

The Interaction of Faculty Status and Course Delivery Method on Student Retention and Success in General Education Courses at a Community College

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Abstract

The purpose of this study was to determine if there was a significant difference in student success and student persistence to the end of general education courses taught by full-time and adjunct faculty. The study also examined differences in student success and student persistence in face-to-face courses and online courses taught by full-time and adjunct faculty. Final course grades and student persistence data in the 2013-2014 and 2014-2015 academic years from a Midwestern community college were analyzed.

The study revealed significant findings related to final student grades. However, faculty status did not have a negative impact on student success. Results of the study revealed higher final course grades in courses taught by adjunct faculty. Student persistence was not negatively impacted by course delivery method, although students did persist at a higher rate in courses taught online by full-time faculty.

Dedication

This dissertation is dedicated to my children, Ellie and Carson, who everyday remind me of the importance of laughter, love, and taking time for the small stuff. I love you more!

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Table of Contents

Table of Contents

Abstract	ii
Dedication	iii
Acknowledgements	iv
Table of Contents	vi
List of Tables	ix
List of Figures	xii
Chapter One: Introduction	1
Background	1
Statement of the Problem	2
Purpose of the Study	3
Significance of the Study	3
Delimitations	3
Assumptions	4
Research Questions	5
Definition of Terms	7
Overview of the Methodology	7
Organization of the Study	8
Chapter Two: Review of the Literature	9
History and Growth of Adjunct Faculty Use	9
Effect of Faculty Status on Student Outcomes	13
Online Education	16

Grade Inflation	19
Summary	22
Chapter Three: Methods	23
Research Design.....	23
Population and Study Group.....	24
Data Collection Procedures.....	26
Data Analysis and Hypothesis Testing	27
Limitations	32
Summary.....	32
Chapter Four: Results	33
Descriptive Statistics.....	33
Student Demographics	33
Course Data	34
Hypothesis Testing.....	38
Summary	53
Chapter Five: Interpretation and Recommendations	54
Study Summary.....	54
Overview of the Problem	54
Purpose Statement and Research Questions	55
Review of the Methodology.....	58
Major Findings.....	58
Findings Related to the Literature.....	59
Conclusions.....	61

Implications for Action	61
Recommendations for Future Research	62
Concluding Remarks.....	62
References.....	64
Appendix.....	73
Appendix A. Baker University IRB Approval.....	74

List of Tables

Table 1. Number of Full-time and Part-time Faculty in Post-Secondary Institutions	10
Table 2. Number of Full-time and Part-time Faculty by Institution Type in 2013.....	12
Table 3. Definition of Variables	24
Table 4. Frequency Tables for Age, Gender, and Ethnicity	25
Table 5. Summary Student Demographic Characteristics with Sample Size and Percent of Total.....	33
Table 6. Frequency of Sections per Semester Disaggregated by Course Delivery Method	35
Table 7. Frequency of Sections Taught by Faculty per Semester including Percentage of Adjunct Faculty.....	35
Table 8. Percent of Sections Taught by Adjunct Faculty Disaggregated by Course Delivery Method	37
Table 9. Summary Analysis t-Test of Significance for all RQ1 Hypotheses (H1, H2, H3)	40
Table 10. Summary of Chi-Square Analysis Results for Faculty Status vs. Student Persistence in EG101 when Alpha = .05	41
Table 11. Summary of Chi-Square Analysis Results for Faculty Status vs. Student Persistence in MA135 when Alpha = .05.....	42
Table 12. Summary of Chi-Square Analysis Results for Faculty Status vs. Student Persistence in BS160 when Alpha = .05	43

Table 13. Summary of Two-Way ANOVA and Interaction Effects Results for Academic Success Scores by Faculty Status and Course Delivery Method; Faculty Status * Course Delivery Method; Faculty Status Factors when Alpha =.05	45
Table 14. Descriptive Statistics for the Results of the Test for H7 Academic Success Scores for the Interaction of Faculty Status * Course Delivery Method in EG101.....	46
Table 15. Summary of Two-Way ANOVA and Interaction Effects Results for Academic Success Scores by Faculty Status and Course Delivery Method; Faculty Status * Course Delivery Method; Faculty Status Factors when Alpha =.05	47
Table 16. Descriptive Statistics for the Results of the Test for H8 Academic Success Scores for the Interaction of Faculty Status * Course Delivery Method in MA135.....	47
Table 17. Summary of Two-Way ANOVA and Interaction Effects Results for Academic Success Scores by Faculty Status and Course Delivery Method; Faculty Status * Course Delivery Method; Faculty Status Factors when Alpha =.05	48
Table 18. Descriptive Statistics for the Results of the Test for H9 Academic Success Scores for the Interaction of Faculty Status * Course Delivery Method in BS160	49
Table 19. Summary Two-Way ANOVA and Interaction Effects Results for Student Persistence by Course Delivery Method and Faculty Status and Course Delivery Method * Faculty Status Factors when Alpha =.05	51

Table 20. Summary Two-Way ANOVA and Interaction Effects Results for Student Persistence by Course Delivery Method and Faculty Status and Course Delivery Method * Faculty Status Factors when Alpha =.0552

Table 21. Summary Two-Way ANOVA and Interaction Effects Results for Student Persistence by Course Delivery Method and Faculty Status and Course Delivery Method * Faculty Status Factors when Alpha =.0553

List of Figures

Figure 1. Educational Appropriation per Full-time Equivalent Percent Change by State, Fiscal 2009-2014.....	11
Figure 2. Recent GPA trends nationwide	21
Figure 3. Changes in community college grade distribution nationwide	21

Chapter One

Introduction

According to data collected by the American Association of Community Colleges (AACC) 46% of all U.S. undergraduates attend 1,123 community colleges in the United States (2015). Courses are delivered at these institutions by a blend of full-time faculty and adjunct, or part-time, instructors. The Adjunct Project (2012) estimated only one-third of the instructors at community colleges are employed full-time. The impact of utilizing adjunct faculty on student success and persistence should be considered since the mission of educational institutions is helping students to achieve their career goals (Rossol-Allison & Beyers, 2011).

Background

Increasingly, community colleges utilize adjunct faculty to fill gaps in the course schedule. The financial impact of budget cuts in recent years is a major reason higher education institutions cite for hiring part-time faculty (Rossol-Allison & Alleman Beyers, 2011). However, some part-time faculty are hired due to their expertise in a certain subject matter; for example, a certified welder working in the field may teach a welding class.

According to Ehrenberg (2012), students who take a majority of their classes from adjunct instructors are more likely to drop out. Jacoby (2006) and Jaeger and Eagan (2009), found a decrease in graduation rates when large numbers of adjunct faculty were utilized. These findings seem to validate claims that adjunct faculty are under-prepared (Ehrenberg, 2012).

Statement of the Problem

Across the nation, colleges and universities are increasingly utilizing adjunct, or part-time, instructors instead of full-time faculty. Often, adjuncts are hired a few days before the semester begins with very little time to prepare (Kezar & Maxey, 2013). Street, Maisto, Merves, and Rhoades (2012) called this practice “just-in-time hiring” (para. 3). Often, the newly hired adjunct receives nothing more than a syllabus template and a textbook with little additional orientation (Street et al., 2012). Office space is typically prime real estate on campus leaving adjunct faculty nowhere to meet with students outside of the classroom (Benjamin, 2002; Kezar & Maxey, 2013). Also, time to meet with students may be limited by the adjunct’s full-time employment outside of academia or multiple course assignments across several educational institutions. Research suggests engaging with students outside of the classroom increases overall engagement in a course leading to higher levels of student success (Center, 2012).

Full-time faculty members have an advantage. Course assignments are set months in advance of the semester allowing adequate time to prepare. The course load may vary little from one semester to the next reducing the amount of upfront work required, such as syllabus development and lesson planning. Additionally, full-time faculty members are required to hold office hours for student contact and other college responsibilities such as committee work or curriculum development (Center, 2014b).

Over the last twenty years, adjunct instructors have been hired on an increasing basis to teach on college campuses (Ehrenberg & Zhang, 2006). The use of adjunct instructors has continued to grow. Some educational institutions have reported a majority of faculty as part-time rather than full-time (Eagan, 2007; Kezar & Maxey, 2013).

Previous research results are conflicting regarding the effect adjunct faculty may have on student success and persistence. However, several studies have found a decrease in graduation rates and an increase in drop-out rates when adjunct faculty teach the majority of the course load in the first two years (Benjamin, 2002; Ehrenberg, 2012; Jacoby, 2006; Jaeger & Eagan, 2009; Baldwin & Wawrzyski, 2011).

Purpose of the Study

The purpose of this study was to determine if there was a significant difference in student success and student persistence to the end of general education courses taught by full-time and adjunct faculty. The study also examined the difference in student success and student persistence in face-to-face and online courses taught by full-time and adjunct faculty.

Significance of the Study

Researchers have studied the impact of adjunct faculty on student success in specific disciplines. However, limited data are available focusing on the impact of adjunct faculty instruction for general education courses taught both face-to-face and online. Because adjunct faculty members are frequently utilized, the impact of face-to-face or online instruction can be far-reaching. This study examined the impact of adjunct faculty in the academic years 2013-2014 and 2014-2015 at a Midwestern community college.

Delimitations

Student success and retention research were subject to certain delimitations, which are self-imposed boundaries to limit the scope of the study (Lunenburg & Irby, 2008). This study had the following delimitations:

- Data for this study were collected from one institution which may limit generalization to other populations.
- This study did not take into account various instructor characteristics including
 - Course load
 - Previous teaching experience
 - Instructor education level
- This study did not take into account various student characteristics including
 - Motivation
 - GPA; current or high school
 - Course load
 - Number of credit hours successfully completed

Assumptions

“Assumptions are postulates, premises, and propositions that are accepted as operational for purposes of the research” (Lunenburg & Irby, 2008, p. 135). This research study was subject to the following assumptions:

- Student grade and persistence data were collected from the Office of Institutional Research at the case study institution and were assumed to be complete, accurate and valid.
- Student ability levels were comparable in each section of the courses studied regardless of faculty status.

Research Questions

The researcher established the following research questions to direct the study:

RQ1: To what extent does faculty status (full-time/adjunct) impact student academic success scores as measured by final course grade for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015? (Only students receiving a final course grade were included in the study.)

RQ1.a. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in EG 101 English Composition I?

RQ1.b. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in MA 135 College Algebra?

RQ1.c. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in BS 160 General Psychology?

RQ2: To what extent does faculty status (full-time/adjunct) impact percentage of student persistence (completion/non-completion) in three selected general education courses for the academic years 2013-2014 and 2014-2015? (Only students receiving a final course grade were classified as persisted.)

RQ2.a To what extent is there a proportional difference in student persistence percentage between those taught by full-time faculty and those taught by adjunct faculty when enrolled in EG 101 English Composition I?

RQ2.b. To what extent is there a proportional difference in student persistence percentage between those taught by full-time faculty and those taught by adjunct faculty when enrolled in MA 135 College Algebra?

RQ2.c. To what extent is there a proportional difference in student persistence percentage between those taught by full-time faculty and those taught by adjunct faculty when enrolled in BS 160 General Psychology?

RQ3: To what extent does course delivery method (face to face/online) and faculty status (full-time/adjunct) impact student academic success as measured by final course grade (grade converted to point system) for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015?

RQ3.a. To what extent does the interaction of course delivery method and faculty status impact academic success for students enrolled in EG 101 English Composition I?

RQ3.b. To what extent does the interaction of course delivery method and faculty status impact academic success for students enrolled in MA 135 College Algebra?

RQ3.c. To what extent does the interaction of course delivery method and faculty status impact academic success for students enrolled in BS 160 General Psychology?

RQ4: To what extent does course delivery method (face to face/online) and faculty status (full-time/adjunct) impact the percentage of persistence (completion/non-completion t) for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015?

RQ4.a. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in EG 101 English Composition I?

RQ4.b. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in MA 135 College Algebra?

RQ4.c. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in BS 160 General Psychology?

Definition of Terms

Full-time faculty. Full-time faculty are instructors hired by an educational institution on an annual contract which specifies the number of credit hours the faculty member will teach each semester and other duties as assigned.

Adjunct faculty. Adjunct faculty are hired on an as-needed basis to teach a course not taught by a full-time member of the faculty. Many research studies refer to adjunct faculty as part-time instructors or non-tenure-track.

Delivery method. The method in which a course is delivered to students; i.e. face-to-face in a traditional classroom setting or using an online classroom management system.

Overview of the Methodology

A causal-comparative quantitative design was used for this study. Causal-comparative research does not change the independent variable because the data used are archival (Lunenberg & Irby, 2008). The study utilized data from academic years 2013-2014 and 2014-2015. The population included students enrolled in EG 101 English Composition I, MA 135 College Algebra, and BS 160 General Psychology face-to-face

and online. The sample included 12,619 students who persisted to the end of the semester and received a passing grade (C or better).

Organization of the Study

This study is organized into five chapters. Chapter one contains the background of the study, problem studied, purpose of the study, significance of the study, delimitations, assumptions, research questions, definition of key terms, and overview of the methodology of the study. Chapter two provides a review of literature related to faculty rank and the role it has on student success and retention. Chapter three includes the research design, population and sample, sampling procedure, data collection procedures, data analysis, hypothesis testing, limitations, and a summary. Chapter four summarizes the results of the hypothesis testing. Chapter five contains a summary of the study, discussion of the results, suggestions for action, recommendations for future research, and a conclusion.

Chapter Two

Review of Literature

This study investigated the impact of full-time vs. adjunct faculty on student success and student persistence in three general education courses; EG 101 English Composition I, MA 135 College Algebra, and BS 160 General Psychology. The study also examined the difference in student success and student persistence in face-to-face and online courses taught by full-time and adjunct faculty.

Several key areas of research were used to inform this study. The review of literature summarizes a history of the use of adjunct faculty including increased use of such faculty in the 1970s to the present. Several researchers have debated the use of adjunct faculty and the effect on student outcomes across multiple types of higher education institutions. Research regarding online courses taught by full-time and adjunct faculty and their effect on student success and retention was also reviewed.

History and Growth of Adjunct Faculty Use

The use of adjunct faculty has been on the rise since the 1970s. According to Smith (2007), use of part-time faculty increased 91% between 1976 and 1995. While the pace of the growth has slowed in recent years (Kezar & Maxey, 2014) adjunct faculty use continues to surpass employment growth of full-time faculty (Schibik & Harrington, 2004). Table 1 reflects the growth of adjunct faculty in post-secondary institutions in the United States, 1970-2011.

Table 1

Number of Full-time and Part-time Faculty in Post-Secondary Institutions

Year	Total faculty	Full-time faculty	Part-time faculty	% Part-time faculty
1970 ¹	474,000	369,000	104,000	22.2%
1975 ¹	628,000	440,000	188,000	29.9%
1980 ¹	686,000	450,000	236,000	34.4%
1985 ¹	715,000	459,000	256,000	35.8%
1991	931,252	535,623	290,629	35.2%
1995	931,706	550,822	380,884	40.9%
2001	1,113,183	617,868	495,315	44.5%
2005	1,290,426	675,624	314,802	47.6%
2011	1,523,615	761,619	761,996	50.0%

Note: ¹Survey methods have changed since 1987; data before this year are not directly comparable. Data for 1990, 2000, and 2010 are not available. Adapted from U.S. Department of Education, National Center for Education Statistics, retrieved from http://nces.ed.gov/programs/digest/d13/tables/dt13_315.10.asp

Community colleges rely on adjunct faculty more than traditional 4-year institutions (Kezar & Maxey, 2014; Kezar & Sam, 2010; Eagan & Jager, 2008; U.S. Department of Education, 2002). The increase has been attributed to increased higher

education enrollments in the 1970s following introduction of the G.I. Bill (Kezar & Maxey, 2014) and again in the 1980s and 1990s due to reduced federal and state funding (Liu & Zhang, 2007; Ronco & Cahill, 2006; Anderson, 2002). Nationwide, funding has decreased 12% since the 1980s with some state systems absorbing larger losses. State funding in Louisiana decreased almost 40% between 2009 and 2014 (SHEEO, 2015). Figure 1 provides educational appropriations per full-time equivalent by state for fiscal year 2009-2014.

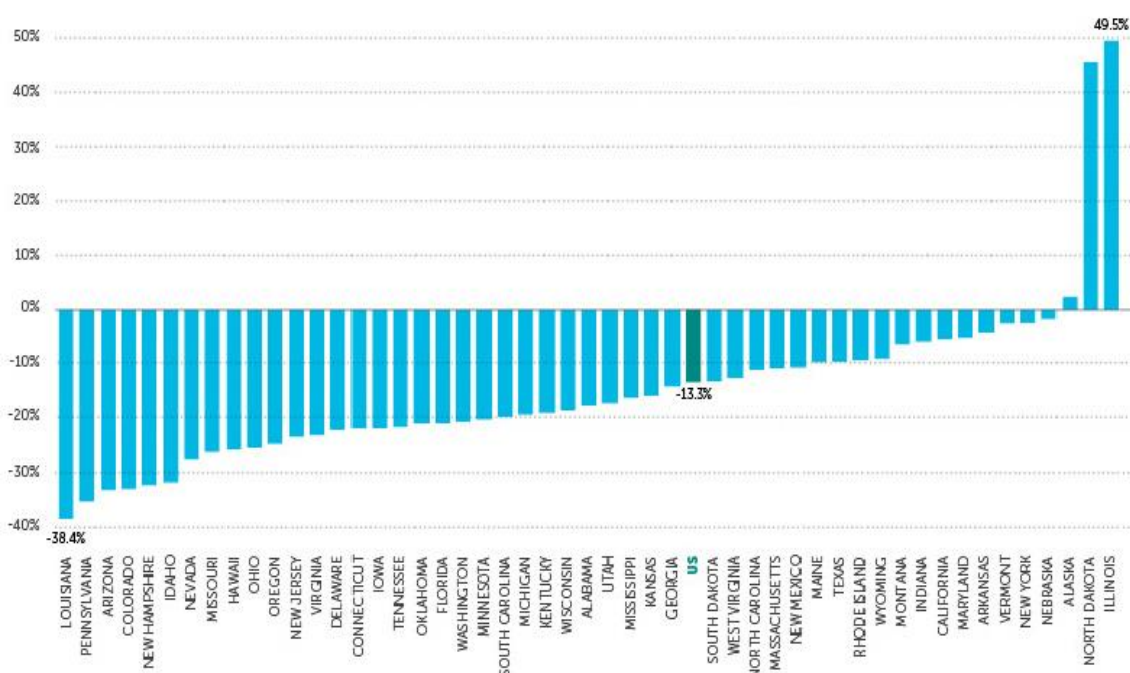


Figure 1. Educational appropriation per full-time equivalent percent change by state, fiscal 2009-2014 (SHEEO, 2015)

According to the Center for Community College Engagement (2014b), adjunct faculty are a “fundamental feature of the economic model that sustains community

college education” (p. 2) due in part to decreased state funding. Table 2 summarizes total faculty, full-time and part-time faculty, by institution type.

Table 2

Number of Full-time and Part-time Faculty by Institution Type in 2013

Faculty status	Total faculty (all institutions)	4-year public	2-year public
Full-time	681,800	162,000	114,600
Part-time	530,000	39,700	230,100
Total	1,211,800	201,700	344,700
% Part-time	-	19.7%	66.8%

Note. Data limited to 4-year and 2-year public institutions. Adapted from

U.S. Department of Education, National Center for Education Statistics,

retrieved from http://nces.ed.gov/programs/digest/d13/tables/dt13_315.50.asp

Many institutions use adjunct faculty as a cost-saving measure. However, there are other reasons to hire a part-time instructor. Adjunct instructors provide real-world experience and bring technical knowledge to the classroom (Bettinger & Long, 2010; Kezar & Maxey, 2014; Center, 2014b). Often, adjunct faculty are employed full-time in the discipline they teach which is helpful for subject matter expertise, and they have connections to industry (Fruscione, 2014; Center, 2014b). Such connections can lead to advisory board participation and potentially open doors for student internships or job placement (Bettinger & Long, 2010). Adjunct faculty also tend to be loyal to the institution; the average length of employment is 11 years (U.S. Department of Education, 2002; Kezar & Sam, 2010; AFT, 2010).

Despite many positive reasons to use adjunct faculty, there are several negatives as well. Often, part-time instructors are hired at the last minute which decreases the time

to prepare for class (Kezar & Sam, 2010; Eaton & Kezar, 2014; Center, 2014b). Last minute hiring practices also lead to little or no orientation to the institution.

Consequently, adjunct faculty do not have adequate knowledge of student resources or training on recognizing and assisting at-risk students (Schibik & Harrington, 2004; Center, 2014b; Eaton & Kezar, 2014; Kezar & Maxey, 2014).

Another negative is the lack of support services for adjunct faculty. Many campuses do not provide dedicated office space for part-time instructors (June, 2012; Kezar & Sam, 2014; Kezar & Maxey, 2014). Full-time instructors are typically required to hold office hours for student meetings, but this is not possible nor required as adjunct faculty often have no place on campus to meet. Lack of space on campus leads to less frequent interactions with students outside of class which research indicates is detrimental to student success (Fruscione, 2014; Eagan, Jaeger & Grantham, 2015). “A more available and fully engaged faculty positively contributes to a number of student outcomes, including transfer and associate degree completion” (Jaeger & Eagan, 2009, p. 180).

Effect of Faculty Status on Student Outcomes

In their 2009 study, Jaeger and Eagan found a negative correlation between exposure to adjunct faculty and degree completion. As student exposure to adjunct faculty increased, the likelihood of completing an associate degree significantly decreased. Adjunct faculty often teach lower level courses students complete in their first year of college (Schibik & Harrington, 2004; Jaeger & Eagan, 2009; Baldwin & Wawrzynski, 2011). “Freshman year yields the single greatest impact on individual academic success, as defined by student retention and eventual graduation” (Schibik &

Harrington, 2004, p.5). First-year students with more than half of their classes taught by adjunct faculty are less likely to return for the spring semester (Ronco & Cahill, 2006; Bettinger & Long, 2010; Ehrenberg, 2012).

Researchers believe the reason for the negative effect on student outcomes is due to instructional strategies utilized by adjunct faculty. Part-time instructors are less likely to use high-impact strategies and have lower academic standards. Instead, they opt for lecture-based class sessions and multiple choice exams (U.S. Department of Education, 2002; Jacoby, 2006; Baldwin & Wawrzynski, 2011; Center, 2014b). It is important to point out that adjunct instructors are not bad teachers. Rather, they typically lack support from the institution, professional development opportunities, and meaningful evaluation (Curtis & Jacobe, 2006; Benjamin, 2002).

Concern regarding the impact of adjunct faculty use on student outcomes has grown over the past 20 years (Baldwin & Wawrzynski, 2011). In 2004, the National Education Association (NEA) stated the use of adjunct faculty is “overtaking higher education” (p. 4). Because of this, the NEA advocated for legislation to stop or slow the growth of adjunct faculty by proposing a 75:25 ratio of full-time to adjunct faculty (NEA, 2004).

Not all research studies resulted in finding negative impacts on student outcomes. Hongwei Yu (2014) studied the effect of part-time faculty on student degree completion. Yu found a non-negative impact citing other factors such as high school grade point average, working hours, attendance status, and institution size as greater predictors of success. Rossol-Allison and Beyers (2011) conducted a similar study and found faculty status was not significant in student retention or graduation rates. Another study found

students learn more from adjunct faculty and perform better in subsequent coursework than their counterparts only exposed to full-time instructors (Figlio, Schapiro, & Soter, 2013).

It is important to point out that student characteristics have changed along with the faculty. College students are often balancing full-time employment and family responsibilities while enrolled in college classes (Center, 2014a). Multiple commitments decrease the time available to focus on coursework which can have an impact on student outcomes separate from the status of the faculty member teaching the course.

Regardless of the research pointing toward no negative impact, initiatives to support adjunct faculty have been introduced. Achieving the Dream (2016) recently launched a new initiative (Engaging Adjunct Faculty in Student Success Movement) to engage adjunct faculty in student success and recognize the importance and expertise of this segment of the faculty. The goal is to improve adjunct faculty engagement by increasing professional development opportunities and facilitate instructional reform. “Colleges need the knowledge and dedication of their adjunct faculty in order to build their capacity to engage more students at a higher level” (Achieving, 2016, para 4).

Similarly, the Delphi Project on the Changing Faculty and Student Success (2014) “was initiated to support a better understanding of factors that led to a majority of faculty being hired off the tenure track, the impact of these circumstances on teaching and learning; and potential strategies for addressing issues...” (para.1). The project, guided by higher education experts, is working toward two goals.

1. “Creating a vision for new, future faculty models for improving student success, and

2. Building a broad base of stakeholder support for improving conditions facing non-tenure-track faculty” (Delphi, 2014, para 3).

Online Education

Online education is a popular option for students. Studies have indicated over 6.7 million students are taking at least one course online (Cavanaugh & Jacquemin, 2015). The growth of online education outpaces overall higher education. Since 2002, enrollment in online courses has increased 16.1% compared to a 2.5% increase for overall higher education (Community College, n.d.). Online courses are considered a more convenient path to a degree since coursework can be completed asynchronously and students increasingly have more demands on their time; full-time employment, family obligations, etc. (Angelino, Williams, Natvig, 2007; Center, 2014a). “Mostly from anecdotal information, it is estimated that dropout rates for distance education are higher than those for on-campus programs...students enrolled in distance education are twice as likely to drop out than on-campus students” (Willging & Johnson, 2009, pp.115-116).

Brown (2012) summarized several benefits of online education; easy to reach larger populations, alleviates full classrooms, and schedule flexibility. However, there are several drawbacks, according to the 2009 Community College Survey of Student Engagement (CCSSE) “personal connections are the unanticipated success factor – a critical variable that improves the odds of persistence....establishing personal connections may not happen easily, much less automatically” (p. 3), especially in the online environment. The lack of personal connections can lead to a feeling of isolation for the student. In addition to isolation, reasons students withdraw from distance education include poorly presented courses, coursework that is too difficult, and other demands on time (Hughes, 2007; Moody, 2004; Ludwig-Hardman & Dunlap, 2003).

According to Moody (2004), students often enroll in online coursework believing the course will be an easy A, but fail to consider the technology. “Though many students are being introduced to technology at an early age, this does not mean they are technically competent with the skills required to be successful with Web-based instruction” (p. 209). Additionally, “online interaction strips away many of the social cues intrinsic to face-to-face interaction, leading to confusion” (Yu & Young, 2008, p. 88). Requiring an orientation meeting before the course begins will help students feel comfortable with the learning platform as well as allow students to meet face-to-face with college personnel.

Faculty report feelings of isolation in the online environment. According to Dolan (2011), motivated faculty are more successful in their teaching when they feel connected to the institution. Unfortunately, many institutions do little to connect adjunct faculty who teach online. “The mere existence of a virtual academic community does not necessarily foster faculty loyalty toward management and the institution” (Dolan, 2011, p. 63), which appears to lead to lower quality.

Achieving the Dream (2011) provided several ideas for engaging adjunct and full-time faculty teaching online courses.

1. Leadership should be accessible to faculty to give the institution a face.
2. Offer professional development.
3. Capitalize on adjunct faculty ‘real world’ experience when reviewing and designing curriculum.
4. Use regular campus events such as student orientation to involve faculty.

Student completion rates have been shown to suffer in the online environment. Jaggars, Edgecombe, and Stacey (2013) found completion rates 5.5% lower in online

courses than face-to-face in a study of Washington State community college students. The same study was also conducted in Virginia and completion rates were as much as 12.7% lower.

If students drop-out of an online course, it is typically early in the course. Simpson (2013) found 38% of the students that drop do so before the first assignment is due and almost half will drop before the fourth assignment. However, few students decide to leave an online program after they have successfully completed several courses (Willging & Johnson, 2009) which indicate it is important to engage and support students early for the best result. Angelino, Williams, and Natvig (2007) proposed four strategies for increasing engagement with online students and potentially reduce withdrawals:

1. Faculty-initiated phone calls to students.
2. Pre-course orientation to familiarize students with learning platform.
3. Synchronous discussions throughout the course.
4. Online student services to assist with questions not directly related to coursework.

Faculty are central to the sustainability of distance education; institutions are dependent on them to develop and teach courses, but online courses are time-consuming (Betts, 2014). Adjunct faculty, who are often employed outside academia as well, may not have time to dedicate to extra engagement strategies (Bettinger & Long, 2004).

The research on student learning outcomes is inconclusive. Wilson and Allen (2011) summarized a study conducted by the U.S. Department of Education in 2009. The study reviewed 1,000+ students enrolled in online courses between 1996 and 2008. The results indicated students, on average, performed better in online courses than those in

face-to-face classes. Cavanaugh and Jacquemin (2015) found no significant difference in final student grades when comparing online and on-ground courses, but they did note students with higher GPAs tended to perform better regardless of the mode of delivery. Jaggars et al. (2013) and Atchley et al. (2013) indicated grade disparity is associated with online courses. Grades of A, D, and F are more common in online courses, but grades of B and C are more common in face-to-face courses. However, Xu and Jaggars (2013) found students who enrolled in online coursework in their first semester were less likely to return for the following semester.

Grade Inflation

Several researchers (Boretz, 2004; Fagan-Wilen, Springer, Ambrosino & White, 2006; Jewell, McPherson & Tieslau, 2013; Kezim, Pariseau, & Quinn, 2005; Rosovsky, & Hartley, 2002; Schutz, Drake, & Lessner, 2013; Sonner, 2000) linked grade inflation with the increased use of adjunct faculty. Jewell et al. (2013) found an increase of approximately .15 grade points since the late 1960's with private schools increasing faster than public institutions. During this same period, the average Scholastic Achievement Test (SAT) declined by 5% which indicates the increase in grade points is not due to an increase in student achievement (Rosovsky & Hartley, 2002).

Studies point to the Vietnam War era as the beginning of grade inflation. Faculty were reluctant to give a male student a failing grade as they may have been subject to the draft if forced to drop out of school (Rojstaczer, 2002; Rosovsky & Hartley, 2002; Twitchell, 1997).

The upward shift started in the jungles of Vietnam, when those of us now at the full-professor level were safely in graduate school. We were deferred by virtue of

being in school, which wasn't fair and we knew it. So when grading time came, and we knew that giving a C meant that our student (who deserved a D) would go into the jungle, we did one better and gave him a B. (Twitchell, 1997, para. 3)

The cause for continued grade inflation may be attributable to changes in withdrawal policies. According to Boretz (2004), many institutions have changed the policies surrounding withdrawing from courses allowing students to drop late in the semester to avoid unsatisfactory grades on their transcript. Others believe the reason may be a lack of experience in grading student work on the part of less experienced adjunct faculty (Schutz, Drake, & Lessner, 2013). However, Lippman, Bulanda, and Wagenaar (2009), argued the reason is an increase in student entitlement. According to their article students:

1. Are more aggressive when negotiating for grade changes.
2. Have inflated expectations about grades.
3. Believe education is a ticket to a better job or more income, not necessarily for the sake of learning.
4. No longer see instructors as the intellectual leader of the classroom, but rather as barriers to the grade, job, and/or salary increase they believe they deserve.

Rosovsky and Hartley (2002) agreed, stating educational institutions are operating like businesses in light of increased consumerism and students are their clients. Students feel they are owed a good grade in exchange for the tuition they pay.

Regardless of the reasons for grade inflation, it is clear there is an upward trend as illustrated in Figure 2. If this trend continues, an A grade will become the average in the next ten years (Rojstaczer, 2016).

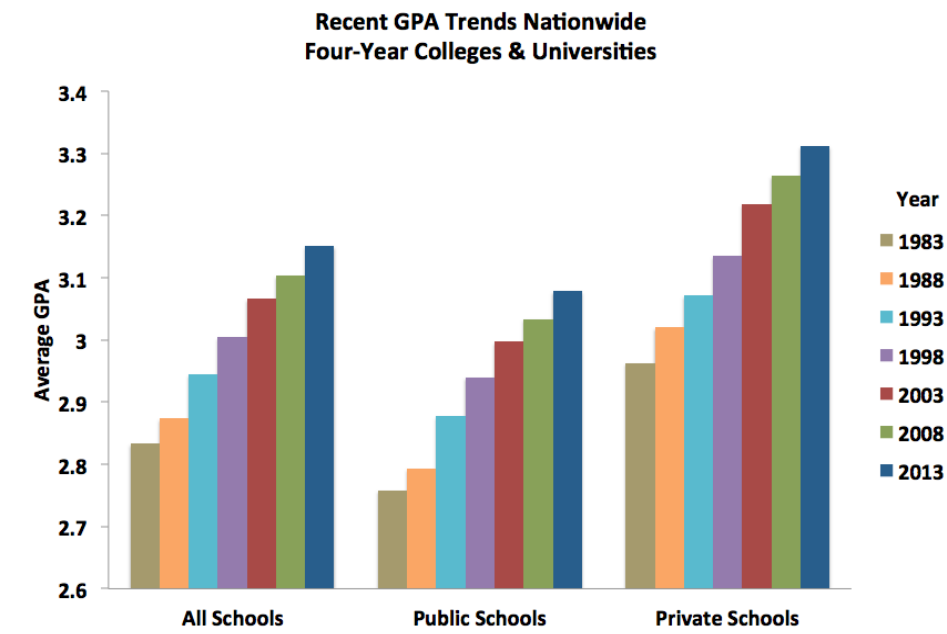


Figure 2. Recent GPA trends nationwide. Data obtained from www.gradeinflation.com

The trend is not limited to four-year institutions. Community colleges are also “grading very generously” (Rojstaczer, 2016, para. 46) and the percentages of grades of A and B are unrealistically high as shown in Figure 3.

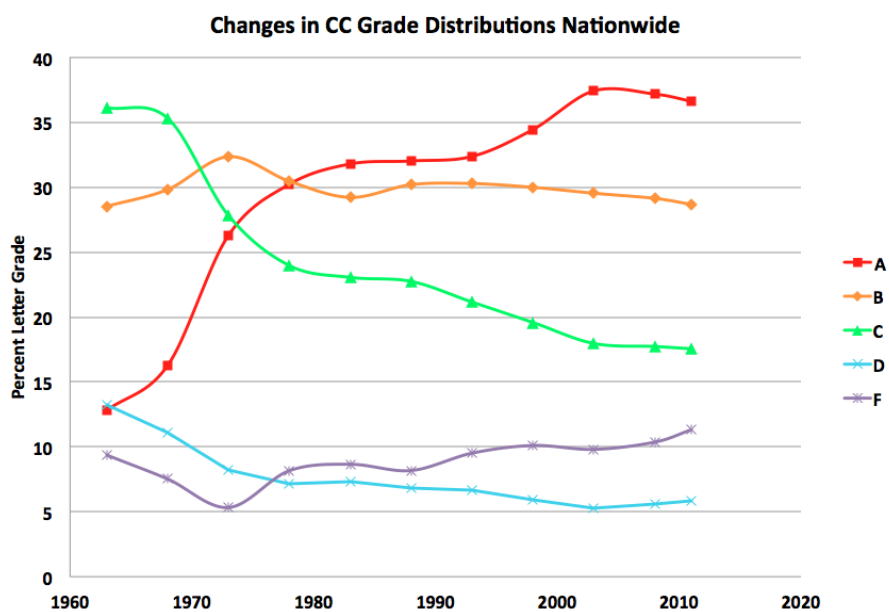


Figure 3. Changes in community college grade distribution nationwide. Data obtained from www.gradeinflation.com

Summary

The current literature regarding adjunct faculty and the impact on student outcomes and retention is inconclusive. While some researchers found a negative correlation, others found no significant difference. Whether this is due to grade inflation or not remains to be seen. Similar mixed results exist in the literature about online education and use of adjunct faculty. What is known conclusively is the “phenomenon of part-timeness stands as one of the greatest challenges community colleges face in creating strong connections with students” (Center, 2009, p. 18), due to not only the increase in part-time faculty but also the increase in part-time students.

The review of literature focused on the increased use of adjunct faculty, student academic success and retention. Literature about online education and its impact on student success was also reviewed as well as grade inflation. This study investigated students enrolled in general education courses taught face-to-face and online by full-time and adjunct faculty. The impact of the course delivery method and instructor type on student success and retention were studied. Chapter 3 will provide a review of the methodology used in the study followed by the results in Chapter 4.

Chapter Three

Methods

The purpose of this study was to determine if there was a significant difference in student success and student persistence to the end of general education courses taught by full-time and adjunct faculty. The study also examined the difference in student success and student persistence in face-to-face and online courses taught by full-time and adjunct faculty. This chapter provides a description of the research design, population and sampling procedures, instrumentation, data collection procedures, data analysis, hypothesis testing, and limitations.

Research Design

The research design used for this study was a causal-comparative quantitative design which “is different from experimental research in that you do not manipulate the independent variable since it has already occurred, and...you cannot control it” (Lunenberg & Irby, 2008, p. 46). The dependent variables were student success and student persistence. The independent variables were faculty status and course delivery method. Table 3 provides the definition for independent and dependent variables. Archival data from a Midwestern community college were analyzed to determine the impact full-time or adjunct faculty in three specified general education courses had on student success and persistence.

Table 3

Definition of Variables

Variable	Definition
Student Success	Completing the course with a C or better
Student Persistence	Students who were enrolled in the course on the 20 th day and also received a final grade
Faculty Status	A full-time instructor or an adjunct (part-time) instructor
Delivery Type	A face-to-face, on-ground course or a distance education course

Population and Study Group

The population selected was 12,619 students enrolled in three face-to-face and online general education courses (EG 101 English Composition I, MA 135 College Algebra, and BS 160 General Psychology) at a Midwestern community college in the academic years 2013-2014 and 2014-2015. The study group included students who were retained to the end of the semester in the same courses.

Students pursuing an Associate degree are required to successfully complete coursework in Communications, Mathematics, and Behavioral Science. A passing grade at the study institution is a D; however students must complete EG 101 with a C or better in order to enroll in EG 102. MA 135 also requires a C or better to enroll in subsequent Mathematics coursework (Midwest College, 2014). According to enrollment data available on the case study institution website, EG 101 English Composition I, MA 135

College Algebra and BS 160 General Psychology are popular choices among students (Midwest College, 2015). The researcher chose to follow the advice of Lunenberg and Irby (2008) and use a purposive sampling procedure; “selecting a sample based on the researcher’s experience or knowledge of the group to be sampled” (p. 175).

The study group closely represented the population of the community college as evidenced by Table 4.

Table 4

Frequency Tables for Age, Gender, and Ethnicity

Age	Population		College headcount	
	Frequency	Percent	Frequency	Percent
Under 18	429	3.0%	1,385	6.3%
18-22	8,934	71.0%	11,337	51.6%
23-29	2,023	16.0%	4,834	22.0%
30-49	1,113	9.0%	3,777	17.2%
50 & older	120	1.0%	647	2.9%
Gender				
Female	7,034	55.7%	12,910	58.7%
Male	5,585	44.0%	9,067	41.3%

Ethnicity				
American Indian/Alaskan	163	1.0%	285	1.3%
Asian	558	4.4%	1,098	5%
Black	1,095	8.7%	1,797	8.2%
Caucasian/White	7,953	63.1%	14,446	65.7%
Hispanic	1,528	12.1%	2,031	9.2%
Mixed	465	3.7%	481	2.2%
Pacific Islander/Hawaiian	44	.03%	102	0.5%
Undeclared	800	6.3%	1,740	7.9%

Note. Adapted from data provided on case study institution website;

Retrieved from <http://www.midwestcollege.edu/downloads/file/672/>

2013-2014pdf

Data Collection Procedures

The process to obtain permission from Baker University to conduct the research study with the Institutional Research Board (IRB) was initiated on March 15, 2016. The IRB committee approved the research study on March 22, 2016 (Appendix A).

The researcher obtained an Excel file from the Office of Institutional Research at the case study institution, which included 20th day class rosters and final course grades for all sections of EG 101 English Composition I, MA 135 College Algebra, and BS 160 General Psychology in the academic years 2013-2014 and 2014-2015. Student demographic information, course information, instructor name and status (full-time/adjunct) was also included. Student identifying information was removed and a randomly generated identification number was assigned by the Office of Institutional

Research prior to review by the researcher. Data were stored on a password protected USB drive by the researcher.

Data Analysis and Hypothesis Testing

This study focused on four research questions and 12 accompanying hypotheses. A 2-sample t-test of independence was used to test RQ1. A Chi-square test of independence was used to test RQ2. RQ3 and RQ4 were tested using a 2-way ANOVA. Each hypothesis was challenged using $\text{Alpha}=.05$. The research questions and hypotheses along with a description of the analysis used are listed below.

RQ1: To what extent does faculty status (full-time/adjunct) impact student academic success scores as measured by final course grade for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015? (Only students receiving a final course grade were included in the study.)

RQ1.a. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in EG 101 English Composition I?

H1: There is a significant mean difference in academic success scores for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in EG 101 English Composition I.

RQ1.b. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in MA 135 College Algebra?

H2: There is a significant mean difference in academic success scores for students taught by full-time faculty compared to students taught by adjunct faculty in MA 135 College Algebra.

RQ1.c. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in BS 160 General Psychology?

H3: There is a significant mean difference in academic success scores for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in BS 160 General Psychology.

Following the advice of Steinberg (2011) the 2-sample t-test of independence was used to test H1, H2, and H3 for RQ1. The independent variable had two groups, full-time and adjunct faculty. The dependent variable, final course grade, was reported as a scale score. Each hypothesis was challenged using $\text{Alpha}=.05$.

RQ2: To what extent does faculty status (full-time/adjunct) impact percentage of persistence (completion/non-completion) for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015? (Only students receiving a final course grade were classified as persisted.)

RQ2.a To what extent is there a proportional difference in student persistence percentage between those taught by full-time faculty and those taught by adjunct faculty when enrolled in EG 101 English Composition I?

H4: There is a significant proportional difference in persistence percentage for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in EG 101 English Composition I.

RQ2.b. To what extent is there a proportional difference in student persistence percentage between those taught by full-time faculty and those taught by adjunct faculty when enrolled in MA 135 College Algebra?

H5: There is a significant proportional difference in persistence percentage for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in MA 135 College Algebra.

RQ2.c. To what extent is there a proportional difference in student persistence percentage between those taught by full-time faculty and those taught by adjunct faculty when enrolled in BS 160 General Psychology?

H6: There is a significant proportional difference in persistence percentage for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in BS 160 General Psychology.

Following the advice of Steinberg (2011) the Chi-square test of independence was used to test H4, H5, & H6 for RQ2. The independent binary variable had two categories, full-time and adjunct faculty. The dependent binary variable also had two categories; students who persisted to the end of the course receiving a final course grade and students who were withdrawn. Each hypothesis was challenged using $\text{Alpha}=.05$.

RQ3: To what extent do the interactions of course delivery method (face to face/online) and faculty status (full-time/adjunct) impact student academic success as measured by final course grade for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015?

RQ3.a. To what extent do the interactions of course delivery method and faculty status impact academic success for students enrolled in EG 101 English Composition I?

H7: A significant interaction effect exists between and within academic success scores when disaggregated by course delivery method, and faculty status for students enrolled in EG 101 English Composition I.

RQ3.b. To what extent do the interactions of course delivery method and faculty status impact academic success for students enrolled in MA 135 College Algebra?

H8: A significant interaction effect exists between and within academic success scores when disaggregated by course delivery method and faculty status for students enrolled in MA 135 College Algebra.

RQ3.c. To what extent do the interactions of course delivery method and faculty status impact academic success for students enrolled in BS 160 General Psychology?

H9: A significant interaction effect exists between and within academic success scores when disaggregated by course delivery method, and faculty status for students enrolled in BS 160 General Psychology.

Following the advice of Steinberg (2011) a two-way ANOVA was used to test H7, H8, and H9 for RQ3. Main effects and interaction between the two independent variables was studied. Independent variable #1 had two groups, full-time and adjunct faculty, and independent variable #2 had two groups, face-to-face and online delivery type. The dependent variable, final course grade, was the final course grade reported as grade points on a 4-point scale. Each hypothesis was challenged using $\text{Alpha}=.05$.

RQ4: To what extent do the interactions of course delivery method (face to face/online) and faculty status (full-time/adjunct) impact the percentage of persistence (persisted/did not persist) for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015?

RQ4.a. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in EG 101 English Composition I?

H10: A significant interaction effect exists between and within the percentage of persistence when disaggregated by course delivery method and faculty status for students enrolled in EG 101 English Composition I.

RQ4.b. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in MA 135 College Algebra?

H11: A significant interaction effect exists between and within the percentage of persistence when disaggregated by course delivery method and faculty status for students enrolled in MA 135 College Algebra.

RQ4.c. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in BS 160 General Psychology?

H12: A significant interaction effect exists between and within the percentage of persistence when disaggregated by course delivery method, and faculty status for students enrolled in BS 160 General Psychology.

The two-way ANOVA was used to test H10, H11, and H12 for RQ4. Angrist and Pischke (2008) argued the use of the two-way ANOVA with binary data is allowable. Independent variable #1 had two groups, full-time and adjunct faculty. Independent variable #2 had two groups, face-to-face and online delivery type. The dependent variable was the percentage of students persisting to the end of the course. Each hypothesis was challenged using $\text{Alpha}=.05$.

Limitations

Lunenburg and Irby (2008) defined features of the study that may affect the results as limitations. The limitations of this study included:

1. curriculum modifications made by individual faculty
2. faculty effectiveness and quality
3. number of course meetings; three, two, or one class sessions per week
4. student characteristics such as high school GPA and age were not studied

Those institutions with similar populations may have similar results.

Summary

This chapter presented the methodology used to test the research design, accompanying hypotheses, sampling procedures, and data collection. Statistical analyses were used to determine if a significant statistical difference occurred in student success and student retention in courses taught by adjunct faculty and courses taught by full-time faculty in face-to-face and online classes. The results of the hypothesis testing are presented in Chapter Four.

Chapter Four

Results

The purpose of this study was to determine if there was a significant difference in student success and student persistence to the end of general education courses taught by full-time and adjunct faculty. The study also examined the difference in student success and student persistence in face-to-face courses and online courses taught by full-time and adjunct faculty.

Descriptive Statistics

In the academic years 2013-2014 and 2014-2015, 12,619 students were enrolled in EG 101 English Composition I, MA 135 College Algebra, and BS 160 General Psychology at the case study institution. Student characteristics and course enrollment data are provided below in two sections: 1) Student Demographics and 2) Course Data.

Student Demographics. A majority of students enrolled in the study group were Caucasian and 18-22 years old. The study group had slightly more females than males. Table 5 provides additional demographic information.

Table 5

Summary Student Demographics Characteristics

with Sample Size and Percent of Total

Age	<i>n</i>	Percent
Under 18	429	3.6%
18-22	8,934	70.7%
23-29	2,023	16.0%
30-49	1,113	8.9%
50 & older	120	.8%

Gender		
Female	7,034	55.7%
Male	5,585	44.3%
Ethnicity		
American Indian/Alaskan	160	1.3%
Asian	558	4.4%
Black	1,095	8.7%
Caucasian/White	7,953	63.1%
Hispanic	1,528	12.1%
Mixed	465	3.7%
Pacific Islander/Hawaiian	44	.3%
Undeclared	800	6.3%

Course Data. During the 2013-2014 and 2014-2015 academic years; 709 sections of the three courses studied; EG 101 English Composition I, MA 135 College Algebra, and BS 160 General Psychology, were taught at the case study institution. Table 6 provides the number of sections taught per course disaggregated by delivery method. The number of online sections remained relatively constant over the two academic years studied, but the number of face-to-face sections fluctuated.

Table 6

Frequency of Sections per Semester Disaggregated by Course Delivery Method

Semester	EG101		MA135		BS160	
	F2F*	Online	F2F*	Online	F2F*	Online
Fall 2013	72	13	47	8	48	12
Spring 2014	51	13	31	8	40	13
Fall 2014	76	15	40	6	50	15
Spring 2015	48	13	34	7	36	13

Note. *F2F=Face-to-face

Table 7 summarizes the ratio of full-time faculty to adjunct faculty. A higher percentage of adjunct faculty taught MA 135 and BS 160.

Table 7

*Frequency of Sections Taught by Faculty per Semester
including Percentage of Adjunct Faculty*

Semester	EG101		
	Full-time	Adjunct	% Adjunct
Fall 2013	43	42	49.41%
Spring 2014	38	26	40.63%
Fall 2014	43	48	52.75%
Spring 2015	31	30	49.18%

MA135

Semester	Full-time	Adjunct	% Adjunct
Fall 2013	13	42	76.36%
Spring 2014	13	26	66.67%
Fall 2014	16	24	60.00%
Spring 2015	18	27	60.00%

BS160

Semester	Full-time	Adjunct	% Adjunct
Fall 2013	16	44	73.33%
Spring 2014	19	34	64.15%
Fall 2014	20	45	69.23%
Spring 2015	17	32	65.31%

Table 8 provides disaggregated data by course delivery method and instructor status. The percentage of adjunct faculty teaching EG 101 online was higher than face-to-face, and increased over the course of the two academic years studied; 69% in the fall of 2013 to 93% in the fall of 2014. The percentage of adjunct faculty teaching MA 135 online decreased during the same period from 63% to 14%.

Table 8

*Percent of Sections Taught by Adjunct Faculty**Disaggregated by Course Delivery Method*

EG101		
Semester	F2F*	Online
Fall 2013	46%	69%
Spring 2014	31%	77%
Fall 2014	45%	93%
Spring 2015	40%	85%
MA135		
Semester	F2F*	Online
Fall 2013	81%	63%
Spring 2014	65%	75%
Fall 2014	70%	33%
Spring 2015	59%	14%
BS160		
Semester	F2F*	Online
Fall 2013	69%	83%
Spring 2014	59%	77%
Fall 2014	64%	87%
Spring 2015	58%	85%

Hypothesis Testing

This section presents the results of the hypothesis testing. Four research questions and 12 accompanying hypotheses defined the study. Statistics used to test the hypotheses included the 2-sample t-test of independence for RQ1, the Chi-square test of independence of RQ2, and the 2-way ANOVA for RQ3 and RQ4. Final course grades and student persistence were the dependent variables. The independent variables were faculty status and course delivery method. The four research questions and the results of the 12 accompanying hypothesis are included below.

RQ1: To what extent does faculty status (full-time/adjunct) impact student academic success scores as measured by final course grade for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015? (Only students receiving a final course grade were included in the study.) Summary data analysis of H1, H2, and H3 are provided in Table 9.

RQ1.a. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in EG 101 English Composition I?

H1: There is a significant mean difference in academic success scores for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in EG 101 English Composition I.

A 2-sample t-test of independence was conducted to compare the mean difference of final course grades for students taught by full-time faculty and students taught by adjunct faculty in EG 101 English Composition I. A statistically significant mean difference was found between the final course grades in courses taught by adjunct faculty

and courses taught by full-time faculty, $t = -1.98$, $df = 4584$, $p = 0.048$. The sample mean for courses taught by adjunct faculty ($M = 2.59$, $SD = 1.45$, $N = 2316$) was higher than courses taught by full-time faculty ($M = 2.51$, $SD = 1.35$, $N = 2270$). This result supports H1. However, the difference was very small; .08 grade points. All students regardless of faculty status received the same average letter grade (grade=C).

RQ1.b. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in MA 135 College Algebra?

H2: There is a significant mean difference in academic success scores for students taught by full-time faculty compared to students taught by adjunct faculty in MA 135 College Algebra.

A 2-sample t-test of independence was conducted to compare the mean difference of final course grades for students taught by full-time faculty and students taught by adjunct faculty in MA 135 College Algebra. A statistically significant mean difference was found between the final course grades in courses taught by adjunct faculty and courses taught by full-time faculty, $t = -4.65$, $df = 2691$, $p < .001$. The sample mean for courses taught by adjunct faculty ($M = 2.43$, $SD = 1.36$, $N = 1769$) was higher than courses taught by full-time faculty ($M = 2.18$, $SD = 1.28$, $N = 924$). This result supports H2. However, the difference was .24 grade points or one quarter of a letter grade. Students taught by adjunct faculty received an average letter grade of C; students taught by full-time faculty received an average letter grade of C-.

RQ1.c. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in BS 160 General Psychology?

H3: There is a significant mean difference in academic success scores for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in BS 160 General Psychology.

A 2-sample t-test of independence was conducted to compare the mean difference of final course grades for students taught by full-time faculty and students taught by adjunct faculty in BS 160 General Psychology. A statistically significant mean difference was found between the final course grades in courses taught by adjunct faculty and courses taught by full-time faculty, $t = -5.43$, $df = 4181$, $p < .001$. The sample mean for courses taught by adjunct faculty ($M = 2.95$, $SD = 1.32$, $N = 2721$) was higher than courses taught by full-time faculty ($M = 2.71$, $SD = 1.32$, $N = 1462$). This result supports H3. However, the difference was .24 grade points or one quarter of a letter grade. Students taught by adjunct faculty received an average letter grade of C+; whereas those taught by full-time faculty received an average letter grade of B-.

Table 9

Summary Analysis t-Test of Significance for all RQ1

Hypotheses (H1, H2, H3)

Course	t	df	p^*
EG101	-1.98	4584	0.048
MA135	-4.65	2691	<.001
BS160	-5.43	4181	<.001

*Note. Significance at $\leq .05$ p

RQ2: To what extent does faculty status (full-time/adjunct) impact percentage of persistence (persisted/did not persist) for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015? (Only students receiving a final course grade were classified as persisted.)

RQ2.a To what extent is there a proportional difference in student persistence percentage between those courses taught by full-time faculty and those taught by adjunct faculty when enrolled in EG 101 English Composition I?

H4: There is a significant proportional difference in the persistence percentage for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in EG 101 English Composition I.

A χ^2 test of independence was conducted to test H4. The observed frequencies were compared to those expected by chance for students enrolled in EG 101 English Composition I. The level of significance was set at .05. As shown in Table 10, no relationship was found between faculty status and student persistence $X^2 (1, n = 4919) = 2.25, p = .134$. The percentage difference was only .09% which does not support H4.

Table 10

Summary of Chi-Square Analysis Results for Faculty Status vs. Student Persistence in EG 101 when Alpha = .05

Student persistence	Faculty status		Chi-Square	df	p
	Full-time	Adjunct			
Persisted	92.7% (2270)	93.8% (2316)			
Not Persisted	7.3% (179)	6.2% (154)	2.25	1	0.134

RQ2.b. To what extent is there a proportional difference in student persistence percentage between those courses taught by full-time faculty and those taught by adjunct faculty when enrolled in MA 135 College Algebra?

H5: There is a significant proportional difference in the persistence percentage for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in MA 135 College Algebra.

A χ^2 test of independence was conducted to test H5. The observed frequencies were compared to those expected by chance for students enrolled in MA 135 College Algebra. The level of significance was set at .05. As shown in Table 11, a significant statistical difference was found between faculty status and student persistence $X^2(1, n = 3145) = 30.42, p = < .005$ which supports H5. A student in a course taught by an adjunct faculty member is 7.10% more likely to persist than a student in a course taught by a full-time faculty member.

Table 11

Summary of Chi-Square Analysis Results for Faculty Status vs. Student

Persistence in MA 135 when Alpha = .05

Student persistence	Faculty status		Chi-Square	df	p
	Full-time	Adjunct			
Persisted	81.1% (924)	88.2% (1739)			
Not Persisted	18.9% (216)	11.8% (236)	30.42	1	<.001

RQ2.c. To what extent is there a proportional difference in student persistence percentage between those courses taught by full-time faculty and those taught by adjunct faculty when enrolled in BS 160 General Psychology?

H6: There is a significant proportional difference in persistence percentage for students taught by full-time faculty compared to students taught by adjunct faculty when enrolled in BS 160 General Psychology.

A χ^2 test of independence was conducted to test H6. The observed frequencies were compared to those expected by chance for students enrolled in BS 160 General Psychology. The level of significance was set at .05. As shown in Table 12, a significant statistical difference was found between faculty status and student persistence $X^2(1, n = 4552) = 28.12, p = < .001$. This finding supports H6. A student in a course taught by an adjunct faculty member is 4.50% more likely to persist than a student in a course taught by a full-time faculty member.

Table 12

Summary of Chi-Square Analysis Results for Faculty Status vs. Student

Persistence in BS160 when Alpha = .05

Student persistence	Faculty status		Chi-Square	df	p
	Full-time	Adjunct			
Persisted	89.0% (1462)	93.5% (2721)			
Not Persisted	11.0% (180)	6.5% (189)	28.12	1	<.001

Student persistence to the end of the course was higher in courses taught by adjunct faculty than courses taught by full-time faculty in all three courses studied; EG

101, MA 135, and BS 160. However, the proportional difference in student persistence was statistically significant in MA 135 and BS 160.

RQ3: To what extent do the interactions of course delivery method (face to face/online) and faculty status (full-time/adjunct) impact student academic success as measured by final course grade for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015?

RQ3.a. To what extent do the interactions of course delivery method and faculty status impact academic success for students enrolled in EG 101 English Composition I?

H7: A significant interaction effect exists between and within academic success scores when disaggregated by course delivery method, and faculty status for students enrolled in EG 101 English Composition I.

A 2-way ANOVA was conducted to compare the main effects of faculty status and course delivery method and the interaction between faculty status and course delivery method on academic success scores for students enrolled in EG 101. Faculty status included two levels (full-time and adjunct) and course delivery method included two levels (online and face-to-face). A statistically significant difference was found for the interaction effect, $F(1, 4582) = 7.47, p = .006$. See Table 13 for a summary of the results.

Table 13

*Summary Two-Way ANOVA and Interaction Effects Results for Academic Success Scores by Faculty Status and Course Delivery Method; Faculty Status * Course Delivery Method; Faculty Status Factors when Alpha = .05*

Source EG101	SS	df	MS	F	p
Faculty status	1.26	1	1.26	0.64	0.423
Course delivery method	5.53	1	5.53	2.82	0.093
Faculty status * Course delivery method	14.66	1	14.66	7.47	0.006

A Tukey post-hoc analysis was performed to determine the level of significance for the interaction of faculty status and course delivery method. The mean value for full-time faculty teaching EG 101 online (2.77 or B-) was higher than full-time faculty teaching EG 101 face-to-face (2.49 or C+) indicating students performed better in the online environment in courses taught by full-time faculty. However, students enrolled in face-to-face courses performed better in courses taught by adjunct faculty. On average, students in a face-to-face course taught by adjunct faculty earned a grade .15% higher than students taught by full-time faculty. See Table 14 for the descriptive statistics.

Table 14

*Descriptive Statistics for the Results of the Test for H7 Academic Success Scores for the Interaction of Faculty Status * Course Delivery Method in EG 101*

Faculty status	Course Delivery Method	<i>m</i>	<i>sd</i>	<i>n</i>	Letter grade*
Full-time	Online	2.77	1.32	164	B -
	F2F**	2.49	1.35	2106	C
Adjunct	Online	2.55	1.47	764	C +
	F2F**	2.61	1.44	1552	C +

Note: *4.00=A; 3.75=A-; 3.50=B+; 3.00=B; 2.75=B-; 2.50=C+; 2.00=C; 1.75=C-

**F2F=Face-to-face

RQ3.b. To what extent do the interactions of course delivery method and faculty status impact academic success for students enrolled in MA 135 College Algebra.

H8: A significant interaction effect exists between and within academic success scores when disaggregated by course delivery method and faculty status for students enrolled in MA 135 College Algebra.

A 2-way ANOVA was conducted to compare the main effects of faculty status and course delivery method and the interaction between faculty status and course delivery method on academic success scores for students enrolled in MA 135. Faculty status included two levels (full-time and adjunct) and course delivery method included two levels (online and face-to-face). The results of the analysis indicated there was not a statistically significant difference for the faculty status main effect. However, there was a statistically significant difference for the course delivery method main effect, $F(1, 2689) = 7.36, p = .007$ and the interaction effect, $F(1, 2689) = 26.63, p < .001$. See Table 15 for a summary of the results.

Table 15

*Summary Two-Way ANOVA and Interaction Effects Results for Academic Success Scores by Faculty Status and Course delivery method; Faculty Status * Course delivery method; Faculty Status Factors when Alpha =.05*

Source MA135	SS	df	MS	F	p
Faculty status	0.01	1	0.11	0.06	0.801
Course delivery method	12.88	1	12.88	7.36	0.007
Faculty status * Course delivery method	46.61	1	46.61	26.63	<.001

A Tukey post-hoc analysis was performed to determine the level of significance for the interaction of faculty status and course delivery method. The results indicated students are more successful in face-to-face courses regardless of the status of the faculty teaching the course. However, students enrolled in courses taught by adjunct faculty performed better in the face-to-face environment. See Table 16 for the descriptive statistics.

Table 16

*Descriptive Statistics for the Results of the Test for H8 Academic Success Scores for the Interaction of Faculty Status * Course Delivery Method in MA135*

Faculty status	Course Delivery Method	m	sd	n	Letter grade*
Full-time	Online	2.32	1.40	194	C
	F2F**	2.14	1.24	730	C
Adjunct	Online	1.93	1.45	208	C -
	F2F**	2.50	1.33	1561	C +

Note: *4.00=A; 3.75=A-; 3.50=B+; 3.00=B; 2.75=B-; 2.50=C+; 2.00=C; 1.75=C-

**F2F=Face-to-face

RQ3.c. To what extent do the interactions of course delivery method and faculty status impact academic success for students enrolled in BS 160 General Psychology?

H9: A significant interaction effect exists between and within academic success scores when disaggregated by course delivery method and faculty status for students enrolled in BS 160 General Psychology.

A 2-way ANOVA was conducted to compare the main effects of faculty status and course delivery method and the interaction between faculty status and course delivery method on academic success scores for students enrolled in BS 160. Faculty status included two levels (full-time and adjunct) and course delivery method included two levels (online and face-to-face). The results of the analysis indicated there was not a statistically significant difference for the main effects. However, there was a statistically significant difference for the interaction effect, $F(1, 4179) = 27.25, p = <.001$. See Table 17 for a summary of the results.

Table 17

*Summary Two-Way ANOVA and Interaction Effects Results for Academic Success Scores by Faculty Status and Course delivery method; Faculty Status * Course delivery method; Faculty Status Factors when Alpha = .05*

Source BS160	SS	df	MS	F	p
Faculty status	1.12	1	1.12	0.65	0.421
Course delivery method	0.33	1	0.33	0.19	0.661
Faculty status * Course delivery method	46.96	1	46.96	27.25	<.001

A Tukey post-hoc analysis was performed to determine which mean pairs were significant. The mean value for full-time faculty teaching BS 160 face-to-face (2.68 or

C+) was lower than the value for adjunct faculty teaching BS 160 face-to-face (3.06 or B) indicating students performed better in the face-to-face environment if the course was taught by adjunct faculty. The difference in mean scores online when the data were disaggregated by faculty status was statistically significant, but the result was opposite; students performed better in the online environment if the course was taught by full-time faculty. Students on average earned a grade .28% higher in a course taught online by a full-time faculty member. See Table 18 for the descriptive statistics.

Table 18

*Descriptive Statistics for the Results of the Test for H9 Academic Success Scores for the Interaction of Faculty Status * Course Delivery Method in BS160*

Faculty status	Course Delivery Method	<i>m</i>	<i>sd</i>	<i>n</i>	Letter grade*
Full-time	Online	2.98	1.53	151	B
	F2F**	2.68	1.29	1311	C +
Adjunct	Online	2.70	1.48	872	C +
	F2F**	3.06	1.22	1849	B

Note: *4.00=A; 3.75=A-; 3.50=B+; 3.00=B; 2.75=B-; 2.50=C+; 2.00=C; 1.75=C-

**F2F=Face-to-face

As indicated in the results of testing H1, H2, and H3 students received higher final course grades in courses taught by adjunct faculty than students in courses taught by full-time faculty. When the data were disaggregated by course delivery method, student final course grades were higher in face-to-face courses taught by adjunct faculty. However, student final course grades were higher in online courses taught by full-time faculty. This result was the same for all three courses studied: EG 101, MA 135, and BS 160. Student final course grades were higher in face-to-face MA 135 courses regardless of instructor status.

RQ4: To what extent do the interactions of course delivery method (face to face/online) and faculty status (full-time/adjunct) impact the percentage of persistence (persisted/did not persist) for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015?

RQ4.a. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in EG 101 English Composition I?

H10: A significant interaction effect exists between and within the percentage of persistence when disaggregated by course delivery method and faculty status for students enrolled in EG 101 English Composition I.

A 2-way ANOVA was conducted to compare the main effects of faculty status and course delivery method and the interaction between faculty status and course delivery method on student persistence for students enrolled in EG 101. Faculty status included two levels (full-time and adjunct) and course delivery method included two levels (online and face-to-face). The results of the analysis indicated there was a statistically significant difference for the main effect faculty status, $F(1, 4915) = 4.83, p = .0028$ and the main effect course delivery method, $F(1, 4179) = 6.44, p = .0011$. However, there was not a statistically significant difference for the interaction effect. See Table 19 for a summary of the results.

Table 19

*Summary Two-Way ANOVA and Interaction Effects Results for Student Persistence by Course Delivery Method and Faculty Status and Course Delivery Method * Faculty Status Factors when Alpha = .05*

Source EG101	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Faculty status	0.41	1	0.41	6.11	0.011
Course delivery method	0.31	1	0.31	4.83	0.028
Faculty status * Course delivery method	0.06	1	0.06	0.92	0.338

RQ4.b. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in MA 135 College Algebra?

H11: A significant interaction effect exists between and within the percentage of persistence when disaggregated by course delivery method and faculty status for students enrolled in MA 135 College Algebra.

A 2-way ANOVA was conducted to compare the main effects of faculty status and course delivery method and the interaction between faculty status and course delivery method on student persistence for students enrolled in MA 135. Faculty status included two levels (full-time and adjunct) and course delivery method included two levels (online and face-to-face). The results of the analysis indicated there was a statistically significant difference for the main effect faculty status, $F(1, 3141) = 14.18, p < .001$ and the main effect course delivery method, $F(1, 3141) = 11.78, p < .001$. However, there was not a statistically significant difference for the interaction effect. See Table 20 for a summary of the results.

Table 20

*Summary Two-Way ANOVA and Interaction Effects Results for Student Persistence by Course Delivery Method and Faculty Status and Course Delivery Method * Faculty Status Factors when Alpha = .05*

Source MA135	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Faculty status	1.43	1	1.43	11.78	<.001
Course delivery method	1.72	1	1.72	14.18	<.001
Faculty status * Course delivery method	0.00	1	0.00	0.02	0.882

RQ4.c. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in BS 160 General Psychology?

H12: A significant interaction effect exists between and within a percentage of persistence when disaggregated by course delivery method, and faculty status for students enrolled in BS 160 General Psychology.

A 2-way ANOVA was conducted to compare the main effects of faculty status and course delivery method and the interaction between faculty status and course delivery method on student persistence for students enrolled in MA 135. Faculty status included two levels (full-time and adjunct) and course delivery method included two levels (online and face-to-face). The results of the analysis indicated there was a statistically significant difference for the main effect faculty status, $F(1, 4548) = 6.34, p = .012$. However, there was not a statistically significant difference for the main effect course delivery method or the interaction effect. See Table 21 for a summary of the results.

Table 21

*Summary Two-Way ANOVA and Interaction Effects Results for Student Persistence by Course Delivery Method and Faculty Status and Course Delivery Method * Faculty Status Factors when Alpha = .05*

Source BS160	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Faculty status	0.02	1	0.02	0.31	0.581
Course delivery method	0.47	1	0.47	6.34	0.012
Faculty status * Course delivery method	0.21	1	0.21	2.78	0.095

As indicated in the results of testing H4, H5, and H6 the percentage of students persisting to the end of the course was higher in courses taught by adjunct faculty than the percentage of students persisting to the end of the course in courses taught by full-time faculty. When the data were disaggregated by course delivery method the percentage of students persisting to the end of the course was higher in a course delivered online regardless of the faculty status. This result was the same for all three courses studied; EG 101, MA 135, and BS 160. However, students enrolled in EG 101 and MA 135 persisted to the end of the course at a higher rate when the course was taught by full-time faculty.

Summary

The research questions and hypotheses were presented in chapter four. The results of the study were presented through the data analysis of 12 hypotheses tests. Chapter five will summarize the study and review the research, purpose statement, and research questions. The major findings of the study will be outlined along with recommendations for future research.

Chapter Five

Interpretation and Recommendations

Chapter one introduced and discussed the problem. A review of the literature related to the increased use of adjunct faculty and the potential effect on student outcomes was presented in chapter two. Chapter three included the methodology of the study and chapter four presented the research findings. Chapter five provides a summary of the study including an overview of the problem with a restatement of the purpose and research questions. The major findings of the study are included with a review of the literature related to the findings. Implications for future action and recommendations for further research are also included.

Study Summary

Research on the implications of the increased use of adjunct faculty in face-to-face and online courses on student outcomes has mixed results. As discussed in the literature review, some studies have found a decrease in student success and persistence when students enroll in courses taught by adjunct faculty while others have found no correlation. This study was conducted at a Midwestern community college to discover if there were differences in student success and persistence in three general education courses taught by full-time and adjunct faculty when instruction was delivered face-to-face or online.

Overview of the problem

The use of adjunct faculty has been increasing in colleges and universities since the 1970's as a result of higher enrollment and decreased funding (Kezar & Maxey, 2017; Liu & Zhang, 2007; Smith, 2007; Ronco & Cahill, 2006; Anderson, 2002). The number

of full-time faculty has continued to decline as the number of adjunct faculty has climbed; particularly in community colleges. Some studies have estimated only one-third of the instructors at community colleges are employed full-time (Adjunct Project, 2012, U.S., 2009; Eagan, 2007; U.S., 2002). During the same period, distance education evolved from correspondence to online courses. This type of delivery method is popular among students which resulted in increased enrollment and the need for additional faculty who are likely to be part-time (Cavanaugh & Jacquemin, 2015; Dolan, 2011).

As more students enroll in courses taught by adjunct faculty, the implications related to student success in terms of course grades, course completion, and graduation rates have become popular research topics. Ehrenberg (2012) and Jacoby (2006) found a decrease in graduation rates and an increase in drop-out rates when adjunct faculty taught a majority of the course load in a student's first two years of college. However, Yu (2014) found no negative impact in his study on the effect of part-time faculty on degree completion.

Purpose statement and research questions

The purpose of this study was to determine if there was a significant difference in student success and student persistence to the end of general education courses taught by full-time and adjunct faculty. The study also examined the difference in student success and student persistence in face-to-face and online courses taught by full-time and adjunct faculty. Final course grades and persistence for students enrolled in EG 101 English Composition I, MA 135 College Algebra, and BS 160 General Psychology were studied for the 2013-2014 and 2014-2015 academic years.

The following research questions were established to direct the study.

RQ1: To what extent does faculty status (full-time/adjunct) impact student success scores as measured by final course grade for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015? (Only students receiving a final course grade were included in the study.)

RQ1: To what extent does faculty status (full-time/adjunct) impact student academic success scores as measured by final course grade for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015? (Only students receiving a final course grade were included in the study.)

RQ1.a. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in EG 101 English Composition I?

RQ1.b. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in MA 135 College Algebra?

RQ1.c. To what extent is there a mean difference in academic success scores when disaggregated by faculty status for students enrolled in BS 160 General Psychology?

RQ2: To what extent does faculty status (full-time/adjunct) impact percentage of student persistence (completion/non-completion) in three selected general education courses for the academic years 2013-2014 and 2014-2015? (Only students receiving a final course grade were classified as persisted.)

RQ2.a To what extent is there a proportional difference in student persistence percentage between those courses taught by full-time faculty and those taught by adjunct faculty when enrolled in EG 101 English Composition I?

RQ2.b. To what extent is there a proportional difference in student persistence percentage between those courses taught by full-time faculty and those taught by adjunct faculty when enrolled in MA 135 College Algebra?

RQ2.c. To what extent is there a proportional difference in student persistence percentage between those courses taught by full-time faculty and those taught by adjunct faculty when enrolled in BS 160 General Psychology?

RQ3: To what extent does course delivery method (face to face/online) and faculty status (full-time/adjunct) impact student academic success as measured by final course grade (grade converted to point system) for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015?

RQ3.a. To what extent does the interaction of course delivery method and faculty status impact academic success for students enrolled in EG 101 English Composition I?

RQ3.b. To what extent does the interaction of course delivery method and faculty status impact academic success for students enrolled in MA 135 College Algebra?

RQ3.c. To what extent does the interaction of course delivery method and faculty status impact academic success for students enrolled in BS 160 General Psychology?

RQ4: To what extent does course delivery method (face to face/online) and faculty status (full-time/adjunct) impact the percentage of persistence (completion/non-completion t) for students enrolled in three selected general education courses for the academic years 2013-2014 and 2014-2015?

RQ4.a. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in EG 101 English Composition I?

RQ4.b. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in MA 135 College Algebra?

RQ4.c. To what extent do the interactions of course delivery method and faculty status impact the percentage of persistence for students enrolled in BS 160 General Psychology?

Review of the methodology

This was an archival study based upon final student grades and student persistence data gathered from a Midwestern community college. The research design used for the study was quantitative, causal-comparative. The independent variables, faculty status and course delivery method, are not manipulated in this type of study. The dependent variables were student success and student persistence.

Student success was determined based on the final course grade. Students earning a “C” or higher were considered successful for this study. Student persistence was determined based on the number of students who persisted to the end of the semester and earned a final grade. Students who withdrew or were withdrawn by their instructor were not included in persistence data.

Major findings

Analysis of the differences in final course grades and student persistence in courses taught by adjunct faculty as compared to those taught by full-time faculty in face-to-face and online courses revealed several significant findings.

1. Student final course grades were higher in courses taught by adjunct faculty.

- a. This finding applied to all three general education courses although the difference was larger in MA 135 (.25%) and BS 160 (.23%).
2. Student final course grades were higher in online courses taught by full-time faculty.
 - a. This finding applied to all three courses studied; EG 101 (.22%), MA 135 (.39%), and BS 160 (.28%).
 - b. Student final course grades were higher in face-to-face MA 135 courses regardless of instructor status.
3. Student persistence to the end of the course was higher in courses taught by adjunct faculty.
 - a. This finding applied to all three courses studied; however, results were only statistically significant in MA 135 and BS 160.
 - b. Students are 7.1% more likely to persist in MA 135 and 4.5% more likely to persist in BS 160 courses taught by adjunct faculty.
4. Student persistence to the end of the course was higher in online course regardless of faculty status.
 - a. This finding applied to all three courses studied; however, students persisted at a higher rate in EG 101 and MA 135 courses when taught by full-time faculty.

Findings Related to the Literature

The results of this study align with the findings of Yu (2014) and Rossol-Allison and Byers (2011) who found adjunct faculty have no negative impact on student outcomes. Student retention and graduation rates were not negatively impacted in either

study by faculty status. Higher student final course grades in courses taught by adjunct faculty support the findings of Figlio, Schapiro and Soter (2013).

Several studies summarized in Chapter 2 indicated students performed better in the face-to-face environment (Atchley et al., 2013; Jaggars, Edgecombe & Stacey, 2013; Willging & Johnson, 2009). This study found students enrolled in MA 135 College Algebra also achieved higher grades in sections with face-to-face instruction. However, this study found that student final course grades in EG 101 and BS 160 were higher in online courses taught by full-time faculty which aligns with the research by Dolan (2011) who studied adjunct faculty and the impact on student outcomes. Betts (2014) and Bettinger and Long (2004) discussed the time-consuming nature of online courses and the commitments outside of academia of adjunct faculty which can lead to a decreased focus on student learning.

The literature reviewed on student persistence indicated students are more likely to persist in courses delivered face-to-face (Jaggars, Edgecombe & Stacey, 2013; Simpson, 2013; Xu & Jaggars, 2013). However, this study revealed the percentage of students persisting to the end of the course was higher in courses delivered online which aligns with the research of Wilson and Allen (2011). Students enrolled in courses taught by full-time faculty persisted at a higher rate regardless of delivery method in EG 101 and MA 135. This finding aligns with the results of studies conducted by Baldwin and Wawrzynski (2011) and Jacoby (2006) who pointed out the differences in instructional strategies employed by adjunct faculty. The lack of high-impact strategies and reliance on lecture-based class sessions contributed to lower student outcomes.

Conclusions

The results of this study found higher student final grades in courses taught by adjunct faculty. Delivery method did not negatively impact student persistence, although students did persist at a higher rate in online courses taught by full-time faculty. The results of this study align closely with researchers who found no connection between faculty status and delivery method or negative impact on student learning and persistence (Cavanaugh & Jacquemin, 2015; Yu, 2014; Rossol-Allison and Byers, 2011; Wilson & Allen, 2011; Rossol-Allison).

Implications for action

Faculty, regardless of status, are the greatest asset and should be invested in for continued loyalty to the institution. Engaged and loyal faculty are more committed to students and focused on student outcomes. Professional development, meaningful evaluation, and timely feedback are important in the engagement of faculty. Students also require attention for continued course engagement, particularly in online courses. Strategies such as course orientations and synchronous discussions help duplicate the in-class environment and increase student participation in online courses.

Based on the findings of this study, the following future actions are recommended:

1. Assign adjunct faculty course load early, when possible, to allow sufficient time for course preparation
2. Offer professional development opportunities to allow adjunct faculty to improve classroom management skills and assessment strategies

3. Provide access to office space, supplies, computer, etc. to fully equip faculty and improve connections to the institution

Recommendations for future research

This study was limited to three general education courses at one institution. Studying final course grades and student persistence of all general education courses would provide a more complete picture of student success. The results of a wide-spread study would allow the institution to determine if a relationship between faculty status and course delivery method does exist and how student success and persistence are impacted.

Based on the findings of this study, there is support for additional research in the following areas:

1. Grade inflation
2. Student success and persistence in online courses
3. Variables other than faculty status that impact student success and persistence
 - a. Following students from their first course through graduation/transfer or withdrawal would provide additional information not included in the current study.

Concluding remarks

This study identified four research questions and 12 accompanying hypothesis for the purpose of determining the impact of faculty status and course delivery method on student final grades and persistence. Although several studies summarized in Chapter 2 indicated otherwise, this study did not find a negative correlation between faculty status and student success. Student final course grades were higher in courses taught by adjunct faculty. However, the difference was not substantial; one quarter of a letter grade or less.

Course delivery method did not negatively impact student success or persistence, although final course grades were higher in courses taught online by full-time faculty.

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Appendix

Appendix A: Baker University IRB Approval



Baker University Institutional Review Board

March 20, 2016

Dear Jennifer Seymour and Dr. Mehring,

The Baker University IRB has reviewed your research project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.

Please inform this Committee or myself when this project is terminated or completed. As noted above, you must also provide IRB with an annual status report and receive approval for maintaining your status. If you have any questions, please contact me at CTodden@BakerU.edu or 785.594.8440.

Sincerely,

Chris Todden EdD
Chair, Baker University IRB

Baker University IRB Committee
Verneda Edwards EdD
Sara Crump PhD
Erin Morris PhD
Scott Crenshaw