and writing, and students with physical learning styles, who learn by carrying out physical activities, have higher attrition rates than students with other learning styles. Other learning styles include: visual (learning through pictures and images), aural (learning through sounds and music), logical (learning through logical reasoning and systems), social (learning in groups of other people) and solitary (learning by working alone). In addition to learning styles, computer habits have been shown to contribute to non-success in online courses. According to Yukselturk and Baturay (2012), while working online on their courses, students expressed they were often distracted by other applications on their computers. This is in line with Harrell and Bower who found that as computer skills increased, persistence in online courses decreased; they were surprised by this finding and surmised that the more proficient computer user has more to be distracted by while online. Furthermore, students

surveyed by Lint (2013) stated that social media often distracted them from their online work. To summarize, students with auditory, verbal, and/or physical learning styles and students easily distracted by social media and other applications while on their computers tend to perform poorer in online courses.

      Online courses and goal attainment. Although Wladis et al. (2016) found that students enrolled in postsecondary online courses were more likely to drop out of college, other studies are showing different results. Fike and Fike (2008) looked at first-year students at a Texas community college and found that taking at least one internet course was a strong predictor that students would stay in college beyond the first year. The results of Pontes and Pontes' (2012) study indicated that first-generation, low-income students are less likely to have a lapse in enrollment when they take one or more online courses. Shea and Bidjerano (2014) found that community college students who take some of their coursework online are more likely to earn a credential than those who do not. Their results also showed that community college students who take online courses as part of their academic plans complete their goals sooner than students who only take face-to-face courses. Furthermore, Johnson and Mejia's (2014) California community college study indicated that of students seeking degrees, certificates, or transfer, the likelihood of reaching these goals increases as the number of online courses taken goes up. Hence, when students include online courses as part of their course load, they are more likely to stay in college and complete their goals than students who only take face-to-face courses.

      Proportion of online coursework and success. Not much has been studied about the proportion of online coursework students take in a given term and success rates. Of students enrolled in at least one online course, Aragon and Johnson (2008) found that completers of online courses enrolled in more online courses in a given term than non-completers; in their

study of students at a rural community college, the average number of online classes taken by completers of online courses was 4.32 with a standard deviation of 2.63 and the average number of online courses taken by non-completers of online courses was 1.48 with a standard deviation of 2.48. The results of Johnson and Mejia's (2014) study of California community college students showed that only 16% of students that take online courses take more than 20% of their coursework online. Moreover, James, Swan, and Daston (2016) observed that at primarily campus-based community colleges, fully online students had slightly lower retention rates than students who take some or none of their course load online. At four-year primarily campus-based universities, no differences in retention rates existed due to proportion of online courses taken. At predominantly online universities, students who took some online and some face-to-face courses performed moderately better than students who took their coursework fully online or fully face-to-face. Although they did not present standard deviations in their results, James et al. found that at the community college level, the number of credit hours attempted by students who blend their coursework with online and face-to-face classes take an average of 19.2 credit hours, where students who take only face-to-face classes take an average of 16.8 credit hours and fully online students take an average of 10.2 credit hours; the researchers found that the credits passed ratio was similar for all three types of students. Overall, the results regarding proportion of coursework taken online and success in online courses are mixed. Further study into this matter is warranted.

Review of methodological procedures. The majority of studies regarding online education are quantitative, although qualitative and mixed-method approaches do exist. The advantages of quantitative research are that accurate numerical data can be obtained, data analysis may be performed reasonably quick, and studies can be constructed in ways that

confounding variables are eliminated which gives data more credibility (Johnson &

Onwuegbuzie, 2004). The strengths of qualitative research are that rich and descriptive data can

be obtained which provides an in-depth look at what is going on, hypotheses are developed as

patterns emerge in the data, and causes of events can be determined (Johnson & Onwuegbuzie,

2004). By combining aspects of both quantitative and qualitative research into a mixed-method

study, a study becomes stronger because the detailed accounts obtained through qualitative

methods can bring greater insight and understanding to quantitative results (Johnson &

Onwuegbuzie, 2004).   Below is a summary of the types of studies reviewed.

Quantitative studies. The quantitative studies reviewed ranged from longitudinal studies

analyzing archival data at both the state and national levels to small studies conducted by one

instructor teaching both an online and face-to-face version of the same course. Although the

statistical procedures utilized varied among the studies, the most commonly used methods were

t-tests, z-tests, analysis of variance (ANOVA), chi-square tests, and correlation and regression

techniques. T-tests and z-tests allow researchers to determine if significant differences exist

between means and proportions of only two populations, whereas ANOVA may be employed to

determine if significant differences exist between means of two or more populations and chi-

square tests can be used to determine if significant differences exist between proportions of two

or more populations (Adams & Lawrence, 2015).   Examples in the research reviewed include

Helms (2014) who used a t-test to determine that the average GPA of students in an online

psychology course was significantly lower than for students in a face-to-face psychology course,

Larson and Sung (2009) who utilized ANOVA to see if a difference existed between the mean

exam scores and final grades of students in face-to-face, blended, and online versions of a

business course taught by the same instructor at a research university and found that none

existed, and Atchley et al. (2013) who employed Pearson's chi-square tests to see if there was a difference in the proportions of the grades A, B, C, D, and F between online and face-to-face courses and if there was a difference in the proportions of students who completed online and face-to-face courses; their findings indicated that online students earn a significantly higher proportion of As but also have significantly lower completion rates. Correlation techniques are utilized to determine if a significant relationship exists between two or more variables, and if a significant relationship is found between variables, regression methods are used to derive mathematical equations that can predict outcomes of dependent variables with changes in independent variables (Adams & Lawrence, 2015). Independent variables are defined as variables that are manipulated to test the effects of dependent variables (Adams & Lawrence, 2015). For example, using correlation and regression techniques, Kirmizi (2015) found that the dependent variable of academic achievement in distance education courses could be predicted by the independent variables of self-directed learning, learner control, and motivation. To summarize, most studies regarding online education and its effectiveness are quantitative which use numerical data to test preconceived hypotheses.

Qualitative studies. Of the three qualitative studies reviewed, surveys, email, and phone interviews were employed to obtain data. Fetzner (2013) conducted a 45-question survey over the telephone of non-successful online students using a survey based on Garland's (1993) Student Perceptions of the Situational, Institutional, Dispositional, and Epistemological Barriers to Persistence; students were asked to select from a list of statements and the top-ranked answers were presented in the findings. Both Muller (2008) and Yukselturk and Baturay (2012) asked open-ended questions of their participants and used coding to summarize their data. Muller contacted 20 students via the telephone and Yukselturk and Baturay received information from

students voluntarily replying to an email. The advantage of open-ended questions is that it allows participants to speak freely about their experiences which often leads to important information that the researchers had not considered (Altritcher, Posch, & Somekh, 1996). Coding is when passages in qualitative data are summarized with a word or short phrase, common themes are looked for among the text, and the same code is utilized when themes repeat (Gibbs, 2011). When data is coded consistently, researchers are able to retrieve all data pertaining to a certain topic so that they may describe, categorize, and reflect on what the data is saying (Richards & Morse, 2013). According to Richards and Morse (2013), coding software brings qualitative research closer to quantitative research which helps add to its credibility. Overall, although qualitative studies regarding online education are few, the information obtained from these studies adds a dimension to the research literature that is missing from quantitative studies.

   Mixed-method studies. Although there were not very many, the mixed-method studies reviewed combined the quantitative and qualitative methods described above. T-tests, chi-square tests, and correlation and regression methods were used along with interviews and surveys consisting of both closed- and open-ended questions. For example, Johnson and Palmer (2015) used a t-test to determine that the average overall GPA of students who self-selected into an online version of a linguistics course was significantly lower than for students who self-selected into the face-to-face version. From a survey utilizing both closed- and open-ended questions, a common theme that emerged was that face-to-face students felt more engaged in the class setting and had a greater sense of belonging to an academic community. As stated by Johnson and Onwuegbuzie (2004), adding a qualitative component to quantitative studies gives a more complete picture of the situation. On their own, quantitative studies can only determine that

certain phenomena exist, but they cannot delve into why; it is only with the rich, descriptive information obtained through qualitative research methods that researchers can begin to understand why certain phenomena occur.   Mixed-method studies regarding online education have added important insight into the growing body of literature on the subject.

Review of Methodological Issues

When reviewing scholarly literature, it is important to understand the limitations of the research methods utilized. In this section, the issues involved with quantitative and qualitative studies are discussed. Because sampling techniques may be shared among the methodologies, this section concludes with a look at the different sampling techniques employed in the body of literature and the problems associated with them.

Quantitative research issues. As stated earlier, the goal of quantitative studies is to use numerical data to test preconceived hypotheses. Since samples are used to test hypotheses about populations, researchers can never know with absolute certainty if their conclusions are correct; some room for error is needed (Bluman, 2014). Statistical tests also have limitations on what can be assessed. Although t-tests, z-tests, ANOVA, and chi-square tests may be used to infer whether means and/or proportions differ among varying populations, they cannot establish relationships or causes of events (Adams & Lawrence, 2015). For instance, Helms (2014) utilized a t-test to determine that the average final letter grade of students in an online psychology course was significantly lower than in a face-to-face psychology course; although this information is insightful, the t-test could not determine why this phenomenon occurred and if any relationships existed between final grades and other variables such as total units enrolled. While correlational studies are able to ascertain if relationships exist between variables, these studies are unable to determine causation because variables are not controlled and manipulated

(Adams & Lawrence, 2015). Furthermore, when correlations are found and regression techniques are utilized to predict outcomes of dependent variables with changes in independent variables, the predictions are only valid within the range of the data studied and cannot be extrapolated beyond those numbers (Bluman, 2014). For example, Kirmizi (2015) found a positive correlation existed between motivation and satisfaction of distance learners, but the nature of his study could not determine why. In addition, even though satisfaction in Kirmizi's study was measured on a scale from 1 to 25 and motivation on a scale from 1 to 20, the results of the regression analysis are only valid between the low and high responses by participants to each scale. In summation, not only do quantitative studies incur risk of making incorrect conclusions, the types of statistical tests utilized have restrictions on what can be measured.

Qualitative research issues. The qualitative studies included in this literature review utilized surveys, email, and phone interviews to accumulate data. Because these data collection methods are also shared with quantitative studies, the issues associated with them will be discussed in a separate section below. Beyond these issues, Stake (2010) pointed out that qualitative studies are time-consuming and have a greater likelihood of results being influenced by the biases of researchers. For example, Muller (2008) conducted open-ended recorded phone interviews with 20 women in online programs to learn about their experiences as online learners with respect to their work and family obligations; the recorded phone interviews were approximately 45 minutes each which then needed to be transcribed and coded using coding software. It is possible that in this lengthy process, Muller's own feelings regarding females in online education influenced participants' answers or how responses were recorded. Hence, even though all studies are susceptible to researcher bias, the results of qualitative studies can more easily be affected by the actions and beliefs of the individuals conducting them.

Issues with sampling techniques. According to Bluman (2014), an unbiased sample can be obtained by utilizing random assignment when selecting participants to be studied. Although random assignment is optimal, it often is not feasible and time-consuming, so other methods of obtaining samples are often employed. The types of sampling techniques predominantly used in the research literature are discussed below.

Convenience samples. Many of the studies reviewed utilized convenience sampling by studying in-tact groups already available. The drawbacks of convenience samples are that they often are not representative of the general population, and they tend to be small which increases the likelihood of conclusion errors (Bluman, 2014). Examples include Downs and McAllen (2014) who looked at success rates in online and face-to-face courses of 147 veteran students at a large university and Larson and Sung (2009) who analyzed the final grades and exam scores of 168 students taking online, face-to-face, or blended versions of a business management course. Although insightful information is gained from these convenience samples, on their own, the conclusions made are not generalizable to the overall population of college students.

Archival data. Although archival data sets are great resources for obtaining large amounts of information on populations to be studied, the drawback of using existing records is that researchers are limited in the research questions they can pose because they must work within the confines of the data available (Adams & Lawrence, 2015). For example, Johnson and Mejia (2014) analyzed records of over 500,000 students obtained from the California Community Colleges Chancellor's Office Management Information System and determined that successful completion rates of students in online courses are lower than in face-to-face courses, but they were unable to take into account possible contributing factors such as work hours or family obligations as those were not included in the archived data set. Overall, archival data

limits researchers to questions that can be answered with the information available.

Interviews and questionnaires. Several of the studies reviewed used interviews and/or questionnaires to gather information. The drawback to interviews is they are time-consuming and the drawback to questionnaires is that they are limited to the scope of questions being asked; in addition, participants' responses to interviews and verbal questionnaires may be affected by actions of the person conducting the query, such as sighs or tone of voice (Bluman, 2014). Also, when interviews and questionnaires are conducted via telephone, email, or mail, the response rate can be low and biased because the type of people willing to participate in surveys may not be representative of the population (Adams & Lawrence, 2015). For example, Fetzner (2013) called students who had dropped out of online courses to gain a better understanding of their experiences and only 14% responded, and Harrell and Bower (2011) emailed a link to an online survey to over 1,500 students and got a response rate of only 34%. Although data can be obtained via interviews and questionnaires, the results may be biased due to low response rates and reactions to and by the people conducting the surveys.

To summarize, issues exist among all types of methodological procedures. Because quantitative studies start with preconceived hypotheses, important factors may be missed that researchers did not think of. The open-ended nature of qualitative studies allows for greater discovery of phenomena, but more time is needed to conduct these studies and data is more easily biased by researchers. The drawbacks of mixed-method studies are they require greater time and resources in addition to the necessity of researchers being proficient in both quantitative and qualitative methods. Regardless of the methodology employed, data collection techniques can create samples that are not representative of the populations being investigated and therefore may lead to conclusions that may be inaccurate. Altogether, no methodological approach is free

of issues; it is important that researchers take all possible issues into consideration when designing their studies.

Synthesis of Research Findings

There are two conclusions that can be made from the body of literature reviewed regarding online education. The first is that online and face-to-face courses produce similar student learning outcomes (Ashby et al., 2011; Cavanaugh & Jacquemin, 2015; Gulacar et al., 2013; Jones & Long, 2013; Means et al., 2010; Stack, 2015). The second is that successful completion rates in online courses are significantly lower than in face-to-face courses, especially at the community college level (Atchley et al., 2013; Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014). As supported by Kember's (1989) theory of drop-out from distance education, the difference in successful completion rates is most likely due, at least in part, to the attributes of students who self-select into online courses. The findings of Cavanaugh and Jacquemin (2015) reinforce this idea as their study, which analyzed over 5,000 courses at a large public university, found that there was no difference in learning outcomes between the two modalities when they controlled for confounding variables, such as demographics and academic preparedness. In addition, a study by Stack (2015) showed there to be no significant difference in academic outcomes between an online course and face-to-face course he taught in which self-selection bias was removed. Consequently, it can be theorized that online and face-to-face courses produce similar learning outcomes, but higher attrition rates in online courses are due to the characteristics and personal situations of the students who choose online courses.

As described in Kember's (1989) theory, the likelihood that students will successfully complete distance education courses is due to several factors such as personal characteristics, academic and social integration, family and work commitments and support, and benefits of

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completing their goals. As can be found in the body of literature regarding online education, students with high GPAs, students 25 years of age or older, women, veterans, and foreign-born students fare better in online environments than their counterparts (Cochran et al., 2014; Dotterweich & Rochelle, 2012; Downs & McAllen, 2014; Fetzner, 2013; Gregory & Lampley, 2016; Guidry, 2013; Harrell & Bower, 2011; Lint, 2013; Morris & Finnegan, 2009; Wilson & Allen, 2011; Wladis et al., 2016; Xu & Jaggars, 2014). Students with internal loci of control, students who are self-regulated learners, and students with good time-management skills also do well in online courses (Dabbagh, 2007; Fetzner, 2013; Kirmizi, 2015; Morris & Finnegan, 2009; Shaw et al., 2016; Yukselturk & Baturay, 2012; Yukselturk & Bulut, 2007). In addition, students with visual, aural, logical, social, and solitary learnings styles perform better in online formats than students with auditory, verbal, and physical learning styles (Harrell & Bower, 2011; Shaw et al., 2016). When it comes to academic and social integration, studies show that logging in more, spending more time online, having a social presence in online courses, and having continual positive interactions with the colleges or universities attended by students contributes to successful completion of online courses (Liu et al., 2009; Morris & Finnegan, 2009; Muller, 2008; Shelton et al., 2017). Work and family commitments also affect the probability that students will successfully complete online courses. According to Fetzner (2013) and Park and Choi (2009), one of the main reasons students drop out of online courses is it becomes difficult to balance work and/or family with school, especially if they are not receiving support from these entities. Lastly, the benefits of completing the online courses students are taking also plays into successful completion. When students have well-defined motives for pursuing a degree, they are more likely to persist in online courses (Muller, 2008; Shaw et al., 2016), and when online courses fulfill degree requirements or students find them relevant to their own lives, students are

much less likely to withdraw from them (Park & Choi, 2009; Wladis et al., 2014). Overall, the body of literature regarding online education is consistent with Kember's theory of dropout from distance education; the attributes and personal situations of students greatly affect their likelihoods of successfully completing online courses.

In addition to considering students' characteristics and personal situations, Kember (1989) also included a recycling loop in his model of drop-out from distance education. Kember surmised that students' ongoing experiences are continually changing their overall makeups and therefore as they progress through their academic programs, their likelihoods of doing well change with them. The studies reviewed in the literature support this theory. Hachey et al. (2012) found that students who have completed all previous online courses successfully have a very high likelihood of succeeding in upcoming online courses, and Johnson and Mejia (2014) found that as the number of previous online courses increases so does the probability of passing future online courses. The results of Fetzner's (2013) and Greenland and Moore's (2014) studies indicate that as students complete more credit hours, they are more likely to pass their online courses. Johnson and Mejia's study showed as community college students get closer to earning their degrees/certificates or transferring to four-year institutions, they are more likely to finish their online courses with passing grades. To summarize, as students successfully complete more online courses and move closer to achieving their academic goals, their overall profiles change and they are more likely to successfully complete online courses, as can be speculated by Kember's recycling loop.

Although successful completion rates of online courses are significantly less than in face-to-face courses, studies indicate that taking online courses increases the likelihood of students staying in school and completing their degrees. Fike and Fike (2008) found that first-year

community college students are more likely to continue if they take at least one online course, and the results of Pontes and Pontes' (2012) study indicated that first-generation, low-income students who take one or more online courses are less likely to have a lapse in enrollment. Shea and Bidjerano (2014) found that community college students who take some of their coursework online are more likely to earn a credential than those who do not. Their results also showed that community college students who take online courses as part of their academic plans complete their goals sooner than students who only take face-to-face courses. Even though Kember's (1989) model of dropout from distance education did not account for students who mixed online and face-to-face courses, his model still applies here. Taking online courses in addition to face-to-face courses offers students more flexibility in scheduling and allows them to take courses which they may not have been able to take because of other obligations. Possibly, this increased flexibility allows students to take more courses which in turn allows them to reach their goals earlier which increases motivation to pass. Also, the addition of more courses to students' schedules may allow for more academic and social integration which also contributes to retention in distance education according to Kember's theory. Altogether, taking online courses appears to contribute to student retention and degree completion.

Critique of Previous Research

Although the studies included in this literature review complemented each other and have provided extensive information regarding success in online education, there are still some questions that need to be answered. Little research has been conducted regarding the percentage of online courses taken by part-time and full-time students and by students with or without clear academic goals. In addition, not much is known about the proportion of coursework taken online and success in online classes. Below a critique of these issues is offered.

Proportion of online courses taken by part-time students, full-time students, and students with and without clear academic goals. The longitudinal studies of community college systems by Johnson and Mejia (2014) and Xu and Jaggars (2011, 2014) indicated that successful completion rates in online courses are significantly less than in face-to-face courses, yet none of these studies discussed the proportions of online classes and face-to-face courses taken by full-time and part-time students and students with and without clear degree, certificate, or transfer goals. It is quite possible that there is a higher percentage of online courses taken by part-time students, who very likely have work and/or family commitments, and according to Kember's (1989) theory, when these students do not have proper support, they are more likely to drop their online courses. Also, even though the results of Johnson and Mejia's study implied that a higher proportion of students with clear academic goals take online courses compared to students without them, they did not discuss the percentage of online classes taken by these students and successful pass rates of these classes; they simply informed their readers that when students with clear academic goals take some online courses, they are more likely to complete their degrees. Possibly, students with clear academic goals take less of their course loads online than students without clear academic goals. If there is a higher proportion of online courses taken by students without clear academic goals than for face-to-face courses, then based on the results of Muller (2008) and Shaw et al. (2016), it can be surmised that online courses are more likely to be dropped. Hence, further study is needed regarding the proportion of online classes taken by part-time and full-time students along with the proportion of online classes taken by students with and without clear academic goals to gain a better understanding of why there is a discrepancy in successful pass rates between online and face-to-face courses.

Proportion of coursework taken online in a given term. Even though the studies by

Fike and Fike (2008), Pontes and Pontes (2012), Shea and Bidjerano (2014), and Johnson and Mejia (2014) indicated that taking online courses increases the likelihood that students will stay in school and finish their degrees in a timely manner, none of these studies looked into the proportion of coursework taken online in a given term and successful completion of online courses. Aragon and Johnson (2008) did find that completers of online courses enrolled in more online courses than non-completers, but they did not discuss the proportion of coursework taken online or the total units attempted. Although, James et al. (2016) compared retention into the second year of college by looking at students who took none, some, or all of their coursework online and found the credits passed ratio to be similar, they did not break down the credits passed by online and face-to-face courses. Using Kember's (1989) theory as a guide, it is quite possible that students who choose to take more of their coursework online are better suited for online work which would increase their likelihoods of successful completion or it may be that students who take the majority of their coursework online have more outside obligations that take away from study time, thus decreasing their chances of passing. It may also depend on whether these students are full-time or part-time. James et al. also found that fully online students at the community college level were less likely to be retained, but that these students were mainly part-time; they did not break up fully online students into full-time and part-time to discover if any differences in retention exist. Perhaps, full-time students who take more of their coursework online establish better routines for working online and thus log in and participate in the online environment more frequently than part-time students or full-time students taking only some of their coursework online. If this is the case, then these students would be more likely to succeed in online classes according to the findings of Morris and Finnegan (2009) and Shelton et al. (2017). Although much has been discovered regarding online education, a more in-depth look at

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the proportion of coursework taken online coupled with part-time and full-time status of students is warranted to gain a further understanding of the issues at large.

In conclusion, although the studies included in this literature review were extensive and offered a comprehensive view of success in online education, there are still gaps in the knowledge. A closer look at the percentage of online and face-to-face courses taken by part-time, full-time, students with clear academic goals and students without out them is justified. In addition, understanding the nature of the proportion of coursework taken online by full-time and part-time students in a given term and successful completion of online courses will add a dimension to the literature that is missing.

Summary

With online education experiencing significant growth while traditional face-to-face courses are decreasing in number (Allen & Seaman, 2016), numerous studies have been conducted on its effectiveness. Even though several longitudinal studies have found that successful completion rates of online courses are significantly lower than in face-to-face courses, especially at the community college level (Atchley et al., 2013; Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014), when comparing student learning outcomes of similar student groups, student learning outcomes appear to be the same for the two modalities (Cavanaugh & Jacquemin, 2015; Means et al., 2010; Stack, 2015). Hence, it can be theorized that the discrepancy in successful completion rates at the community college level may partially be due to a difference in the types of students who self-select into online courses, and the matter warrants further study.

The conceptual framework used to drive this dissertation study was Kember's (1989) theory of dropout from distance education. According to Kember's model, several attributes

contribute to students' decisions to persist and succeed in distance education such as personal characteristics, academic and social integration, family and work commitments and support, and benefits of completing their goals. In addition, Kember emphasized that students' situations are continually changing, so he added a recycling loop to his model to account for new experiences. The studies included in the literature review show that Kember's theory is still relevant in online education today. Personal characteristics, such as GPA, age, and learning style, have been found to be predictive of success in online courses, as well as academic and social integration within the college and online community, outside obligations of family and work, previous online experience, and the importance of online classes in fulfilling degree or goal requirements. Overall, both Kember's theory and the studies reviewed regarding online education indicate that students' characteristics and situations contribute to the likelihood of them successfully completing online courses.

Even though research regarding success in online education is extensive, there is still more to be learned. Little is known about the percentage of online and face-to-face courses taken by part-time students, full-time students, and students with and without clear academic goals. Also, not much has been studied on the proportion of coursework taken online in a given term and successful completion in online courses. Discoveries in these areas would add to the current body of knowledge, which could further assist academic advisors in helping students with their academic plans. At the community college level, this is particularly important as this is where the greatest discrepancy in successful completion rates exists between online and face-to-face classes. Community colleges do not want to decrease access, which online courses provide, so understanding further what contributes to success in online classes is important.

Therefore, this study sought to investigate the following research questions at the community

college level:

1) What is the difference between successful course completion rates of part-time students and full-time students at the community college level?

2) What is the difference between the proportion of part-time students in online courses and face-to-face courses at the community college level?

3) What is the difference between successful course completion rates of students with no clear academic goals and students with clear academic goals at the community college level?

4) What is the difference between the proportion of students with no clear academic goals in online courses and face-to-face courses at the community college level?

5) For full-time students at the community college level, what is the relationship between successful completion of online courses and the proportion of coursework taken online in a given term?

6) For part-time students at the community college level, what is the relationship between successful completion of online courses and the proportion of coursework taken online in a given term?

Chapter 3: The Methodology

Introduction

Given there is strong evidence that student learning outcomes are similar in online and face-to-face courses (Ashby et al., 2011; Cavanaugh & Jacquemin, 2015; Gulacar et al., 2013; Jones & Long, 2013; Means et al., 2010; Stack, 2015), but that successful completion rates are significantly lower in online courses, especially at the community college level (Atchley et al., 2013; Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014), this quantitative study sought to add to the body of knowledge regarding success in online education in community colleges. The conceptual framework that was used to drive this study was Kember's (1989) theory of dropout from distance education. According to Kember's theory, the likelihood that students will successfully complete distance education courses is due to several factors such as personal characteristics, academic and social integration, family and work commitments and support, and benefits of completing their goals. The body of literature reviewed for this dissertation study showed that Kember's theory applies to online education as well.

Although the literature paints a comprehensive picture of attributes that contribute to success in online courses (e.g. being close to achieving a degree or having previous online experience), lacking is information regarding the percentages of online courses taken by part-time students, full-time students, and students with or without clear academic goals. Understanding these differences may help further explain the discrepancy in successful completion rates of community college online and face-to-face courses. Given that online courses increase access to college for nontraditional students (Oakley, 2010; Xu & Jaggars, 2014), it may be found that there are higher proportions of online courses taken by part-time students who have outside obligations such as family and work commitments. Using concepts

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from Kember's (1989) theory, when these students do not have support, they are more likely to withdraw. In addition, according to Muller (2008) and Shaw et al. (2016), students without clear motives for seeking a degree are more likely to be unsuccessful in online courses; if there is a higher proportion of students without clear academic goals in online courses compared to face-to-face courses, this also may be contributing to the difference in successful completion rates of online and face-to-face courses.

Another area where the literature is lacking is how the proportion of online courses taken as part of students' course loads relates to success in online courses. Using Kember's (1989) theory as a guide, it is quite possible that students who choose to take more of their coursework online are better suited for online work which would increase their likelihoods of successful completion. It may also depend on whether these students are full-time or part-time. Perhaps, full-time students who take more of their coursework online establish better routines for working online and thus log in and participate in the online environment more frequently than part-time students or full-time students taking only some of their coursework online. When students log in and participate more in their online courses, they have greater academic integration in their online courses and per Kember's theory, they are more likely to succeed.

In an effort to study the above topics in detail, institutional data for the fall of 2016 from a community college in the western United States was utilized. This data set lended itself to a thorough quantitative study which could be used to test hypotheses. The details of this quantitative study are described in the following sections: purpose of the study, research questions and hypotheses, research design, target population, sampling method (power) and related procedures, instrumentation, data collection, operationalization of variables, data analysis procedures, limitations and delimitations of the research design, internal and external validity,

expected findings, ethical issues in the study, and summary.

Purpose of the Study

Given that successful completion rates of online courses at community colleges are significantly less than for face-to-face courses (Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014), the purpose of this study was to determine if this discrepancy is partly due to the types of students who enroll in online courses and the proportion of students' coursework that is taken online. This study sought to ascertain if part-time students successfully complete their courses at a lower rate than full-time students and if proportionally there are more part-time students in online courses than in face-to-face courses. In addition, this study endeavored to discover if students with no clear academic goals successfully complete their courses at a lower rate than students with clear academic goals and if proportionally there are more students without clear academic goals in online courses than in face-to-face courses. Lastly, this study strived to find out if successful completion of online courses is dependent on the proportion of students' course loads that are taken online in a given term for both full-time and part-time students.

Research Questions and Hypotheses

Research Question 1: What is the difference between successful course completion rates of part-time students and full-time students at the community college level?

HO1: The proportion of courses successfully completed by part-time students is equal to the proportion of courses successfully completed by full-time students at the community college level.

HA1: The proportion of courses successfully completed by part-time students is less than the proportion of courses successfully completed by full-time students at the community college level.

Research Question 2: What is the difference between the proportion of part-time students in online courses and face-to-face courses at the community college level?

HO2: The proportion of online courses taken by part-time students is equal to the proportion of face-to-face courses taken by part-time students at the community college level.

HA2: The proportion of online courses taken by part-time students is higher than the proportion of face-to-face courses taken by part-time students at the community college level.

Research Question 3: What is the difference between successful course completion rates of students with no clear academic goals and students with clear academic goals at the community college level?

HO3: The proportion of courses successfully completed by students with no clear academic goals is equal to the proportion of courses successfully completed taken by students with clear academic goals at the community college level.

HA3: The proportion of courses successfully completed by students with no clear academic goals is less than the proportion of courses successfully completed by students with clear academic goals at the community college level.

Research Question 4: What is the difference between the proportion of students with no clear academic goals in online courses and face-to-face courses at the community college level?

HO4: The proportion of online courses taken by students with no clear academic goals is equal to the proportion of face-to-face courses taken students with no clear academic goals at the community college level.

HA4: The proportion of online courses taken by students with no clear academic goals is

higher than the proportion of face-to-face courses taken students with no clear academic goals at the community college level.

Research Question 5: For full-time students at the community college level, what is the relationship between successful completion of online courses and the proportion of coursework taken online in a given term?

HO5: For full-time students at the community college level, successful completion of online courses is independent of the proportion of coursework taken online in a given term.

HA5: For full-time students at the community college level, successful completion of online courses is dependent on the proportion of coursework taken online in a given term.

Research Question 6: For part-time students at the community college level, what is the relationship between successful completion of online courses and the proportion of coursework taken online in a given term?

HO6: For part-time students at the community college level, successful completion of online courses is independent of the proportion of coursework taken online in a given term.

HA6: For part-time students at the community college level, successful completion of online courses is dependent on the proportion of coursework taken online in a given term.

Research Design

This quantitative study had a descriptive research design and utilized archival data obtained from a community college in the western United States for the fall of 2016. A descriptive research design was appropriate for this study because the researcher sought to gain a deeper understanding of success in online education and to explore factors that contribute to

success (Adams & Lawrence, 2015). In addition, the researcher did not seek to determine a predictive relationship between independent variables and dependent variables as in correlational research and did not manipulate independent variables to determine effects on dependent variables as in experimental research (Adams & Lawrence, 2015). The fall of 2016 was chosen because it was the most recent semester in which all incomplete grades were processed. (Students have up to one year to make up incomplete work before a letter grade is assigned.) In addition, in the fall of 2017, the college began a three-semester transition from one learning management system to another for running online courses. Because of possible increased frustration during this time, results could have been biased for the fall of 2017.

Once the data was obtained from the college, it was organized and analyzed using Excel. Several proportions were calculated and compared using z-tests for comparing two proportions which allow researchers to test the equality of two proportions. In addition, chi-square tests for independence were performed which are used to test whether two variables are independent of each other. It was assumed that all samples were random for all statistical tests conducted, and it was assumed that all samples were independent of each other for all z-tests for comparing two proportions.

Target Population, Sampling Method (power) and Related Procedures

The target population for this study was community college students in the United States. According Ginder, Kelly-Reid, and Mann (2017), in the fall of 2016, approximately 5.9 million students were enrolled in community colleges in the United States of which 44% were male and 56% were female. This population was 6% Asian, 13% black or African American, 24% Hispanic or Latino, 48% white, 3% two or more races, 2% other race/ethnicity, and 4% unknown

race/ethnicity. In addition, 36% of these students were enrolled in school on a full-time basis and 64% were enrolled on a part-time basis.

Data for this research was obtained for the fall of 2016 from a community college in the western United States which has an enrollment of approximately 25,000 students. This college was chosen for this study because the college's office of research and planning was willing to work with the researcher who was employed there.   According to Adams and Lawrence (2015), the advantage of using archival data, or records that already exist, is that a large amount of data can be obtained that would not be possible by other sampling methods. In addition, there are less ethical considerations with archival data as the data is already publicly available or has previously been approved by an Institutional Review Board (IRB). A disadvantage of archival data, as pointed out by Adams and Lawrence, is that researchers must limit their research questions to the data available and may not be able to test all conceived hypotheses. Furthermore, when data is obtained by a secondary source, researchers do not have control over the quality of the data and assessing its authenticity is important (Adams, Raeside, & Khan, 2014).

Understanding these limitations, at the beginning of this dissertation study, the college's research and planning office was contacted and the data glossary was obtained. The data glossary lists names and definitions of each variable measured without disclosing any actual student data. It was determined that the research questions could be answered using the existing records and the data collection techniques produced results with high accuracy. Thus, the advantages of having a large data set outweighed the disadvantages of the constraints of the data. As stated by Adams and Lawrence (2015), having a large data set increases the power of a study, or essentially decreases the likelihood of Type II errors (i.e. null hypothesis will not be rejected

when it is false). For example, using the statistical power analysis program, G-Power (Faul, Erdfelder, Lang, & Buchner, 2007), when holding certain conditions constant for a z-test for comparing two proportions, a power of .80 can be achieved with a total sample size of 536 and a power of .99 can be achieved with a total sample size of 1362. The conditions used in this example were that the probability of a Type I error (i.e. rejecting the null hypothesis when it is true) was $\alpha = 0.05$, the first proportion was estimated to be 60.4%, the second proportion was estimated to be 70.6%, the two sample sizes were equal, and the test was one-tailed. (The proportions were taken from Johnson and Mejia's (2014) study in which 60.4% of online courses were successfully completed and 70.6% of face-to-face courses were successfully completed.) Although, the sample sizes necessary to achieve certain powers increase as the difference in the two estimated proportions decreases, using the large sample obtained from the college added significant power to the study. In addition, the power of the study was also increased because there was very little error in the research design used by the college to obtain the data. As described in the instrumentation section that follows, the data was obtained from trustworthy sources, some from a state database and some from a database compiled by the college's office of research and planning.

Instrumentation

The data was obtained from the database of a community college in the western United States for the fall of 2016. This college obtains demographic information, such as academic goals and gender, from a statewide community college application system. It obtains college-driven information, such as units attempted and grades, from an inhouse, self-developed information system.

Data Collection

The data was obtained from a community college in the western United States and was generated from the college's office of research and planning. Omitted from the data were records from students in the college's emeritus and adult education programs which offer non-credit bearing courses to senior citizens and adults working towards high school degrees, citizenship, and so on. Requested data was given in an Excel spreadsheet where each row anonymously represented one student's records for the fall of 2016. Student records included demographics (gender, age, and ethnicity), academic goals (transfer to a four-year institution, earn a certificate, improve basic skills, etc.), unit value of each course (approximate number of hours per week course meets), grade in each course (A, B, C, D, F, W, credit, or noncredit), and modality of each course (online, hybrid, or face-to-face).

Operationalization of Variables

Using the same classifications as Johnson and Mejia (2014) and Xu and Jaggars (2011), successful completion was defined as receiving a grade of A, B, C, or credit in a course; non-successful completion was defined as receiving a D, F, W, or no credit in a course. Also, per Johnson and Mejia, part-time status was defined as taking less than 12 units in a given term and full-time status was defined as taking 12 or more units in a given term. The college in which the data was obtained also classifies full-time/part-time status in this manner. In addition, students were considered to have clear academic goals if they had declared that they intended to earn or maintain a certificate, earn or maintain a degree (high school, community college, or four-year), or transfer to a four-year university. Lastly, online courses are courses taught fully online, face-to-face courses are courses taught fully on campus, and hybrid courses are courses with both online and face-to-face components.

Data Analysis Procedures

Once the data was received in an Excel spreadsheet from the college, it was analyzed for missing data. Only one student record was incomplete with no educational goal stated, so the entire student record was omitted from the sample. According to de Smith (2015), it is acceptable to ignore incomplete records from large data sets as long as less than 5% of the data is missing and the missing records are of a random nature.

For each student, total units enrolled were calculated to determine part-time or full-time status. In addition, total units taken online and total units taken face-to-face were calculated to determine the proportion of each student's load that was taken online and face-to-face. Students who took hybrid courses were removed from the data set because it was not possible to determine if each hybrid course was predominantly online or predominantly face-to-face. Since 7% of the students in the sample took hybrid courses, to ensure that removing these student records from the initial sample would not significantly affect test results, z-tests for comparing two proportions, which are used to test the equality of two proportions (Bluman, 2014), were run to see if there were any significant differences in successful completion rates of online courses between the initial sample and the adjusted sample, successful completion rates of face-to-face courses between the initial sample and the adjusted sample, and successful completion rates of all courses between the initial sample and the adjusted sample. No significant differences were found.

Z-tests for comparing two proportions, were used to determine if (a) part-time students successfully complete a lower proportion of courses than full-time students, (b) there is a greater proportion of part-time students in online classes than in face-to-face classes, (c) students without clear academic goals successfully complete a lower proportion of courses than students

with clear degree goals, and (d) there is a greater proportion of students without clear academic goals in online classes than in face-to-face classes. The statistical assumptions for z-tests for comparing two proportions are that the samples must be random, the two samples are independent of each other, and there must be at least five successes and five failures in each sample; no pre-tests for normality are necessary because when the statistical assumptions are met, the distribution of the data is considered approximately normally distributed (Bluman, 2014).

Chi-square tests for independence, which are used to test whether two variables are related in a single sample (Bluman, 2014), were used to determine if successful completion of online courses is dependent on the proportion of coursework taken online for both part-time and full-time students. The statistical assumptions for chi-square tests are that data is obtained from a random sample and all expected values must be five or more (Bluman, 2014). In addition, since chi-square tests are non-parametric, there are no underlying assumptions about the populations' distributions, so no pre-tests for normality were needed.

Limitations and Delimitations of the Research Design

There were several limitations in this study. First, the variable of academic goal was only asked of students when they first applied to the college and was not necessarily updated if students changed their goals; it is possible that there may be some inaccuracy in students' academic goals. Second, students taking hybrid courses were removed from the data set because it was not possible to determine if each hybrid course was predominantly online or predominantly face-to-face, and this omission may have skewed results. Third, secondary data was utilized from one semester at one institution and results may not be generalizable to all community colleges and all timeframes. Lastly, when researchers are not the primary collectors

of data, they cannot verify the authenticity of the data or the thoroughness of the data collection techniques.

The delimitations, or parameters set for this study, were restricted to successful completion of online courses with respect to the percentage of students' course loads that are online, enrollment status (part-time versus full-time), and academic goals. After conducting a thorough review of the literature, it was determined that information was lacking in these areas. Using concepts from Kember's (1989) theory of dropout from distance education, it was theorized that part-time students may have less academic and social integration and/or greater work and family commitments than full-time students. In turn, these qualities may make online classes more attractive to part-time students while also making it more likely that they do not succeed in these courses. Similarly, students without clear degree goals may have more outside obligations than students with clear degree goals. Possibly, online courses work better in these students' schedules, yet according to Kember, when students are not strongly committed to their goals, they are less likely to complete their distance education courses. Lastly, Kember stated that the more involved distance education students are in their academic communities, the more likely they will be to pass their distance education classes. Since academic integration in online classes may differ due to the proportion of coursework taken online, it was surmised that the pass rate of online coursework will vary due to this variable.

Internal and External Validity

Because this study was not attempting to determine a cause-effect or causal relationship, there is very little concern with internal validity. Possibly researcher bias could be an issue, but since the data was obtained from an institutional data set and analyzed using hypothesis testing techniques, researcher bias was minimal. However, there are some issues with external validity.

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Because the data set came from only one semester at one community college, the results may not be generalizable to other community colleges or other time periods.

Expected Findings

It was expected that this study would find that part-time students successfully complete their courses at a lower rate than full-time students and that proportionally there are more part-time students in online courses than in face-to-face courses. In addition, it was projected that the results of this study would show that students with no clear academic goals successfully complete their courses at a lower rate than students with clear academic goals and that proportionally there are more students without clear academic goals in online courses than in face-to-face courses. Lastly, it was anticipated that this study would show that successful completion of online courses in a given term is dependent on the proportion of coursework taken online.

Ethical Issues in the Study

Since the data used for this study was anonymously provided from an institutional database, there was no direct contact with students. Even though students were not made aware that their records were used for this study, no harm was or could be caused to any students due to the use of the dataset. In addition, the approval of the IRB at Concordia University – Portland was obtained before the data set was issued.

Summary

The purpose of this quantitative study was to add to the body of knowledge regarding success in online courses at the community college level. Even though student learning outcomes have been shown to be similar in online and face-to-face classes formats (Ashby et al., 2011; Cavanaugh & Jacquemin, 2015; Gulacar et al., 2013; Jones & Long, 2013; Means et al.,

2010; Stack, 2015), successful completion of online courses is significantly less than for face-to-face courses, especially at the community college level (Atchley et al., 2013; Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014). Guided by Kember's (1989) theory of dropout from distance education, it was surmised that part-time students and students without clear academic goals successfully complete courses at lower rates than their counterparts and that there are higher proportions of these students in online classes than in face-to-face classes. In addition, using concepts from Kember's theory, it was supposed that successful completion of online courses is related to the proportion of students' coursework that is taken online in a given term. Using z-tests for comparing two proportions and chi-square tests for independence, this study analyzed data from a community college in the western United States in an effort to test these hypotheses.

Chapter 4: Data Analysis and Results

Introduction

Given that successful completion rates of online courses at community colleges are significantly less than for face-to-face courses (Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014), the purpose of this study was to determine if this discrepancy is partly due to the types of students who enroll in online courses and the proportion of students' coursework that is taken online. The data for this quantitative study was obtained from the office of research and planning at a community college in the western United States for the fall of 2016. This college obtains demographic information, such as academic goals and gender, from a statewide community college application system. It obtains college-driven information, such as units attempted and grades, from an inhouse, self-developed information system. The requested data was downloaded into an Excel spreadsheet and contained records for 20,199 students. Having a large data set such as this adds power to a study and minimizes the likelihood of Type II errors (i.e. null hypothesis will not be rejected when it is false) (Adams & Lawrence, 2015).

The delimitations, or parameters set for this study, were restricted to successful completion of online courses with respect to the percentage of students' course loads that are online, enrollment status (part-time versus full-time), and academic goals. Z-tests for comparing two proportions, which are used to test the equality of two proportions (Bluman, 2014), were used to determine if (a) part-time students successfully complete a lower proportion of courses than full-time students, (b) there is a greater proportion of part-time students in online classes than in face-to-face classes, (c) students without clear academic goals successfully complete a lower proportion of courses than students with clear degree goals, and (d) there is a greater proportion of students without clear academic goals in online classes than in face-to-face classes.

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Chi-square tests for independence, which are used to test whether two variables are related in a single sample (Bluman, 2014), were used to determine if successful completion of online courses is dependent on the proportion of coursework taken online for both part-time and full-time students. The sampling procedures, types of statistical tests used, and the results of this quantitative study will be described in further detail in the following sections below: description of sample, summary of the results, detailed analysis, and chapter summary.

Description of the Sample

Initial sample. An Excel spreadsheet was provided by a community college in the western United States for the fall of 2016 consisting of all students who took credit-bearing courses that semester. This public college had a student population of approximately 25,000 students and offered over 300 associate degrees, certificates, and occupational skills awards. Each row of the Excel spreadsheet anonymously represented one student's records for the fall of 2016. Student records included demographics (see Table *1*), educational goals (see Table *2*), unit value of each course, grade in each course, and modality of each course (i.e. online, hybrid, or face-to-face). To maintain anonymity, student names, course IDs, type of course (i.e. mathematics or English), and instructor-identifying information were not provided. The spreadsheet contained records of 20,119 students who were taking a total of 53,299 credit-bearing courses. (Although, the student population of the college is approximately 25,000 students, omitted from the data download were records from students in the college's emeritus and adult education programs which offer non-credit bearing courses to senior citizens and adults working towards high school degrees, citizenship, etc.) As can be seen in Table 1, the majority of students in the sample were between the ages of 18 and 21, were more female than male, and were predominantly white.

Table 1

Demographics of Initial Sample

Characteristic	%	Characteristic	%
Gender		Ethnicity	
Female	54%	American Indian or Alaska Native	<1%
Male	44%	Asian	11%
Declined to state/unidentified	2%	Black or African American	2%
		Hispanic / Latino	26%
Age		Native Hawaiian or Pacific Islander	<1%
Under 18	5%	Two or More Races	5%
18-21	45%	White	54%
22-29	27%	Declined to state/unidentified	1%
30-39	10%		
40-49	6%		
Over 50	7%		

Educational Goal Classification. As can be seen in Table *2*, there were 15 educational goals in which students could be classified. Eight of these educational goals fell into the clear academic goals category and seven fell into the no clear academic goals category. For the purpose of this study, clear academic goals were defined as having the intention to earn or maintain a certificate, earn or maintain a degree (high school, community college, or four-year), or transfer to a four-year university. The distribution of educational goals of the sample along with their classifications is provided in Table 2.

Table 2

Educational Goal Distribution and Classification

Educational Goals Classification	%
Clear Academic Goals	
Obtain an AA and transfer to a 4-year institution	45%
Transfer to a 4-year institution without an AA	16%
4-year college student taking courses to meet 4-year college requirements	5%
Obtain a 2-year associate degree without transfer	4%
Earn a career technical certificate without transfer	4%
Complete credits for high school diploma or GED	1%
Obtain a 2-year technical degree without transfer	1%
Maintain certificate or license	1%
No Clear Academic Goals	
Undecided on goal	7%
Educational Development	5%
Prepare for a new career (acquire job skills)	4%
Advance in current job / career (update job skills)	3%
Discover/formulate career interests, plans, goals	2%
Improve Basic Skills	2%
Move from noncredit coursework to credit coursework	<1%

Adjusted sample for analysis. In the initial sample, one student record was incomplete with no educational goal stated, so the entire student record was omitted from the sample. In addition, 1,634, or 3%, of the courses were hybrid (containing both online and face-to-face components) which were taken by 1,484, or 7%, of the students. Because there was no way to determine if these hybrid courses were predominantly online or face-to-face, all 1,484 student records were also omitted from the data. The adjusted sample thus consisted of records of 18,634 students who were taking a total of 48,535 courses. To ensure that removing these student records from the initial sample would not significantly affect test results, z-tests for comparing two proportions were run to see if there were any significant differences in successful

completion rates of online courses between the initial sample and the adjusted sample, successful completion rates of face-to-face courses between the initial sample and the adjusted sample, and successful completion rates of all courses between the initial sample and the adjusted sample. As can be seen in Table 3, there were no significant differences between any of these proportions ($p>.10$).

Table 3

Results of Two-Tailed z-tests for Comparing Two Proportions: Initial Sample v. Adjusted Sample

Course Modality	Initial Sample Courses			Adjusted Sample Courses				
	Successfully Completed	Total Attempted	% Successfully Completed	Successfully Completed	Total Attempted	% Successfully Completed	z	p
Online	8,782	12,761	68.8%	8,262	11,993	68.9%	-0.121	0.904
Face-to-Face	29,215	38,904	75.1%	27,490	36,542	75.2%	-0.424	0.672
Hybrid	1,205	1,634	73.7%	0	0	N/A	N/A	N/A
Total	39,202	53,299	73.6%	35,752	48,535	73.7%	-0.402	0.688

Note: The initial sample includes all students taking credit-bearing courses in the fall of 2016 and the adjusted sample omitted students taking hybrid classes and the student with missing data.

Summary of the Results

Z-tests for comparing two proportions, which are used to test the equality of two proportions (Bluman, 2014), were used to test the following null hypotheses:

1. The proportion of courses successfully completed by part-time students is equal to the proportion of courses successfully completed by full-time students at the community college level.

2. The proportion of online courses taken by part-time students is equal to the proportion of face-to-face courses taken by part-time students at the community college level.

3. The proportion of courses successfully completed by students with no clear academic goals is equal to the proportion of courses successfully completed by students with clear academic goals at the community college level.

4. The proportion of online courses taken by students with no clear academic goals is equal to the proportion of face-to-face courses taken students with no clear academic goals at the community college level.

Chi-square tests for independence, which are used to test whether two variables are related in a single sample (Bluman, 2014), were used to test the following null hypotheses:

5. For full-time students at the community college level, successful completion of online courses is independent of the proportion of coursework taken online in a given term.

6. For part-time students at the community college level, successful completion of online courses is independent of the proportion of coursework taken online in a given term.

In all six hypotheses tests conducted, results were statistically significant ($p<.01$). Except for Hypothesis 3, all null hypotheses were rejected and all alternative hypotheses were supported. In the case of Hypothesis 3, if the left-tailed test had been reversed to be a right-tailed test, the null hypothesis would have been rejected and the alternative hypothesis would have been supported. In summary, there was sufficient evidence to conclude that (a) part-time students successfully complete their courses at a lower rate than full-time students and proportionally there more part-time students in online courses than in face-to-face courses, (b) students without clear academic goals successfully complete their courses at a higher rate than students with clear academic goals and proportionally there are more students without clear academic goals in online courses than in face-to-face courses, and (c) successful completion of

online courses is related to the proportion of coursework taken online in a given term for both full-time students and part-time students. Furthermore, additional findings were revealed in the data analysis process. For full-time students, a significant relationship was found between successful completion of face-to-face courses and the proportion of coursework taken online in a given term. For part-time students, no significant relationship was discovered between successful completion of face-to-face courses and the proportion of coursework taken online in a given term.

Detailed Analysis

Results of Hypothesis 1. The results of the left-tailed z-test for comparing two proportions for Hypothesis 1 ($z = -11.512$, $p < .001$) were statistically significant. There was sufficient evidence to support the alternative hypothesis that the proportion of courses successfully completed by part-time students (71.5%) is less than the proportion of courses successfully completed by full-time students (76.1%). Detailed results are presented in Table 4.

Table 4

Percentage of Courses Successfully Completed by Part-Time Students and Full-Time Students

Courses	Part-Time	Full-Time	z	p
Successfully Completed	18,184	17,568	-11.512	<.001
Not Successfully Completed	7,259	5,524		
Total Attempted	25,443	23,092		
% Successfully Completed	71.5%	76.1%		

Results of Hypothesis 2. The results of the right-tailed z-test for comparing two proportions for Hypothesis 2 ($z = 30.260$, $p < .001$) were statistically significant. There was sufficient evidence to support the alternative hypothesis that the proportion of online courses taken by part-time students (64.4%) is higher than the proportion of face-to-face courses taken

by part-time students (48.5%). Detailed results are presented in Table 5.

Table 5

Percentage of Online Courses and Face-to-Face Courses Taken by Part-Time Students

Student Type	Online Courses	Face-to-Face Courses	z	p
Part-Time	7,723	17,720	30.260	<.001
Full-Time	4,270	18,822		
Total	11,993	36,542		
% Part-Time	64.4%	48.5%		

Results of Hypothesis 3. The results of the left-tailed z-test for comparing two

proportions for Hypothesis 3 ($z = 2.759$, $p = .997$) were not statistically significant. There was

not sufficient evidence to support the alternative hypothesis that the proportion of courses

successfully completed by students with no clear academic goals (74.9%) is less than the

proportion of courses successfully completed taken by students with clear academic goals

(73.4%). In fact, if the alternative hypothesis had been reversed and had been right-tailed, the

results would have been statistically significant ($z = 2.759$, $p = .003$).   In summary, there was

sufficient evidence to conclude that the proportion of courses successfully completed by students

with no clear academic goals (74.9%) is greater than the proportion of courses successfully

completed by students with clear academic goals (73.4%). Detailed results are presented in

Table 6.

Table 6

Percentage of Courses Successfully Completed by Students with No Clear Academic Goals and Students with Clear Academic Goals

Courses	No Clear Academic Goals	Clear Academic Goals	z	p
Successfully Completed	6,151	29,601	2.759	.997
Not Successfully Completed	2,063	10,720		
Total Attempted	8,214	40,321		
% Successfully Completed	74.9%	73.4%		

Results of Hypothesis 4. The results of the right-tailed z-test for comparing two proportions for Hypothesis 4 (z = 11.011, p < .001) were statistically significant. There was sufficient evidence to support the alternative hypothesis that the proportion of online courses taken by students with no clear academic goals (20.2%) is higher than the proportion of face-to-face courses by taken students with no clear academic goals (15.9%). Detailed results are presented in Table 7.

Table 7

Percentage of Online Courses and Face-to-Face Courses Taken by Students with No Clear Academic Goals

Student Type	Online Courses	Face-to-Face Courses	z	p
No Clear Academic Goals	2,422	5,792	11.011	<.001
Clear Academic Goals	9,571	30,750		
Total	11,993	36,542		
% No Clear Academic Goals	20.2%	15.9%		

Results of Hypothesis 5. The results of the χ^2- test for independence for Hypothesis 5 (χ^2(3) = 69.940, p < .001) were statistically significant. There was sufficient evidence to support the alternative hypothesis that for full-time students, successful completion of online courses is dependent on the proportion of coursework taken online in a given term. Detailed results are

presented in Table 8.

Table 8

*Full-Time Students: Percentage of Online Courses Successfully Completed based on the
Percentage of Coursework Taken Online in a Given Term*

| | Percent of Units that are Online | | | | | | |
Online Courses	1 - 25%	26 - 50%	51 - 75%	76 - 100%	df	χ^2	*p*
Successfully Completed	753	928	547	689	3	69.940	<.001
Not Successfully Completed	244	382	257	470			
Total Attempted	997	1,310	804	1,159			
% Successfully Completed	75.5%	70.8%	68.0%	59.4%			

Results of Hypothesis 6. The results of the χ^2- test for independence for Hypothesis 6

($\chi^2(3) = 13.512$, *p* = .004) were statistically significant. There was sufficient evidence to support

the alternative hypothesis that for part-time students, successful completion of online courses is

dependent on the proportion of coursework taken online in a given term. Detailed results are

presented in Table 9.

Table 9

*Part-Time Students: Percentage of Online Courses Successfully Completed based on the
Percentage of Coursework Taken Online in a Given Term*

| | Percent of Units that are Online | | | | | | |
Online Courses	1 - 25%	26 - 50%	51 - 75%	76 - 100%	df	χ^2	*p*
Successfully Completed	36	767	479	4,063	3	13.512	.004
Not Successfully Completed	19	385	258	1,716			
Total Attempted	55	1,152	737	5,779			
% Successfully Completed	65.5%	66.6%	65.0%	70.3%			

Post-hoc analysis. Although no research questions were posed regarding relationships

between the successful completion of face-to-face courses and the proportion of coursework

taken online in a given term, two relationships were observed for full-time students during the

data analysis procedure. No relationships were found between the successful completion of face-to-face courses and the proportion of coursework taken online in a given term for part-time students. The results are presented below.

Full-time students who take online courses. A χ^2- test for independence ($\chi^2(3)=16.934$, p<.001) was conducted and the results indicate that for full-time students who take online courses, successful completion of face-to-face courses is dependent on the proportion of coursework taken online in a given term. The results were highly significant with p<.001. Detailed results are presented in Table 10.

Table 10

Full-Time Students who Take Online Courses: Percentage of Face-to-Face Courses Successfully Completed based on the Percentage of Coursework Taken Online in a Given Term

Face-to-Face Courses	Percent of Units that are Online				df	χ^2	*p*
	1 - 25%	26 - 50%	51 - 75%	76 - 100%			
Successfully Completed	2,675	1,503	336	43	3	16.934	<.001
Not Successfully Completed	720	455	133	21			
Total Attempted	3,395	1,958	469	64			
% Successfully Completed	78.8%	76.8%	71.6%	67.2%			

Full-time students in general. When full-time students who do not take online courses are included with full-time students who take online courses, a relationship still exists between successful completion of face-to-face courses and the proportion of coursework taken online in a given term. A χ^2- test for independence ($\chi^2(4)=18.032$, p=.001) was conducted and the results indicate that for all full-time students, successful completion of face-to-face courses is dependent on the proportion of coursework taken online in a given term. The results were highly significant with p=.001. Detailed results are presented in Table 11.

Table 11

All Full-Time Students: Percentage of Face-to-Face Courses Successfully Completed based on the Percentage of Coursework Taken Online in a Given Term

Face-to-Face Courses	Percent of Units that are Online					df	χ^2	p
	0%	1 - 25%	26 - 50%	51 - 75%	76 - 100%			
Successfully Completed	10,094	2,675	1,503	336	43	4	18.032	.001
Not Successfully Completed	2,842	720	455	133	21			
Total Attempted	12,936	3,395	1,958	469	64			
% Successfully Completed	78.0%	78.8%	76.8%	71.6%	67.2%			

Part-time students who take online courses. For the sake of consistency, additional results are being provided regarding a relationship between the successful completion of face-to-face courses and the proportion of coursework taken online in a given term for part-time students who take online courses. A χ^2- test for independence ($\chi^2(3)=2.821$, p=.420) was conducted and the results indicate that for part-time students who take online courses, successful completion of face-to-face courses is independent on the proportion of coursework taken online in a given term. Detailed results are presented in Table 12.

Table 12

Part-Time Students who Take Online Courses: Percentage of Face-to-Face Courses Successfully Completed based on the Percentage of Coursework Taken Online in a Given Term

Face-to-Face Courses	Percent of Units that are Online				df	χ^2	p
	1 - 25%	26 - 50%	51 - 75%	76 - 100%			
Successfully Completed	98	1,348	344	38	3	2.821	.420
Not Successfully Completed	31	503	125	21			
Total Attempted	129	1,851	469	59			
% Successfully Completed	76.0%	72.8%	73.3%	64.4%			

Part-time students in general. When part-time students who do not take online courses

are included with part-time students who take online courses, a relationship still does not exist between successful completion of face-to-face courses and the proportion of coursework taken online in a given term. A χ^2- test for independence ($\chi^2(4)=3.066$, p=.547) was conducted and the results indicate that for all part-time students, successful completion of face-to-face courses is independent on the proportion of coursework taken online in a given term.   Detailed results are presented in Table 13.

Table 13

All Part-Time Students: Percentage of Face-to-Face Courses Successfully Completed based on the Percentage of Coursework Taken Online in a Given Term

Face-to-Face Courses	Percent of Units that are Online					df	χ^2	p
	0%	1 - 25%	26 - 50%	51 - 75%	76 - 100%			
Successfully Completed	11,011	98	1,348	344	38	4	3.066	.547
Not Successfully Completed	4,201	31	503	125	21			
Total Attempted	15,212	129	1,851	469	59			
% Successfully Completed	72.4%	76.0%	72.8%	73.3%	64.4%			

Descriptive statistics. To add insight into the results presented above, descriptive statistics for the sample are presented in Table 14 to Table 18. The tables contain the mean, standard deviation, and median age, number of units, number of online units, and number of face-to-face units for all students, part-time students, full-time students, students without clear academic goals, and students with clear academic goals. These same descriptive statistics are provided for full-time students and part-time students based on the proportion of coursework taken online in a given term. Lastly, successful completion rates of online courses, face-to-face courses, and all courses by educational goal are provided.

Table 14

Part-Time Students v. Full-Time Students v. All Students

Measurement	Part-Time	Full-Time	All
Total # of Students	13,198	5,436	18,634
Age			
Mean	28.23	21.50	26.27
SD	12.46	6.41	11.46
Median	23.00	19.00	22.00
Number of Units			
Mean	5.79	14.18	8.24
SD	2.83	2.19	4.65
Median	6.00	14.00	8.00
Number of Online Units			
Mean	1.77	2.43	1.96
SD	2.48	3.65	2.88
Median	0.00	0.00	0.00
Number of Face-to-Face Units			
Mean	4.02	11.75	6.28
SD	3.48	4.09	5.08
Median	3.00	12.00	6.00

Note: Descriptive statistics are for adjusted sample. (Students taking hybrid classes and students with missing data were omitted.)

Table 15

Students with No Clear Academic Goals v. Students with Clear Academic Goals

Measurement	No Clear Academic Goals	Clear Academic Goals
Total # of Students	4,328	14,306
Age		
Mean	33.67	24.03
SD	15.45	8.78
Median	28.00	21.00
Number of Units		
Mean	5.69	9.01
SD	3.94	4.57
Median	4.00	9.00
Number of Online Units		
Mean	1.67	2.05
SD	2.56	2.97
Median	0.00	0.00
Number of Face-to-Face Units		
Mean	4.01	6.96
SD	4.30	5.10
Median	3.00	6.75

Note: Descriptive statistics are for adjusted sample. (Students taking hybrid classes and students with missing data were omitted.)

Table 16

Full-Time Students based on the Percentage of Coursework Taken Online in a Given Term

Measurement	Percent of Units that are Online				
	0%	1 - 25%	26 - 50%	51 - 75%	76 - 100%
Total # of Students	3,182	983	707	289	275
Age					
Mean	21.16	21.12	21.03	22.50	26.96
SD	6.28	5.62	5.34	6.08	9.86
Median	19.00	19.00	19.00	20.00	23.00
Number of Units					
Mean	14.02	14.46	14.80	14.11	13.50
SD	2.09	2.21	2.49	2.22	1.97
Median	13.50	14.00	14.25	13.00	13.00
Number of Online Units					
Mean	0.00	3.01	5.83	8.86	12.93
SD	0.00	0.39	1.17	1.44	1.97
Median	0.00	3.00	6.00	9.00	12.00
Number of Face-to-Face Units					
Mean	14.02	11.44	8.97	5.25	0.57
SD	2.09	2.12	2.16	1.55	1.20
Median	13.50	11.00	9.00	5.00	0.00

Note: Descriptive statistics are for adjusted sample. (Students taking hybrid classes and students with missing data were omitted.)

Table 17

Part-Time Students based on the Percentage of Coursework Taken Online in a Given Term

Measurement	Percent of Units that are Online				
	0%	1 - 25%	26 - 50%	51 - 75%	76 - 100%
Total # of Students	7,796	54	1,124	420	3,804
Age					
Mean	28.39	26.07	24.64	25.07	29.35
SD	13.42	9.65	8.62	8.88	11.45
Median	23.00	22.00	21.00	22.00	25.00
Number of Units					
Mean	5.84	8.54	8.24	8.56	4.63
SD	2.91	1.92	1.87	2.09	2.16
Median	6.00	8.50	8.125	9.00	3.00
Number of Online Units					
Mean	0.00	1.36	3.10	5.40	4.61
SD	0.00	0.39	0.45	1.31	2.14
Median	0.00	1.50	3.00	6.00	3.00
Number of Face-to-Face Units					
Mean	5.84	7.18	5.14	3.16	0.01
SD	2.91	1.84	1.76	1.04	0.13
Median	6.00	7.375	5.00	3.00	0.00

Note: Descriptive statistics are for adjusted sample. (Students taking hybrid classes and students with missing data were omitted.)

Table 18

Successful Completion of Courses by Educational Goal and Course Modality

Educational Goal	Online			Face-to-Face			All
	SC	TOT	% SC	SC	TOT	% SC	% SC
Obtain an AA and transfer to a 4-year institution	3676	5417	68%	14421	19269	75%	73%
Transfer to a 4-year institution without an AA	1307	1972	66%	5004	6698	75%	73%
Obtain a 2-year associate degree without transfer	377	585	64%	844	1110	76%	72%
4-year college student taking courses to meet 4-year college requirements	495	731	68%	1001	1338	75%	72%
Complete credits for high school diploma or GED	90	115	78%	151	198	76%	77%
Earn a career technical certificate without transfer	278	412	67%	1083	1378	79%	76%
Obtain a 2-year technical degree without transfer	121	165	73%	437	544	80%	79%
Maintain certificate or license	138	174	79%	178	215	83%	81%
Prepare for a new career (acquire job skills)	384	500	77%	831	1029	81%	79%
Advance in current job / career (update job skills)	406	514	79%	340	420	81%	80%
Discover/formulate career interests, plans, goals	114	157	73%	413	547	76%	75%
Educational Development	401	542	74%	806	1014	79%	78%
Move from noncredit coursework to credit coursework	3	3	100%	7	9	78%	83%
Undecided on goal	419	625	67%	1662	2347	71%	70%
Improve Basic Skills	53	81	65%	312	426	73%	72%

Note: Descriptive statistics are for adjusted sample. (Students taking hybrid classes and students with missing data were omitted.)
SC = Successful Completion, TOT = Total Units Attempted.

Summary

In order to examine successful completion of online courses with respect to the percentage of students' course loads that are online, enrollment status (part-time versus full-time), and academic goals, data was obtained from a community college in the western United States for the fall of 2016. The data consisted of records of all students taking credit-bearing courses that semester. After removing incomplete records and records of students who took hybrid courses, analysis was performed on records of 18,634 students who were taking a total of 48,535 courses. Six hypotheses were tested and all but one alternative hypothesis was supported with highly significant results ($p < .01$). For the alternative hypothesis that was not supported, if the test would have been a right-tailed test instead of a left-tailed test, the results would also have been highly significant ($p < .01$).

The results of the data analysis indicate that part-time students successfully complete their courses at a lower rate than full-time students and proportionally there more part-time students in online courses than in face-to-face courses. In addition, the evidence suggests that students without clear academic goals successfully complete their courses at a higher rate than students with clear academic goals and proportionally there are more students without clear academic goals in online courses than in face-to-face courses. Lastly, the data supports that successful completion of online courses is related to the proportion of coursework taken online in a given term for both full-time students and part-time students.

Through the data analysis, two other significant relationships were found that were not part of any research question or stated hypothesis. For full-time students who take online courses and for full-time students in general, there are highly significant relationships ($p < .01$) between successful completion of face-to-face courses and the proportion of coursework taken

online in a given term. For part-time students who take online courses and for part-time students in general, no significant relationships ($p > .10$) were found between successful completion of face-to-face courses and the proportion of coursework taken online in a given term.

Chapter 5: Discussion and Conclusion

Introduction

The objective of this final chapter is to summarize and discuss the results of this dissertation study. Not only will the results be interpreted, they will also be related to the literature. Implication on policy, practice, and theory will be given. In addition, the limitations of the study will be examined along with recommendations for further research. Following this introduction, the organization of this chapter is as follows: summary of the results, discussion of the results, discussion of the results in relation to the literature, limitations, implication of the results for practice, policy and theory, recommendations for further research, and conclusion.

Summary of the Results

The purpose of this quantitative study was to determine if the discrepancy in successful completion rates of online and face-to-face courses at community colleges, as found by Johnson and Mejia (2014) and Xu and Jaggars (2011, 2014), is partly due to the types of students who enroll in online courses and the proportion of students' coursework that is taken online in a given term. Using results from the literature review and principles from Kember's (1989) theory of dropout from distance education, the following research questions were developed:

1) What is the difference between successful course completion rates of part-time students and full-time students at the community college level?

2) What is the difference between the proportion of part-time students in online courses and face-to-face courses at the community college level?

3) What is the difference between successful course completion rates of students with no clear academic goals and students with clear academic goals at the community college level?

4) What is the difference between the proportion of students with no clear academic goals in online courses and face-to-face courses at the community college level?

5) For full-time students at the community college level, what is the relationship between successful completion of online courses and the proportion of coursework taken online in a given term?

6) For part-time students at the community college level, what is the relationship between successful completion of online courses and the proportion of coursework taken online in a given term?

To answer these research questions, data was obtained from the office of research and planning at a community college in the western United States for the fall of 2016. Six hypothesis tests were conducted and results for all were highly significant ($p<.01$). Because directional results were anticipated in the first four hypotheses, one-tailed tests were conducted using z-tests for comparing two proportions. All results were as expected except for in the third hypothesis test: the alternative hypothesis of the left-tailed test was not supported ($p>.99$), but when the hypothesis test was conducted using a right-tailed test, the results were highly significant ($p<.01$). The fourth and fifth hypotheses were conducted using chi-square tests for independence and the results were as expected. To summarize, the evidence from the data supported the following conclusions:

1) The proportion of courses successfully completed by part-time students is less than the proportion of courses successfully completed by full-time students.

2) The proportion of online courses taken by part-time students is higher than the proportion of face-to-face courses taken by part-time students.

3) The proportion of courses successfully completed by students with no clear academic

goals is greater than the proportion of courses successfully completed by students with clear academic goals.

4) The proportion of online courses taken by students with no clear academic goals is higher than the proportion of face-to-face courses taken students with no clear academic goals.

5) For full-time students, successful completion of online courses is dependent on the proportion of coursework taken online in a given term.

6) For part-time students, successful completion of online courses is dependent on the proportion of coursework taken online in a given term.

In addition, although this study's intention was to add to the knowledgebase regarding success in online courses, relationships were also observed regarding success in face-to-face courses. It was found that highly significant relationships ($p<.01$) existed between the proportion of coursework taken online in a given term and success in face-to-face courses for full-time students who take online courses and also for full-time students in general, whether they took online courses or not. For part-time students, no significant relationships were found. To summarize, from the evidence, the following conclusions were made:

1) For full-time students who take online courses, successful completion of face-to-face courses is dependent on the proportion of coursework taken online in a given term.

2) For all full-time students, successful completion of face-to-face courses is dependent on the proportion of coursework taken online in a given term.

3) For part-time students who take online courses, successful completion of face-to-face courses is independent of the proportion of coursework taken online in a given term.

4) For all part-time students, successful completion of face-to-face courses is

independent of the proportion of coursework taken online in a given term.

Discussion of the Results

Research questions 1 and 2. With respect to the first and second research questions, as can be seen in Table 4 and Table 5, the data supported the conjecture that part-time students successfully complete their courses (71.5%) at a lower rate than full-time students (75.1%) and proportionally there are more part-time students in online courses (64.4%) than in face-to-face courses (48.5%).   One may surmise from these results that part of the reason successful completion of online courses is lower than for face-to-face courses in community colleges is that there is a much higher proportion of part-time students taking online courses than face-to-face courses, and part-time students in general to do not perform as well academically as full-time students. Essentially, it can be concluded that an unequal distribution of part-time and full-time students in online and face-to-face courses is contributing to lower successful completion rates of online courses in community colleges.

Research questions 3 and 4. The results of the hypothesis tests conducted to answer the third and fourth research questions were not as expected. As can be seen in Table 6 and Table 7, although the data supported that proportionally there are more students without clear academic goals in online courses (20.2%) than in face-to-face courses (15.9%), it did not support the hypothesis that students with no clear academic goals successfully complete their courses (74.9%) at a lower rate than students with clear academic goals (73.4%). Although the difference in the latter two numbers is only 1.5%, the difference was still significant. Thus, it can be concluded that a higher proportion of students without clear academic goals in online classes may slightly be contributing positively to the success rates in online classes instead of negatively as originally theorized.

Research questions 5 and 6. While analyzing the data to answer the fifth and sixth research questions, not only were significant results found that could help answer the research questions, other results were observed that warranted further examination. Thus, post-hoc analysis was performed. A discussion of these results has been broken into four categories below.

Full-time students who take online courses. As can be seen in Table 8, for full-time students who took online courses, a significant relationship was found between successful completion of online courses and the proportion of coursework taken online in a given term. Of interest is that this also extended to successful completion of face-to-face courses. Through post-hoc analysis, for full-time students who took online courses, a significant relationship was found between successful completion of face-to-face courses and the proportion of coursework taken online in a given term (see Table 10). Furthermore, as the proportion of coursework taken online increased, success rates in both online classes and face-to-face classes decreased. What may be inferred from these results is that as full-time students who take online classes take a higher proportion of their coursework online, they perform poorer in all of their classes regardless of modality.

All full-time students. As can be seen in Table 11, when all full-time students were looked at, both those that took online courses and those that did not, there was still a significant relationship between successful completion of face-to-face courses and the proportion of coursework taken online. Through further observation of the results, the percentage of face-to-face courses successfully completed by students who took 0% of their coursework online (78.0%) and by students who took 1–25% of their coursework online (78.8%) seemed similar. Thus, a two-tailed z-test for comparing two proportions was conducted and the results indicated

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that there was no significant difference in the proportion of face-to-face courses successfully

completed by students that took no online courses and by students who took 1–25% of their

courses online (z = -.957, p = .339). Thus, it can be concluded that for full-time students, taking

a small portion of their coursework online does not take away from how they perform in their

face-to-face courses.

  Part-time students and successful completion of online courses. As can be seen in

Table 9, for part-time students who took online courses, there was a significant relationship

between successful completion of online courses and the proportion of coursework taken online

in a given term. However, this result was due to only one category significantly differing from

the other three. The proportion of online courses successfully completed by part-time students

who took 76–100% of their coursework online was 70.3%, which was noticeably larger than for

the 1–25%, 26–50%, and 51–75% categories whose successful online course completion rates

were 65.5%, 66.6%, and 65.0%, respectively. Because of this noticeable difference, the 76–

100% category was temporarily omitted from the data and a chi-square test for independence

was run on the remaining three categories, and no significant relationship was found between

successful completion of online courses and the proportion of coursework taken online in a given

term for these part-time students ($\chi^2(2)$ = 0.510, p = .775). In addition, as can be seen in Table

17, the median number of units attempted by part-time students in the 1–25%, 26–50%, 51–75%,

and 76–100% categories were 8.5, 8.125, 9.0, and 3.0, respectively, and the median number of

online units attempted were 1.5, 3.0, 6.0, and 3.0, respectively. Since three units is a common

unit value of one course, these numbers indicate that the majority of students in the 76–100%

category were only taking one class and this one class was online, whereas the other three

categories of students were attempting to juggle more courses. In summary, although the

evidence suggests that a significant relationship exists between successful completion of online classes and the proportion of coursework taken online in a given term for part-time students who take online classes, the evidence also suggests that this relationship is due to the set of students who take only one course and take it online. There does not appear to be a significant relationship between success in online courses and the percentage of coursework taken online for part-time students who are taking more than one course.

Part-time students and successful completion of face-to-face courses. When successful completion of face-to-face classes with respect to the percentage of coursework taken online in a given term was analyzed for part-time students, no significant relationships were found. As can be seen in Table 12 and Table 13, even though the percentage of face-to-face courses successfully completed by part-time students in the 76–100% category was 64.4% and was noticeably smaller than for the 0%, 1–25%, 26–50%, and 51–75% categories, whose successful completion rates were 72.4%, 76.0%, 72.8%, and 73.3%, respectively, there were only 59 total courses in the 76–100% category. This number was too small to produce significant results in both chi-square tests conducted, one that only included part-time students who took online courses and one that included all part-time students. Therefore, it can be concluded that for part-time students, there is not a significant relationship between successful completion of face-to-face courses and the percentage of coursework taken online in a given term.

Discussion of the Results in Relation to the Literature

Research questions 1 and 2 and the literature. The results pertaining to the first and second research questions were as expected and are in line with the literature reviewed. In the development of these questions, it was hypothesized that part-time students have greater family and/or work commitments than full-time students and therefore have less academic and social

integration in their college communities. In addition, because of their outside obligations, online classes would be more appealing to these students. Although students were not asked about their commitments outside of school, the results of the study supported the theory that part-time students successfully complete a lower proportion of their courses compared to full-time students and that proportionally there are more online courses taken by part-time students than for face-to-face courses. These results are in line with Kember's (1989) theory of dropout from distance education. Kember stated that distance education courses of the 1980s were predominantly taken by part-time students with family and/or work commitments and when these students did not have support from these entities, they did not fare well. In addition, both Fetzner (2013) and Park and Choi (2009) found that one of the main reasons students drop online courses is that it becomes too difficult to balance school with work and family.

Research questions 3 and 4 and the literature. The results of the fourth research question were as expected, but the results of the third research question were not. The hypotheses developed to test the third research question were based on Kember's (1989) theory as well as the results obtained in the studies of Muller (2008), Shaw et al. (2016), and Johnson and Mejia (2014). Kember's theory stated that when students have strong commitments to their goals, they are more likely to complete their distance education courses. Both Muller and Shaw et al. found that students were more likely to persist in online courses when their reasons for seeking degrees were well-defined, and Johnson and Mejia's study found that of students seeking degrees, certificates, or transfer, the likelihood that they completed these degrees went up as the number of online courses taken went up. Thus, it was hypothesized that a higher proportion of students without clear academic goals in online classes compared to face-to-face classes may be contributing to lower success rates in online classes, because students without clear academic

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goals are less likely to complete their courses. Clear academic goals were defined as working towards degrees, certificates, or transfer. When the data used for this study was analyzed, it supported the hypothesis that there were proportionally more students without clear academic goals in online classes than in face-to-face classes, but the unexpected result was that the data did not support the hypothesis that students without clear academic goals successfully complete their courses at a lower rate than students with clear academic goals. In fact, the results supported the opposite conjecture that students without clear academic goals complete their courses at a higher rate than students with clear academic goals.

This unexpected result may be explained by the same literature used to develop the hypotheses used to answer the third and fourth research questions. When the data was delved into further, it was discovered that some of the highest pass rates in overall courses were by students who were not working towards degrees, certificates, or transfer, but who were taking courses to prepare for a new career, advance in a current career, or for educational development which is to take courses purely for intellectual or cultural reasons (see Table 18). Muller's (2008) and Shaw et al.'s (2016) studies were not applicable to these students because their studies were conducted at degree-granting universities and not community colleges where students can take courses while not working towards degrees. In addition, Johnson and Mejia's (2014) study could not be applied to these students because they did not look to see if taking online courses helped students reach their goals when these students were not working towards degrees, certificates, or transfer. However, Kember's (1989) theory may be used to understand the unexpected result. His theory stated that students with strong goal commitments are more likely to complete distance education courses. When one considers that students working towards new careers or advancement in their current careers would have strong commitments to

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these goals, it is understandable that these students had high completion rates of their courses. In addition, Kember's theory also stated students who are intrinsically motivated, who complete courses for the enjoyment or challenge of them, do well in distance education courses, which explains why students who were taking courses for intellectual or cultural reasons had one of the highest pass rates in their overall courses. In summary, in the development of the hypotheses used to test the third and fourth research questions, it was not taken into account the motivations of students who were taking courses to improve their career situations and of students who were taking courses for the pure pleasure of learning. Therefore, it is understandable that the hypothesis that students without clear academic goals would successfully complete courses at a lower rate than students with clear academic goals was not supported.

Research questions 5 and 6 and the literature. The results that stemmed from the fifth and sixth research questions were intriguing. In this study, for full-time students, not only was it found that the proportion of coursework taken online in a given term was related to successful completion of online courses, it was also found that it was related to successful completion of face-to-face courses. In addition, as can be observed in Table 8 and Table 10, for full-time students who take online classes, as the percentage of coursework taken online in a given term increased, the completion rates of both online and face-to-face courses decreased. Even though no studies in the literature reviewed looked at online education in this manner, the results may be explained by Kember's (1989) theory of dropout from distance education along with the results from the studies of Fetzner (2013), Park and Choi (2009), and James et al. (2016). Although work and family commitments were not obtained for this study, an overall assumption based on the concepts of Kember's theory has been that online courses are more attractive to students with family and/or work commitments and these commitments make it less likely that students will

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pass their courses when these students do not have support. Fetzner and Park and Choi also found that one of the primary reasons students drop online courses is that they find it too difficult to balance school with family and work commitments. Thus, it may be surmised that the more online courses full-time students take, the more outside obligations they have which gives them less academic and social integration in their college communities and less time to devote to both their online and face-to-face classes. This in turn makes it less likely that these courses will be passed. This theory is also somewhat supported by the findings of James et al. who found that fully-online, first-year students at the community college level were less likely to continue into a second year than their counterparts.

Another interesting observation was made due to the results obtained for the fifth and sixth research questions. Full-time students that took no online courses passed their face-to-face courses at a rate of 78.0% and full-time students who took 1–25% of their courses online passed their face-to-face courses at a rate of 78.8% (see Table 11). Even though there was not a significant difference between the two percentages, it is interesting that in this sample, full-time students who took a small portion of their courses online did slightly better than students who took no online courses. Although a larger study would be needed to see if a significant difference could be obtained, the results are in line with studies that indicate that taking some coursework online helps students reach their goals (Fike & Fike, 2008; Johnson & Mejia, 2014; Pontes & Pontes, 2012; Shea & Bidjerano, 2014, 2016). As can be seen in Table *16*, the median number of units attempted by full-time students taking no online courses was 13.5 and the median number of units taken by full-time students taking 1–25% of their courses online was 14.0. This may indicate that full-time students who are taking a small portion of their courses online are taking more units than full-time students who take no online courses

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which may allow them to reach their goals sooner. If this is the case, it may be surmised that full-time students who take a small portion of their coursework online have stronger commitments to their goals than full-time students who take no online courses. Per Kember (1989), students with strong commitments to their goals are more likely to complete them which may explain why in this sample there was a slight increase in the overall pass rates of face-to-face courses by full-time students who took some of their work online as compared to full-time students who took none online.

When the results for part-time students were analyzed, a relationship was found between the percentage of coursework taken online in a given term and successful completion of online courses and no relationships were found between the percentage of coursework taken online in a given term and successful completion of face-to-face courses. As previously discussed, when part-time students who took 76–100% of their units online were removed from the data, it was found that no relationship existed between the percentage of units that are taken online in a given term and success in online courses. Part-time students in the 76–100% category predominantly took only one course (median units attempted was 3.0) and it was online (median online units was 3.0), where the categories of 1–25%, 26–50%, and 51–75% had median units attempted that were similar to each other at 8.50 units, 8.125 units, and 9.00 units, respectively, indicating these students were juggling more than one class. This may indicate that the students in the 76–100% category had clear reasons for taking their one course and therefore, per Kember (1989), were more likely to pass that course. With respect to the other three categories of part-time students, these students most likely were attempting more courses while at the same time juggling work and/or family commitments. According to Fetzner (2013) and Park and Choi (2009), outside obligations such as these are the primary reason students do not succeed in online courses.

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Kember also stated when students such as these do not have support, they are more likely to drop their distance education courses.

Limitations

Because this study utilized archival data for the fall of 2016 from a community college in the western United States, the results may not be generalizable to all community colleges and all timeframes. In addition, when researchers are not the primary collectors of data, they cannot verify the authenticity of the data or the thoroughness of the data collection techniques. Also, because it was not possible to determine if each hybrid course was predominantly online or face-to-face, students taking hybrid courses were removed from the data set, and this omission may have skewed results. Furthermore, the variable of academic goal was only asked of students when they first applied to the college and was not necessarily updated if students changed their goals; it is possible that there may have been some inaccuracy in students' academic goals.

Implication of the Results for Practice, Policy, and Theory

The findings in this study will add a dimension to the existing theory regarding successful completion of online and face-to-face courses at the community college level. The results suggest that full-time students who take 25% or less of their courses online fare better in both their face-to-face and online courses than full-time students who take more than 25% of their courses online, and as the percentage of coursework online increases, the success rates of both face-to-face and online courses decreases. In addition, the findings imply that part-time students successfully complete their courses, both online and face-to-face, at lower rates than full-time students.

These results of this study could also be used to inform practice and policy at the community college level. Possibly, programs could be put in place to reach out to full-time

students who take more than 25% of their course loads online and to all part-time students.

These programs could not only include time with academic advisors, but possibly meeting times, either online or face-to-face, could be established with groups of students to discuss issues and concerns. This extra connection with advisors and other students would increase both academic and social integration for these students in their college communities which has been shown to increase persistence in courses (Kember, 1989; Lint, 2013; Liu et al., 2009; Muller, 2008; Tinto, 1975, 1982). In addition, community colleges could institute policies that require students to complete certain tasks, such as watching videos about time management or meeting with a counselor, before allowing them to enroll in numerous online courses. Measures such as these could inform students of the drawbacks of taking a high proportion of coursework online and perhaps influence their scheduling decisions or studying techniques.

Recommendations for Further Research

Because the results regarding clear academic goals were not as expected, it is recommended that further research be conducted in this area at the community college level. Given that there were 15 educational goal classifications (see Table 18), it was difficult to determine what should be classified as working towards a degree, certificate, and/or transfer. Upon review of the possible educational goals and successful completion rates of courses, it is recommended that the goals be split into six categories as follows: working towards a college degree (obtain AA and transfer, transfer without an AA, obtain an AA, 4-year college students), working towards a high school degree (students taking courses for a high school diploma or GED), working towards a technical certificate or degree (obtain 2-year technical degree or 2-year technical certificate), taking classes for employment reasons (maintain certificate or license, preparing for a new career, advance in current job), personal reasons (develop career interest or

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educational development), and other (move from noncredit coursework to credit, undecided on goal, and improve basic skills). Possibly, chi-square tests for independence could be conducted to see if any relationships exist between type of academic goal and successful completion of online courses, face-to-face courses, and courses overall.

In addition, to add insight into the significant results obtained in this study, it is recommended that a qualitative study be conducted to learn more about why full-time students who take more than 25% of their course loads online and part-time students do not succeed at the same rates in their courses as their counterparts. Finding out more about work hours, family obligations, and personal situations could further explain why the results turned out as they did.

Conclusion

The purpose of the quantitative study was to add to the knowledgebase regarding success in online education at the community college level. In the past few decades, online education has become a significant component of higher education, with over 6 million students currently taking some or all of their coursework online (Allen & Seaman, 2016), and it is in the community colleges where online enrollments have grown most rapidly (Xu & Jaggars, 2014). Not only have online courses enabled many nontraditional students with family and/or work commitments to work towards college diplomas, they also have given traditional on-campus students more flexibility in scheduling their classes (Shea & Bidjerano, 2016). Unfortunately, this increase in online course offerings has not been coupled with an increase in success. At the community college level, successful completion rates in online courses are significantly lower than in face-to-face courses (Johnson & Mejia, 2014; Xu & Jaggars, 2011, 2014). Because community colleges do not want to decrease access to college, which decreasing online course offerings would do, it is important to learn more about what contributes to success in online

courses. Therefore, this dissertation study sought to discover if the discrepancy between successful completion rates of online and face-to-face courses at the community college level is partially due to the type of students who enroll in online courses and the proportion of students' coursework that is taken online in a given term.

The conceptual framework used to drive this study was Kember's (1989) theory of dropout from distance education. Using concepts from Kember's theory, six research questions and six sets of hypotheses were developed. Using archival data from a community college in the western United States for the fall of 2016, significant results were obtained for five of the hypothesis tests ($p<.01$) with a significant result ($p<.01$) obtained for the other hypothesis test when it was run as a right-tailed test instead of a left-tailed test. To briefly summarize the findings, the results were as expected for all the research questions except for the third. The data supported that (a) part-time students successfully complete their courses at a lower rate than full-time students (expected conclusion) and proportionally there are more part-time students in online courses than in face-to-face courses (expected conclusion), (b) students without clear academic goals successfully complete their courses at a higher rate than students with clear academic goals (unexpected conclusion) and proportionally there are more students without clear academic goals in online courses than in face-to-face courses (expected conclusion), and (c) successful completion of online courses is related to the proportion of coursework taken online in a given term for both full-time students (expected conclusion) and part-time students (expected conclusion).

In addition, during the data analysis process, further observations were made. The evidence supported that the proportion of coursework taken online in a given term is related to successful completion of face-to-face courses for full-time students who take online courses

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($p<.01$) and also for full-time students in general ($p<.01$). The same conclusions were not supported for part-time students ($p>.10$). In addition, it was observed that for full-time students who took online courses, as the percentage of coursework taken online increased, the success rates in both online and face-to-face courses decreased. Also, it was discovered that there was no significant difference in successful completion rates of face-to-face courses between full time students who took no online courses and full-time students who took 1–25% of their courses online.

Although the results of this study, whether they were expected, unexpected, or observed during the analytical process, have added insight into the issue of success in online courses at the community college level, further research is recommended. A different approach to how educational goals are related to successful completion of online classes in a given term is warranted since the results regarding clear academic goals in this study were unexpected. In addition, a qualitative study as a follow up to this study could gain valuable information regarding students' family and work commitments, motivation factors, and so on, as the quantitative nature of this study was unable to delve into the why and how of the results achieved. Also, it is suggested that information gained from the results be used to inform policy and procedure at the community college level. In this study, the lowest successful completion rates in online courses were attained by part-time students and by full-time students who took more than 25% of their coursework online. It would be beneficial if community colleges were to create programs that reach out to these at-risk students.

In conclusion, the main goal of this dissertation study was to fill a gap in the literature regarding success in online education. After a thorough review of the literature, it was discovered that not much was known regarding success in online classes with respect to the

percentage of online and face-to-face courses taken by part-time students, full-time students, and students with and without clear academic goals. In addition, few studies had touched on the relationship between the proportion of coursework taken online in a given term and successful completion of online courses. Through careful development of meaningful research questions and with the use of a large data set from a community college in the western United States, more is now known in these areas. Hopefully, the results from this study will add a new dimension to the literature regarding success in online education.

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Appendix: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously- researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of Academic Integrity:

> As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does "fraudulent" mean?

> "Fraudulent" work is any material submitted for evaluation that is falsely or improperly presented as one's own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate's final work without full and complete documentation.

What is "unauthorized" assistance?

> "Unauthorized assistance" refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

> - Use of unauthorized notes or another's work during an online test
> - Use of unauthorized notes or personal assistance in an online exam setting
> - Inappropriate collaboration in preparation and/or completion of a project
> - Unauthorized solicitation of professional resources for the completion of the work.

Appendix: Statement of Original Work (Continued)

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University- Portland Academic Integrity Policy during the development and writing of this dissertation.

2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*

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