

COMPARING THE COLLEGE PERSISTENCE OF DUAL-ENROLLED 11TH AND 12TH  
GRADE HIGH SCHOOL STUDENTS BASED ON GENDER AND MODE OF COURSE  
DELIVERY

by

Joseph Lawrence Depenhart

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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## ABSTRACT

The purpose of this quantitative causal-comparative study was to determine if a statistically significant relationship exists between the level of postsecondary persistence (DV) of dual-enrolled students based on student gender (IV) and the mode of course delivery (IV). This study used Tinto's and Bean's Student Integration Theories to explain how gender and participation in the different modes of course delivery in a dual-enrollment program affects the college persistence of 11th and 12th grade high school students as measured using the *College Persistence Questionnaire (CPQ)*. This study examined the relationship between a student's gender and mode of course delivery and the college persistence of dual-enrolled 11th and 12th grade high school students. The problem addressed by this study was the uncertainty of how gender and mode of course delivery affects the college persistence of dual-enrolled high school students. Data from the *CPQ* was collected from a convenience sample of 101 dual-enrolled high school students taking courses in one of the three modes of delivery at a rural technical college in a southern U.S. state. The data was analyzed using a two-way ANOVA with two groups at an  $\alpha < 0.05$  level to determine if a statistically significant relationship exists. The results of the ANOVA indicated a statistically significant difference in the college persistence scores of dual-enrolled high school students based on mode of course delivery, while the results for gender and the interaction between the two independent variables were not significant.

*Key Words:* Dual-enrollment, college persistence, mode of delivery, postsecondary

## Dedication

First, I want to dedicate the manuscript to my Lord and Savior Jesus Christ; through him all things are possible. Throughout my time here at Liberty University I have had much time to reflect upon the writings in the Bible and how they apply to our everyday lives. The word of God has much to say on the topic of gaining knowledge. The Bible states, “The mind of the intelligent gains knowledge, and the ear of the wise seeks knowledge” (Proverbs 18:15, New American Bible for Catholics). The Bible also states, “Instruct a wise man, and he becomes still wiser; teach a just man, and he advances in learning” (Proverbs 9:9, New American Bible for Catholics). The Bible expresses the importance of using the knowledge one has gained when it says, “As each one has received a gift, use it to serve one another as good stewards of God’s varied grace” (1 Peter 4:10, New American Bible for Catholics). I pray I can use the wisdom God has granted me through the course of this experience to benefit the education of others.

Second, I want to dedicate this manuscript to my family. To my wife Lucia, your love and support have been critical to the completion of this dissertation. Your constant love, encouragement, and understanding as I researched and studied were crucial to seeing this through to completion. You gave me the strength to make it this far. You have my love and devotion for eternity. To my children Kelsey, Jeremy, and Sarah: this has been a long journey and your understanding and sacrifice along the way have contributed greatly to me making it to the end. To my parents, Joseph and Roberta, you instilled in me the values, attributes, and faith necessary to make this possible. I am the man I am because of your example.

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### **List of Abbreviations**

Analysis of Variance (ANOVA)

*College Persistence Questionnaire* (CPQ)

Dependent Variable (DV)

End of Course test (EOCT)

Georgia Department of Education (GADOE)

Georgia Student Finance Authority (GSFA)

Grade Point Average (GPA)

Independent Variable (IV)

*Move on When Ready* (MOWR)

Research Question (RQ)

## **CHAPTER ONE: INTRODUCTION**

### **Overview**

Dual-enrollment programs have become a common fixture in American secondary education. These programs provide high school students with the opportunity to complete college courses while they are still attending high school and receive both college and high school credit (D'Amico, Morgan, Robertson, & Rivers, 2013). While much research has been conducted on this topic over the last several years, gaps in the literature still exist and need to be addressed to provide a better understanding of how to best reap the benefits of these programs.

The researcher examined the effects of student gender and mode of course delivery on the college persistence of high school students participating in a dual-enrollment program. The study took place at a community technical college located in a Southern state against the backdrop of Tinto's and Bean's Student Integration Theories. This chapter provides a summary of the background, problem and purpose statements, study significance, and research questions related to the gap in the literature on the effects of course modality on postsecondary persistence. Additionally, this chapter contains a list of definitions applicable to the present study.

### **Background**

Dual-enrollment programs have been in existence for more than 60 years, and yet relatively little research exists to examine the impacts of these programs on postsecondary success (Taylor, 2015). One of the earliest examples of dual-enrollment programs is the 1976 program enacted by the state of California, which was limited to only community colleges (Mokher & McLendon, 2009). From this early example, dual enrollment has grown and expanded dramatically. Today, some dual-enrollment programs offer not only enrollment in the state's local community and technical colleges but in all state four-year universities as well

(Mealer, 2015). Dual-enrollment programs come in many variations, but the core principle remains the same – high school students completing college-level courses (Hofmann, 2012). These types of programs aid in preparing high school students for success in college by eliminating many of the barriers that exist between the two levels of education (Edmunds, 2012).

Dual-enrollment programs have continuously grown nationally over the last several years. In the academic year 2010-2011, 46% of all two-year and four-year degree-granting postsecondary institutions had dual-enrollment programs, 96% when considering just two-year, with a total enrollment of 1,227,100 students (Marken, Gray, & Lewis, 2013). These programs have continued to grow nationally at a rate of about 7% annually since the 2002-2003 school year (National Alliance of Concurrent Enrollment Partnerships, n.d.). Several variations are offered for how students can participate in these programs. In some instances, students take classes at a local college or university, while in others, college instructors provide instruction at the high school (Gross, 2016). Students may also enroll in courses offered completely online in which students take a college-level curriculum at a time and location convenient to them (Mealer, 2015). With such rapid growth, it is critical that administrators and policy makers ensure that these programs adequately prepare high school students for the college experience (Giani, Alexander, & Reyes, 2014).

As the pace of growth in these programs has accelerated, so has the research into such programs' effects. What has been less disputed in recent literature is the overall benefit enjoyed by dual-enrollment students. Dual-enrollment programs help prepare high school students for postsecondary success by exposing them to the rigors and expectations of college coursework (Karp, 2012). Students who completed at least one dual-enrollment course during high school experienced substantial gains in terms of number of credit hours completed and overall grade

point average (GPA) during their first semester of postsecondary education (Allen & Dadgar, 2012). Students who participated in dual-enrollment programs had a 91% chance of enrolling in a postsecondary program and a 52% likelihood of graduating that program (Taylor, 2015). In comparison, high school students who did not participate in dual-enrollment programs only had a 63% chance of enrolling in a postsecondary program and a 29% of graduating that program (Taylor, 2015).

As the body of literature surrounding dual-enrollment programs has grown, researchers have begun to expand studies into questions surrounding the different variables associated with dual-enrollment programs. Participation in non-core courses typically had less of an impact on postsecondary outcomes than participation in a course in a core academic subject (Giani et al., 2014). Students who took technical education before entering higher education typically underperformed during their first year at the university level (Bowden, Abhayawansa, & Bahtsevanoglou, 2015). Additionally, students who have participated in technical education within the last year tended to be overconfident based on their level of self-efficacy (Bowden et al., 2015). These results of these studies indicate that that subject of the courses offered could impact the benefits associated with dual-enrollment programs.

In addition to offering classes at the college and high school campus, some dual-enrollment programs allow high school students to enroll in online classes. This mode of course delivery has expanded dramatically over the last few years and is an option for students enrolled in the dual-enrollment program discussed in the present study (Mealer, 2015). This expansion of online learning opportunities has meant that even more students now have access to educational opportunities at their local community colleges (Palacios & Wood, 2015). Some instructors believe that presence and engagement are just as equally available in an online setting as they are

in the traditional classroom (Burgess, 2015). Also, some students can begin to feel turned off by the traditional meeting times found in face-to-face courses and they often feel as if they are time-starved (Moody, 2004).

Likewise, Porter, Pitterle, and Hayney (2014) found 26% of students surveyed in a classroom course said the inflexibility of student schedules was a great disadvantage. Additionally, the online tools and technology incorporated in online learning come second nature to many students and they can quickly adapt to unfamiliar features (Burgess, 2015). These opinions of online learning, however, have not always been positive. Kaupp (2012) found most combinations of students based on gender and ethnicity experienced worse outcomes in online instruction compared to those taking face-to-face courses. While online instruction arguably has its advantages and disadvantages, many researchers suggest the traditional classroom setting is the preferred mode of course delivery. Some instructors associate a physical presence in the classroom with attributes such as intimacy, engagement, and effectiveness (Burgess, 2015). In response to open-ended questions about their experience, 45% of students questioned felt the ability to ask the instructor questions in real time was the greatest benefit of traditional classroom instruction (Porter et al., 2014).

These differences in student experiences can be explained in part by Tinto's Student Integration Theory, which stated that one of the most important aspects of student life for younger students is meeting new people and making friends (Tinto, 1997). Institutional life is the result of formal and informal experiences they have with the other students, staff, and faculty at the school (Tinto, 1993). This type of atmosphere is not always possible in an online learning or high school classroom situation. According to Tinto's theory of student integration, a mix of both academic and social integration is required to fully integrate a student into college life

(Tinto, 1997). This does not necessarily mean a student is entirely rooted into the whole college system but rather that they find their place at a minimum, within a sub-culture of the institution (Tinto, 1975). Experiences in the classroom often serve as a catalyst for the interactions that occur outside of the classroom environment (Tinto, 1993). The experiences in the college classroom enable students to bridge their personal experiences and course content while experiencing a diverse range of views from their classmates (Tinto, 1997).

The best location for college courses to be offered is also often debated. Some feel college courses being offered at the high school were not the same as regular college students (Lile, Ottusch, Jones, & Richards, 2017). At the same time, Lile et al. (2017) found dual-enrollment students taking classes at the high school still did not change their social interaction routines and they still interacted with the same groups of students as prior to taking college classes. This lack of feeling like college students and remaining in the same peer group aligned with Tinto's theory. Tinto (1997) stated that a primary effort of first year college students is to establish a supportive peer group to make the transition to college easier. Based on Tinto's (1993) theory and the study findings by Lile et al., it is possible to see how a course taught on the high school campus may limit the college experience of dual-enrolled high school students.

Student gender has also been shown to be a factor in postsecondary success. Female students are more likely to experience a low GPA due to homesickness (Sun, Hagedorn, & Zhang, 2016). At the same time, men are more likely to depart college due to academic failure (Tinto, 1975, 1993). Additionally, female students tend to participate more during online discussions (Vella, Turesky, & Hebert, 2016), while males tend to dominate discussions in the traditional classroom (Caspi, Chajut, & Saporta, 2008). The rates of persistence have also differed between male and female students. Males and females fail to persist for different

reasons (Bean, 1980; Bean & Kuh, 1984), with females more likely to leave due to social reasons and males departing more often for academic reasons (Tinto, 1975, 1993). Female students are more likely to persist than male students (Clark, 2015). Among dual-enrollment students, females have also shown a higher rate of persistence (Giani et al., 2014). However, males complete degrees more often than females (Tinto, 1975). These differences in persistence between men and women are further exacerbated by the different modes of course instruction (Rovai, 2001; Vella et al., 2016).

Both state and federal agencies have shown increased attention in investing in programs that expand access to postsecondary education (Tinto, 2012). However, this emphasis has not always produced the desired returns in student retention rates (Tinto, 2007). Given that the dual-enrollment programs are open to such a wide range of course options, it is essential that policy makers and school administrators are acutely aware of which modes of course delivery are the most successful and lead to the best outcomes, in terms of postsecondary success, for participating high school students. The limited research on the effects of gender, the mode of course delivery, and the fact the results of some studies disagree on which mode or location is more beneficial to dual-enrollment students creates a disparity in the literature, which has been addressed by this study. Much research on gender and the mode of course offerings exist, but little focuses specifically on dual-enrollment students and their postsecondary success. Much more needs to be examined on the topic of dual-enrollment programs, including how the benefits of the different modes of course instruction and student gender impact the persistence of dual-enrolled high school students.

## **Problem Statement**

Numerous studies have identified participation in dual-enrollment programs as a positive indicator of success in postsecondary programs (Giani et al., 2014; Grubb, Scott, & Good, 2017; Lawrence, 2017; Taylor, 2015; Wallace, 2017). However, relatively little research has examined the impacts of these programs on postsecondary success (Taylor, 2015). As a result, the exact effects of mode of course delivery, including location, on the success of dual-enrollment programs have not been fully explored. Additionally, numerous studies have examined how gender plays a factor in postsecondary outcomes (Bean, 1980, 1982; Bean & Kuh, 1984; Rovai, 2001; Tinto, 1975, 1993; Vella et al., 2016); however, little of it has focused specifically on dual-enrollment students. Future research on the effects of gender in dual-enrollment program is needed (Dixon & Slate, 2014).

Dixon and Slate (2014) examined the relationship between course location and success in the dual-enrollment courses. The researchers found students who took three specific courses at the high school location had a significantly higher success rate than those who took the same courses at the college campus (Dixon & Slate, 2014). This led Dixon and Slate to call for additional research on the types of dual-enrollment courses given at different locations. Giani et al. (2014) explored the impact of dual-enrollment on postsecondary success but only looked at the program and did not consider variables such as course location. Giani et al. stated additional research is needed to examine how the relationship between mode of course delivery – online instruction, college courses taught at the high school, and college courses taught at the college campus – might influence a student’s postsecondary outcomes. Likewise, Grubb et al. (2017) explored the impact of dual-enrollment first-time college freshmen; however, only college students who had previously participated were examined. Additionally, Grubb et al. suggested

that future research into dual-enrollment programs, including course location may help further the understanding of the benefits of dual-enrollment programs.

Tinto (1975, 1993) and Bean (1980, 1982) theorized that gender played a role in the level of college persistence. Bean (1982) examined the effects of gender on high and low confidence college students. The researcher showed that while intent to leave was the variable that had the greatest impact on all four groups, the rank of the variables varied after that (Bean, 1982). Further, more recently Clark (2015) found females are more likely to persist in college. There have been several callings for future research into the effects of gender on college persistence (Hagedorn, 1999), to include dual-enrolled students (Dixon & Slate, 2014). However, not all research has agreed. Some studies have failed to show a difference in the college persistence based on gender of both first-generation college students (D'Amico & Dika, 2013) and dual-enrollment students (D'Amico et al., 2013). While at the same time, Giani et al. (2014) found female students were more likely than males to successfully complete a dual-enrollment course.

While numerous studies have examined the benefits of dual-enrollment on postsecondary persistence (Giani et al., 2014; Grubb et al., 2017; Lawrence, 2017; Taylor, 2015; Wallace, 2017) and thoroughly explored the advantages and disadvantages of the different modes of course delivery (Burgess, 2015; Kaupp, 2012; Lile et al., 2017; Porter et al., 2014) and gender (Bean, 1980; Bean, 1982; Bean & Kuh, 1984; Rovai, 2001; Tinto, 1975, 1993; Vella et al., 2016), it remains unclear how mode of course delivery and students' gender could affect the persistence of dual-enrolled high school students. The current study expanded upon the existing research by attempting to close this gap in the literature.

### **Purpose Statement**

The purpose of this quantitative causal-comparative study is to determine if a statistically significant relationship exists between the level of postsecondary persistence (DV) of dual-enrolled students based on mode of course delivery (IV) and the students' gender (IV). The DV was measured by the *College Persistence Questionnaire (CPQ)* (Davidson, Beck, & Grisaffe, 2015). For this study, the independent variable, mode of course delivery, is defined as how the course is delivered, either through being taught on the college campus, the high school campus, or completely online (Ozmun, 2013). For this study, the independent variable, gender, is defined as whether the student is a male or female. For this study, the dependent variable, postsecondary persistence, refers to the likelihood of whether a first-time college student will continue enrollment into a subsequent semester (Giani et al., 2014). The current study built upon the existing literature (Bean, 1980, 1982; Bean & Kuh, 1984; Giani et al., 2014; Grubb et al., 2017; Lawrence, 2017; Taylor, 2015; Tinto, 1975, 1993, 1997, 2007; Wallace, 2017) used Tinto's and Bean's Student Integration Theories to explain participation in dual-enrollment programs with postsecondary success.

This study built upon the existing literature by comparing the difference in the mean persistence scores on the *CPQ* of dual-enrolled 11th and 12th grade high school students under various modes of course delivery and gender. To gain an understanding of the relationship between the dependent variable, postsecondary persistence, and the independent variables, mode of course delivery and gender, the present study compared the mean persistence rates from the *CPQ* for each level of the independent variable. The current study utilized convenience sampling. The population chosen for studying the relationship between postsecondary persistence based on course modality was high school students, enrolled at technical college in a

Southern state, who took college courses either on the college campus, or college courses at a high school, or college courses online while participating as a dual-enrollment student during the 2017-2018 school year. The technical college used in this study had a 2015 fall enrollment of 1,667 students with a persistence rate of 52% for full-time students and 47% for part-time students (NCES, n.d.).

### **Significance of the Study**

The current study extends the existing body of knowledge on the benefits of dual-enrollment programs. The results of both qualitative and quantitative studies have found positive benefits are realized by dual-enrolled students, regardless of course modality (Lile et al., 2017). Grubb et al. (2017) found more than 30% of students who completed dual-enrollment programs graduated community college within two years compared to those who did not participate in such programs, of which only 15% completed within two years. Giani et al. (2014) found the participation in dual-enrollment courses had a greater effect on postsecondary outcomes than enrollment in traditional advanced placement courses. Grubb et al. also found less than 4% of students enrolled in a dual-enrollment program received remediation during postsecondary instruction, a rate significantly lower than those students who did not participate in a dual-enrollment program, more than 11% of whom received remediation.

To further the understanding of these benefits, the current study adds to the collective body of knowledge on this subject by examining the additional variables of mode of course delivery and student gender. Dual-enrollment courses are available in a wide range of mode and locations. While there has not been much research on how these different modes of course delivery impact high school students, these modes have been studied at the postsecondary level. Vella et al. (2016) found students who were enrolled in a hybrid modality with a mix of

classroom and online instruction received a higher grade and were more likely to complete the course than those enrolled in classed offered entirely online. Xu and Jaggars (2014) found students who participated in online instruction had a lower persistence rate than those who participated in traditional face-to-face courses. This research is important as it provides policy makers with information that could affect decisions on future modes of course delivery offered and vital information on how students' gender may play a role in their success.

### **Research Questions**

**RQ1:** Is there a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire*, based on mode of course delivery?

**RQ2:** Is there a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire*, based on student gender?

**RQ3:** Is there a significant interaction in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire*, based on student gender and mode of course instruction?

### **Definitions**

1. *College Persistence Questionnaire (CPQ)* – An instrument developed to measure projected college persistence by measuring factors that can predict student attrition (Davidson et al., 2015)
2. *Dual Enrollment* – The earning of college credit for courses while still enrolled as a high school student (Grubb et al., 2017)

3. *Mode of Course Delivery* – How and where a course is offered: either online, at the high school, or at the college (Mealer, 2015)
4. *Persistence* – Students remaining for regular college enrollment in at least one semester following their first year of postsecondary courses (Giani et al., 2014).
5. *Postsecondary* – Private and public technical schools, colleges, and universities (Giani et al., 2014).
6. *Social Fit* – How well students are rooted socially into their college setting (Bean & Metzner, 1985).

## CHAPTER TWO: LITERATURE REVIEW

### Overview

Dual-enrollment programs that enable high school students to enroll in courses at local colleges and simultaneously earn high school and college credit have continuously grown over the last several years. These programs provide high school students with the opportunity to complete college courses while they are still attending high school and receive both college and high school credit (D'Amico, Morgan, Robertson, & Rivers, 2013). In the academic years 2010-2011, 46% of all 2-year and 4-year degree-granting postsecondary institutions had dual-enrollment programs with a total enrollment of 1,227,100 students (Marken, Gray, & Lewis, 2013). These programs have been in place for over 60 years (Taylor, 2015) and have continued to grow nationally at a rate of about 7% annually since the 2002-2003 school year (National Alliance of Concurrent Enrollment Partnerships, n.d.).

The topic of dual-enrollment programs has been the focus of research over the last several years. However, much of the research on dual-enrollment programs has examined these programs as a single issue and has not considered the number or types of courses taken (Giani, Alexander, & Reyes, 2014) or gender of the participating students (Dixon & Slate, 2014) as a predictor of desirable post-secondary outcomes. Additionally, relatively little research has examined the impacts of these programs on postsecondary success (Taylor, 2015). While many studies have identified participation in dual-enrollment programs as a positive indicator of success in postsecondary programs (Giani et al., 2014; Grubb, Scott, & Good, 2017; Lawrence, 2017; Wallace, 2017), few have examined additional variables such as the mode of course delivery as a predictor of success in postsecondary programs. Additionally, while many studies have linked gender to success within the various modes of course instruction (Giani et al., 2014;

Rovai, 2001; Vella, Turesky, & Hebert, 2016; Yang, Cho, & Watson, 2015), few have examined the impact of gender on the persistence of dual-enrollment students.

This chapter begins by analyzing the theoretical framework behind the link between dual-enrollment programs and how the various modes of course delivery and student gender affect the college persistence level of participating high school students. Next, this review includes a comparison of the advantages and disadvantages of three modes of course delivery: college courses offered at the high school campus, college courses offered at the college campus, and college courses taught entirely through online instruction, as well as how gender plays a role in course success. The chapter concludes by identifying the gaps in the literature and calling for additional research to better understand how the variables of the mode of course delivery and gender affects the college persistence of dual-enrolled high school students.

## **Theoretical Framework**

### **Integration Theory**

This literature review examines the theories of Bean (1980) and Tinto (1975) and their numerous subsequent works to explain why students fail to persist in their postsecondary education. One theme that they share is that student retention is largely a result of students' individual actions and their level of willingness to be successful at the college level (Tinto, 1993). These theories are relevant to the present study because they lay the foundation for why the different modes of course delivery found in dual-enrollment programs can affect the college persistence of 11th and 12th grade high school students. Additionally, they were used as the foundational theories in the creation of the instrument, *College Persistence Questionnaire (CPQ)*, used in the present study (Davidson, Beck, & Grisaffe, 2015; Davidson, Beck, & Milligan, 2009).

Both state and federal agencies have shown increased attention in investing in programs that expand access to postsecondary education (Tinto, 2012). However, this emphasis has not always produced the desired returns in student retention rates (Tinto, 2007). Students are more likely to leave postsecondary education than they are to complete it (Tinto, 1993). This problem has plagued postsecondary education for decades (Bean, 1980). In 1993, nearly 2.4 million students entered a college or university, but more than 1.5 million of them departed their institution without a degree (Tinto, 1993). The problem is even greater in two-year colleges, which often experience an attrition rate higher than their four-year counterparts (Tinto, 1975). This exodus of students from their first attempt at higher education has a tremendous impact both on the students themselves and the institutions they attend (Tinto, 1993).

### **Vincent Tinto**

Tinto (1975) felt that while research into the phenomenon of dropping out, although extensive, still failed to address the individual characteristics that caused students to drop out of higher education, and instead grouped them all together into one large cluster. Because earlier research failed to address these individual characteristics appropriately, they failed to help colleges adequately address the issue of student retention (Tinto, 1993). Tinto began to examine these individual characteristics by basing his research on Durkheim's theory of suicide; specifically, that suicide was the result of a lack of societal fit resulting from either a lack of moral integration or collective affiliation (Tinto, 1975). Colleges are no different than other parts of society and an individual's departure from that segment of society is the product of either individual or a combination of his or her own actions and the actions of others around (Tinto, 1993).

Tinto (1975) felt that dropping out because of an individual's lack of interactions with

other individuals at the college, or an inability to adopt the values of that segment of society, was like the reasons an individual would choose to depart from society. The act of dropping out is mostly a product of events that occur in the social and intellectual life of the students after they enter the college (Tinto, 1993). Tinto (1975) believed that it was important to separate the social and academic reasons for dropping out into individual categories. This is because the academic and social structures that exist in college each have their own individual characteristics and students' inability to function with either structure can result in their withdrawal from the system (Tinto, 1993). An important relationship exists between the experiences in and the structure of the college classroom and the level of student persistence (Tinto, 1997). A student who lacks a sufficient social integration could still drop out regardless of their academic performance, likewise, a student who attains a strong social integration could still fail to persist due to poor grades (Tinto, 1975).

### **John Bean**

Like Tinto, Bean (1980) felt that previous research into the causes of student dropout failed to address the individual characteristics that caused the phenomenon; however, rather than compare the causes to suicide as Tinto had done, Bean instead related them to those of workplace turnover. Bean (1980) originally theorized that there were 23 variables that had the greatest impact on whether a student dropped out from college; however, Bean (1982) revised this list down to 10 including: intent to leave, practical value, certainty of choice, loyalty, grades, courses, educational goals, major and job certainty, family approval, and opportunity to transfer. In addition, Bean theorized that both the gender of the individuals as well as their level of confidence played a role in why they failed to persist in college and that men and women had different reasons for dropping out (Bean, 1980, 1982).

Studies conducted by Bean show several differences in how gender plays a role in student persistence. Bean (1980) found men and women drop out of college for different reasons. In a study of high and low confidence men and women, Bean (1982) found the variable that had the greatest impact on the likelihood of a student dropping out in all four groups was intent to leave. Grades was the second most important variable, except in the case of high-confidence in women, where it did not even rank in the top four (Bean, 1982). The ranking of the variables after second varied greatly depending upon the gender and confidence level of the student (Bean, 1982). Additionally, not only are men and women affected by contact with faculty members in different ways, but gender also played a role in student behavior (Bean & Kuh, 1984).

### **Lack of Fit**

While there are key differences in the theories of Tinto and Bean, one concept they both share is the concept of student fit. The concept of fit was first discussed by Tinto (1975) in a synthesis of research on college dropouts. Tinto believed many of the past theories surrounding student departure from postsecondary institutions failed to explain why students do not persist (Tinto, 1993). Both Bean (1980) and Tinto (1975) discussed the concept of student fit as a partial explanation for a student's level of persistence. A lack of fit can arise from a combination of social and academic issues (Tinto, 1993). College persistence and overall student satisfaction are related to an alignment between institutional attributes and the students' interests and needs (Bowman & Denson, 2014). According to Tinto's theory of student integration, a mix of both academic and social integration is required to fully integrate a student into college life (Tinto, 1997). This lack of fit is most often a matter of a student's individual perception of life at that institution (Tinto, 1993).

Students who feel they fit at their chosen institution are more likely to persist (Bean,

1985). In their time at college, most students will experience some degree of a lack of fit (Tinto, 1993). However, a poor match of institution to individual student needs often results in poor and uninformed choices on the part of the student (Tinto, 1993). Quite often, students do not grasp the social and academic rules of their chosen institution until it is too late, and they have already committed an infraction (Bean, 1980). Building strong connections with their peers and social networks is critical to a successful experience during students' first years of college (Kaighin & Croft, 2013). A proper fit will occur when the student has accurate and realistic expectations about the social and intellectual character of the institution (Tinto, 1993). Because college consists of both academic and social domains, it is important to distinguish between the student integration needs of the two individually (Tinto, 1975). However, because either can cause a student to withdraw, both are equally important (Tinto, 1975). More research is needed in student fit (Bowman & Denson, 2014).

### **Academic Fit**

Numerous reasons influence why students experience academic challenges in college. When examining why students leave school, researchers often fail to separate academic issues from other reasons for departure from the institution (Tinto, 1975). Academic issues in college can either lead to the academic dismissal of the student or result in the student leaving voluntarily, because he or she believes his or her continued presence will ultimately result in academic failure (Tinto, 1993). However, student academic issues are not limited to just instructional rigor. This same phenomenon can result from a lack of academic rigor where the student becomes bored and decides to leave the institution (Tinto, 1993). Some students also find it difficult to identify a major they find satisfying, resulting in difficulty making career and college transitions (Milsom & Coughlin, 2017). Additionally, some students lack the personal

initiative needed to take full advantage of the numerous academic resources available to them (Tinto, 1993).

Quite often, this poor academic performance pushes students away from faculty who might have been a source of help (Bean & Kuh, 1984). The size of the school can also play a role as faculty in larger schools may have less opportunity to interact with or assist individual students (Crispin, 2016). In some cases, students may lack the commitment to complete the academic work needed to challenge themselves, or lack the goals and personalities needed to be successful at the postsecondary level (Tinto, 1993). In other instances, dual-enrollment courses offered at the high school level may have a lower level of rigor (Dixon & Slate, 2014). This, in turn, could result in students being unprepared for the rigors of college classes and less likely to find an academic fit as described by Tinto (1993).

A lack of academic fit can also result from the student making a poor college choice. Disappointment on the part of the student often results from haphazard institution selection due to obtaining incomplete or inaccurate information about the school, resulting in an unrealistic or incorrect view about an institution's character, often leading to a general feeling of betrayal by the institution (Tinto, 1993). Additionally, selecting a major that the student finds satisfying can have a significant impact on their college Grade Point Average (GPA) (Milsom & Coughlin, 2017). A strong positive relationship exists between finding a major the students feel aligns with their personal interests and their academic performance (Vahidi, Roslan, Abdullah, & Omar, 2016). Lastly, academic fit may have a greater effect on men. Not having a high college GPA is more characteristic of men than of women (Bean, 1980).

### **Social Fit**

Although a lack of academic preparation plays a part, the high rate of departure is more

likely a product of a student's social and intellectual experiences at the institution resulting from a lack of integration (Tinto, 1993). Social integration is defined as how well students are rooted into their college setting (Bean & Metzner, 1985). Social integration can also be defined as the reciprocal exchange of values and norms that occur between the students and the group with which they have associated (Bean & Kuh, 1984). A lack of social fit arises when the students perceive the values, preferences, and behaviors of their peers do not match their own (Tinto, 1993). The concept of social fit does not necessarily mean students are entirely rooted into the whole college system, but rather that they find their place at a minimum, within a sub-culture of the institution (Tinto, 1975).

When students have a strong sense of fit, they are more likely to persist at their postsecondary education (Kaighin & Croft, 2013). The primary reasons for this lack of student integration appear to be a lack of institutional fit coupled with a lack of sufficient social interactions (Tinto, 1993). Poor college selection on the part of the student increases the chances the student will experience social isolation and become withdrawn from campus life (Bowman & Denson, 2014). These experiences are most often linked to the informal interactions the student has daily with other students, faculty, and staff (Tinto, 1993). However, in terms of affecting social fit, the contacts students make with their peers are more important than those they make with their instructors or other college staff (Bean, 1985).

There is a positive relationship between friendships with other students and students' overall college satisfaction and their ability to adapt to college life (Bowman & Denson, 2014). For interaction with faculty to have a major effect on social fit, they must occur both in and out of the classroom setting (Bean & Kuh, 1984). The college classroom is the best place for this to occur (Tinto, 1997). Experiences in the classroom often serve as a catalyst for social

interpersonal interactions outside of the classroom environment (Tinto, 1993). The students themselves must play an active role in ensuring these contacts occur (Bean, 1985). Social fit may have a greater effect on women students. Not meeting with faculty members on an informal basis and not belonging to college organizations are more characteristic of women than men who drop out of college (Bean, 1980).

### **Self-Efficacy**

Researchers have repeatedly established the positive link between self-efficacy and academic performance (Bowden, Abhayawansa, & Bahtsevanoglou, 2015). Teaching students how to strengthen their self-efficacy has a positive impact on work ethic and academic achievement (Komarraju & Nadler, 2013). The link between dual-enrollment programs and self-efficacy has also been examined. Wallace (2017) conducted a study of 413 college students to examine if dual enrollment played a role in student persistence in postsecondary programs and whether the modality of the course influenced the level of self-efficacy of dual-enrollment students. The researcher found there was not a significant difference in the level of self-efficacy between students who had participated in a dual-enrollment program and regular college students (Wallace, 2017).

However, when Wallace (2017) compared the self-efficacy scores of the 181 college students who had previously completed dual-enrollment courses, the researcher rejected the null hypothesis; there was not a statistically significant difference in self-efficacy scores based on course modality. Post hoc analysis determined there was a statistically significant difference between dual-enrollment students who took college at the high school and those who took classes at a college, with the college at the high school group having a statistically significant higher level of self-efficacy. Given this information that course modality can affect students'

levels of self-efficacy, the linkage between self-efficacy and academic performance further substantiates the need for additional research on the effects of course modality on dual-enrollment students.

## **Gender**

### **Persistence and Achievement**

Researchers have demonstrated several ways in which gender plays a role in the success and persistence of college students. For example, female students are more likely to complete dual-enrollment courses than their male counterparts (Giani et al., 2014). Clark (2015) found female students persisted at a higher rate than male students. At the same time however, Tinto (1975) found men complete college degree programs at a rate higher than women. The ways men tend to leave college also differ from the ways women tend to leave college. Women tend to more readily depart on a voluntary basis because of social reasons, while men more likely tend to be forced to leave because of academic failure (Tinto, 1975, 1993).

Sun, Hagedorn, and Zhang (2016) found female students were more likely to experience homesickness resulting from separation, which could result in lower GPAs during their first semester. Clark (2015) found female students place a higher priority on academics and spend more time studying than their male counterparts. Research has also established gender differences in the performance and persistence of college athletes. Among many male athletes, the sport is the primary driving force behind their attendance, and once participation in the sport ends, the likelihood of them failing to persist increases (Clark, 2015). Melendez (2007) found females athletes showed higher institutional attachment and social adjustment than male athletes. Female students who participate in sports graduate from college at a higher rate than females who do not (Melendez, 2007).

These differences are also more evident in some minority groups. While African American women invest themselves into educational opportunities at a rate nearly twice as high as men (Durik et al., 2006), their rate of persistence is much lower than their male and female counterparts and many fail to persist to complete their degrees (Walpole, Chambers, & Goss, 2014). However, in a study of urban community college students, Sparks and Nuñez (2014) found male students were 14% less likely to persist than female students. Additionally, Spruill, Hirt, and Mo (2014) found black and Hispanic males failed to persist at rates comparable to white males.

### **Differences in Mode**

One of the greatest differences between men and women is in online instruction. Vella et al. (2016) found factors such as student age and gender could be predictors of student success in online instruction. Female students tend to have a stronger sense of classroom community in online instruction (Rovai, 2001). Women are more likely to interact more and participate in online discussions than male students (Vella et al., 2016). Rovai (2001) found female students accessed Blackboard discussions at a rate significantly higher than male students and participated in those discussions slightly more. Vella et al. found women who participated in online instruction earned on average one-half of a grade higher than males, this difference was strongest among younger students. Xu and Jaggars (2011) found women were more likely than men to enroll in an online course in a core subject.

Caspi, Chajut, and Saporta (2008) found female students had a greater participation rate than male students when posting to online discussion forums. One reason for this difference is in the way men and women relate to one another and in their communication preferences. Men and women may often struggle to relate to one another in online discussions because men often

prefer debate-like discussions, whereas women tend to prefer cooperation over competition (Rovai, 2000a, 2001). Women rely more on the opinions of others in discussions to help develop their subject knowledge, while men are more likely to process information independently (Rovai, 2001). These differences extend beyond communication styles. In terms of a strong classroom community, female students favored online courses, while male students favored face-to-face courses (Yang et al., 2015).

While there is much research establishing females as having the advantage in online instruction, not all research agrees. In a study of students taking a business class, Fendler, Ruff, and Shrikhande (2016) found males completing the course online are more likely than females to rank in the top 25% of the class. Male students had a more favorable opinion of the goal structure of online classes (Yang et al., 2015). Male students tend to have a more independent communication style and may not interact as much as their female counterparts (Rovai, 2001). In a study of Blackboard discussion, Rovai (2001) found male students accounted for 65% of the negative comments, while only accounting for 11% of the positive comments.

Caspi et al. (2008) found although the number of women enrolled in a face-to-face class far exceeds that of males, the males still dominated classroom discussion, speaking 3.8% more often. Within the traditional classroom, male students tend to speak more and receive more feedback from instructors than female students (Caspi et al., 2008). Face-to-face courses were noted as being the most beneficial to white men and men of color when it came to success (Palacios & Wood, 2015). At the same time, females favored the goal structure of face-to-face courses (Yang et al., 2015).

There have been numerous calls for additional research regarding gender and college persistence. Future research is needed on the persistence of female students (Hagedorn, 1999).

Future research into dual-enrollment programs could examine student gender characteristics such as gender (Dixon & Slate, 2014). However, not all research has agreed. D'Amico and Dika (2013) found gender was not a significant predictor of college persistence among first generation college students. D'Amico et al. (2013) found gender was not a significant predictor of college persistence among dual-enrolled high school students. This demonstrated difference in student outcomes based on gender and lack of research on the impact of gender on dual-enrollment students creates a gap in the literature. As a result, additional research is needed to examine the relationship between student gender and college persistence. Additionally, information on how gender plays a role in college persistence could play a role in assisting institutions in identifying groups for targeted interventions to help ensure increased likelihood of college completion (D'Amico & Dika, 2013).

## **Related Literature**

### **Dual Enrollment**

Dual enrollment is one of the programs that has expanded nationally over the years to help more students enter college. Dual-enrollment students have an opportunity to experience college-level rigor and learn the skills needed to be successful at the college level (Kanny, 2015). The dual-enrollment population for the state in this study has trended upward tremendously over the last several years and nearly doubled since 2012 (Georgia Department of Education [GADOE], 2015). Total dual-enrollment population for this state in 2015 was 18,097 (GADOE, 2015). With such rapid growth, it is critical that administrators and policy makers ensure that these programs adequately fulfill their mission of readying high school students for the college experience (Giani et al., 2014).

Participation in a dual-enrollment program by high school students has numerous

research-proven benefits. First, dual-enrollment programs have been confirmed to contribute dramatically to postsecondary persistence and completion rates. A college student who has participated in a dual-enrollment program is 8% more likely to complete some type of a degree than a college student who did not (Cowan & Goldhaber, 2015). This success in part explains the rate of growth seen in such programs nationwide for the last several years. The primary reason for the rapid expansion of dual-enrollment programs seems to be a desire by policy makers to increase postsecondary participation and completion rates (Giani et al., 2014). More than 30% of students who completed dual-enrollment programs graduated community college within two years compared to those who did not participate in such programs, of which only 15% completed within two years (Grubb et al., 2017). Additionally, the effect of dual-enrollment programs on low-performing students has resulted in these students ultimately enrolling in college at rates higher than what would normally be expected (Cowan & Goldhaber, 2015).

Additionally, the benefits of participation in a dual-enrollment program exceeds the benefits of other traditional college preparation courses. The participation in dual-enrollment courses had a greater effect on postsecondary outcomes than enrollment in traditional advanced placement courses (Giani et al., 2014). Participation in a dual-enrollment program reduces the amount of remediation needed and increases the likelihood of postsecondary graduation (Grubb et al., 2017). Grubb et al. (2017) also found less than 4% of students enrolled in a dual-enrollment program received remediation during postsecondary instruction, a rate significantly lower than those students who did not participate in a dual-enrollment program, of which more than 11% of whom received remediation. Given these numerous advantages dual-enrollment programs provide, educational leaders at all levels need to ensure students are well informed of

dual enrollment's availability and potential benefit.

Despite the numerous established benefits of dual-enrollment programs, not all research agrees. One of the drawbacks to dual-enrollment participation is the possibility of affecting one's GPA due to low grades because of the increased academic rigor of college classes (Kanny, 2015). The differences between high school and college may leave many students unprepared for actual college classes (Hughes & Edwards, 2012). Additionally, a large range of support is needed to help ensure the success of dual-enrolled high school students (Hughes & Edwards, 2012; Kanny, 2015). These differences in research on the benefits of dual enrollment further establish the need for additional research on the topic.

### **Move on When Ready**

Move on When Ready (MOWR) is Georgia's version of dual enrollment. Beginning in the 2015-2016 school year, Georgia merged all existing dual-enrollment programs under the umbrella of the new MOWR program (Mealer, 2015). Within the MOWR program, eligible high school students can concurrently earn college credit while also satisfying their high school graduation requirements (Georgia Student Finance Authority [GSFA], 2017). The program is open to all students in grades 9 through 12 enrolled at a Georgia public or private high school (GSFA, 2017). This represents an expansion since many dual-enrollment programs are designed for students in grades 11 and 12. Eligible postsecondary courses available to high school students include both academic and elective courses that are taught face-to-face, at the college campus or the high school campus, and in online modalities (Mealer, 2015). The new Georgia MOWR program simplified the dual-enrollment process by combining multiple programs under one and expanding eligibility to high school students of all levels (Mealer, 2015).

The new MOWR provides two ways that students can benefit. Under Senate Bill 132,

high school students earn dual credit while enrolled at local postsecondary institutions (Mealer, 2015). This is like other dual-enrollment programs. Under the Senate Bill 2 program, students need only pass their eight high school courses that require an End of Course test (EOCT) as well as a course in health and physical education (Mealer, 2015). They then can enroll in a postsecondary technical school and earn either an associate degree or two technical certificates in a career pathway (Mealer, 2015). Once all course requirements are met, the student is awarded their high school diploma (Mealer, 2015). Because little research has been conducted examining the additional variables of course modality or content area as a predictor of success in postsecondary programs, such research is necessary to determine the effectiveness of the new MOWR program and assist policy makers in making necessary adjustments to legislation to ensure the greatest level of student success. In late 2017, MOWR was renamed dual enrollment; however, the policies of the program remain the same.

### **Mode of Course Delivery**

While there has been much research into the success of and logic for the expansion of dual-enrollment programs, very little research has been done to explore the success of various parts of many of these programs. One such area that has been explored heavily at the secondary institution level, but must be explored in the context of its effects on the success dual-enrollment students, is the topic of course modality. The results of both qualitative and quantitative studies have found positive benefits are realized by dual-enrolled students, regardless of course modality (Lile, Ottusch, Jones, & Richards, 2017). Dual-enrollment courses are available in a wide range of modes of delivery. In some instances, students take classes at a local college or university while in others, college instructors provide instruction at the high school (Gross, 2016). Students may also enroll in courses online (Mealer, 2015).

While not much research has focused on high school students, these modes of delivery have been studied at the postsecondary level. Vella et al. (2016) found students who were enrolled in a hybrid modality with a mix of classroom and online instruction received a higher grade and were more likely to complete the course than those enrolled in classed offered entirely online. In a study of more than 40,000 students enrolled in one of Washington State's community or technical colleges, Xu and Jaggars (2014) found students who participated in online instruction had a lower persistence rate than those who participated in traditional face-to-face courses. Additionally, the average student typically performed lower in online courses than in face-to-face instruction (Xu & Jaggars, 2014).

Despite these positive finding, each mode of course delivery has its benefits and disadvantages, therefore more research is needed to determine which modalities help students achieve the best results. This demonstrated difference in student outcomes and lack of research on the impact of the mode of course delivery in dual-enrollment programs creates a gap in the literature. As a result, additional research is needed to examine how the relationship among course modality – online instruction, college courses taught at the high school, and college courses taught at the college campus – might influence a student's postsecondary outcomes (Giani et al., 2014). Future research into dual-enrollment programs including course location may help further the understanding of the benefits of dual-enrollment programs (Grubb et al., 2017). Future research into the motivation of online college students is needed (Yang & Cao, 2013).

### **Online Learning**

This mode of course delivery has expanded dramatically over the last few years, and is an option for students enrolled in the dual-enrollment program discussed in the present study

(Mealer, 2015). The greatest benefit of online instruction is the availability to almost any student. To keep up with the changing demographics of the average college student and increasing population of non-traditional students, many schools have vastly expanded the availability of online learning (Vella et al., 2016). This expansion of online learning opportunities has increased the open access to education at community colleges (Palacios & Wood, 2015). Additionally, innovations in technology have enabled schools to expand the modality of online learning, making a variety of course available to students (Vella et al., 2016).

The tools and technology incorporated in online learning come second nature to many students and they can quickly adapt to unfamiliar features (Burgess, 2015). Some instructors believe that presence and engagement are just as equally available in an online setting as they are in the traditional classroom (Burgess, 2015) and some students can begin to feel turned off by the traditional meeting times found in face-to-face courses and they often feel as if they are time-starved (Moody, 2004). Xu and Jaggars (2011) found students who had previously experience in dual-enrollment courses were more likely to enroll in an online course in a core subject than those who not participated. Mondal and Culp (2017) found the grades for business statistics and microeconomics students were on average about a half letter grade higher for online students when compared to students in a blended class.

However, while the benefits of online instruction are plentiful, there are also numerous demonstrated disadvantages to this mode of course delivery. The options available for online instruction at community colleges has quickly expanded over the last decade however there is little evidence available showing its effectiveness for students (Xu & Jaggars, 2011). Student perceptions of instructor effectiveness had a greater negative impact for online courses and students had a lower opinion had a lower opinion of teacher effectiveness (Bergstrand & Savage,

2013). Yang and Cao (2013) found extrinsic motivation plays a major role in motivating online college students to seek help when needed. This can be explained in part by Tinto's Student Integration Theory (1997), which stated that one of the most important aspects of student life for younger students is meeting new people and making friends.

Certain demographics of students such as males, those under 25, and African Americans tend to underperform in online instruction when compared to face-to-face courses (Xu & Jaggars, 2014). Kaupp (2012) found most combinations of students based on gender and ethnicity experienced worse outcomes for students in online instruction compared to those taking face-to-face courses. This gap was even greater for Latino students (Kaupp, 2012). Additionally, content areas such as social sciences and professional courses such as law, business, and nursing demonstrated significant performance gaps when compared to face-to-face instruction (Xu & Jaggars, 2014). Bergstrand and Savage (2013) found sociology students enrolled in online courses felt as if they learned less and had lower opinions of course effectiveness.

Taking college courses in an online format can also slow student progress towards completion and produces a higher attrition rate when compared to traditional classes taken in a face-to-face format (Wladis, Conway, & Hachey, 2015). Online instruction has a much higher student-to-teacher ratio than the traditional face-to-face courses with some online courses having single instructors teaching hundreds of students (Rovai, 2000b). Xu and Jaggars (2013) found the average persistence rates of students taking an online course decreased by 7% when compared to those taking courses in a face-to-face format. Xu and Jaggars (2011) found course attrition rates for first time college students were twice as high for those taking a core course in an online format when compared to those taking face-to-face courses.

Research has demonstrated shortcoming in student performance when it comes to online instruction. Xu and Jaggars (2013) found average final course grades for students completing an online course was 0.3 points lower than those who completed the same course in a face-to-face format. Some distance education programs report that more than 50% of online student fail to complete their courses, with some programs reporting attrition rates that are 20% higher than their traditional face-to-face programs (Rovai, 2002). In addition to performance issues, student interactions are a major concern with online instruction. In a qualitative study, Jaggars (2014) found while some students preferred online courses because of the flexibility and convenience, students were also often pushed away from online courses because of weaker instruction and student interaction.

This lack of interaction has been found to be detrimental to the success of online students and often damages a student's sense of community. Some students' sense of classroom community is negatively affected by a fear of criticism or an unwillingness to criticize or give honest feedback (Rovai, 2002). Jaggars and Xu (2016) found, while course organization and use of technology were desirable features in an online course, only interpersonal actions on the part of the instructor, such as using a variety of methods to quickly respond to students' questions and to provide feedback, played a significant role in predicting student success in the course. Some online students begin to feel isolated and often question if others in the course are reading the comments they post (Rovai, 2000b).

Another issue surrounding online instructions affects the instructors themselves. Instructors can become too subjective and assess online discussions unfairly because they are not familiar with or do not prefer the different discourse styles represented by so many students (Rovai, 2000a). Because of the electronic format used in online courses, students may have

difficulty distinguishing between negative criticism and supportive feedback because the instructors lack the ability to use facial expressions and tone of voice to help convey the message (Bergstrand & Savage, 2013). Additionally, the volume of email and discussion interactions often cause many online instructors to become overwhelmed (Rovai, 2000a , 2000b).

### **Instruction at the College Campus**

While there are some dissenting opinions on the effectiveness of online instruction, face-to-face instruction on the traditional college campus also has pros and cons. Jaggars (2014) found students preferred face-to-face courses for difficult subjects because of the ability to get immediate answers to questions. Dual-enrollment courses taught at the college campus better exposed high school students to the college experience (Speroni, 2011). Additionally, some groups tend to do better in a classroom modality. D'Amico et al. (2013) found dual-enrollment students enrolled in classes at a technical college were 1.255 times more likely to persist than students who took dual-enrollment classes at their high school. Xu and Jaggars (2013) found less-advantaged groups, such as minorities and students with lower GPAs, performed better in courses with face-to-face format.

In a qualitative study, Jaggars (2014) found most students only preferred an online class when it was in a subject they considered easy, such as humanities while opting to take harder subjects such as math, science, and foreign languages in a face-to-face format. Some instructors associate a physical presence in the classroom with attributes such as intimacy, engagement, and effectiveness (Burgess, 2015). In a study of 140 students taking classroom and online courses, Porter, Pitterle, and Hayney (2014) found in response to open-ended questions about their experience, 45% of students in the classroom group felt the ability to ask the instructor questions in real time was the greatest benefit of traditional classroom instruction. Another 34% of the

study participants felt the schedule of their classroom course helped them to stay on track with the course material (Porter et al., 2014).

This benefit identified in the literature is in line with Tinto's (1997) theory, which found the experiences in the college classroom enabled students to bridge their personal experiences and course content while experiencing a diverse range of views from their classmates.

Institutional life is the result of formal and informal experiences they have with the other students, staff, and faculty at the school (Tinto, 1993). A primary effort of first year college students is to establish a supportive peer group to make the transition to college easier (Tinto, 1997). Additionally, the behavior of faculty members within the college classroom influences both a student's academic performance and the perception of the school's academic quality (Tinto, 1993).

At the same time, the concerns expressed by the participants in the online group were like the advantages stated by the classroom students. Among online students 39% expressed getting behind in the course was their biggest concern, while another 28% stated not being able to ask questions of the instructor right away as their main complaint (Porter et al., 2014). These observations highlighted some of the greatest advantages of on-campus instruction in the classroom. Additionally, many students are still uncomfortable with the application of new technologies and prefer the face-to-face setting (Burgess, 2015). At the same time, there are some disadvantages to a traditional classroom setting.

For example, some students are turned off by the traditional meeting times found in face-to-face courses and often feel as if they are time-starved (Moody, 2004). High school students participating in classes at the college campus felt looked down upon and uncomfortable at times because of their non-traditional status (Kanny, 2015). Likewise, Porter et al. (2014) found 26%

of students surveyed in a classroom course said that the inflexibility of student schedules was a great disadvantage. These advantages and disadvantages of the on-campus mode of course delivery warrant further research into their ability to affect postsecondary success for dual-enrollment students.

### **College at the High School**

A third common mode of dual-enrollment programs is college courses taught at the students' high school either by a college professor or by a high school teacher. This mode of dual-enrollment courses is offered at 62% of high schools (Lile et al., 2017). This mode may be advantageous for many students who lack transportation to travel to a local college to attend classes but desire the face-to-face format that online instruction lacks (Roach, Gamez Vargas, & David, 2015). At the same time however, some states can make funds available to assist in student transportation. The Georgia MOWR program provides a transportation grant to eligible high schools to help offset the incurred costs of transporting students to a local postsecondary institution (Mealer, 2015).

For those students who take dual-enrollment courses at their high school, researchers have found several disadvantages. In terms of performance, students who take dual-enrollment classes at the high school do not achieve at a level higher than students taking regular classes (Speroni, 2011). Lile et al. (2017) found one group of students who attended dual-enrollment courses at their high school stated that they still felt like high school students because the atmosphere was still the same. Some students felt as if they were not on the same level as regular college students (Lile et al., 2017).

While many of these students are more successful in terms of grades in courses offered at the high school, this is often attributed to these courses being of a lower rigor than those offered

at the college campus (Dixon & Slate, 2014). Some even question the legitimacy of the rigor and credibility of college classes taught on the high school campus, especially when these courses are taught by high school teachers who have been contracted by the college (Vargas, Hooker, & Gerwin, 2017). Additionally, it can be difficult for high schools to maintain a consistent class schedule because of the high turnover of high school teachers (Lukes, 2014).

Despite these perceived limitations of having college courses taught at the high school, other research has noted benefits of this mode of course delivery. Williams (2015) found even though the courses in her study were taught at the high school, the students enrolled in the dual-enrollment courses still felt more prepared for college and were more confident in their ability levels for completing college-level writing assignments (Williams, 2015). At the same time, Lile et al. (2017) found dual-enrollment students taking classes at the high school still did not change their social interaction routines and that they still interacted with the same groups of students as they did prior to taking college classes.

Based on Tinto's (1993) theory and the study findings by Lile et al. (2017), it is possible to see how a course taught on the high school campus may limit the college experience of dual-enrolled high school students. Despite these mixed opinions on college courses offered at the high school, more research is needed to see if this or the other modes of course delivery provide the same level of benefit to MOWR students as research has found about dual-enrollment programs. More research is needed to help determine if there is a difference in the college persistence of students who take dual-enrollment courses at the high school compared to those who take them on the college campus (Vargas et al., 2017).

### **Summary**

This review of the literature examined the frame work of Tinto's and Bean's student

integration theories, specifically how student fit (Bean, 1980; Tinto, 1975) can explain how student persistence may vary based on the mode of course delivery. Next, the review of literature discussed how students' level of college persistence can be affected by their gender (Bean, 1980; Tinto, 1975) as well as how gender plays a role in the different modes of course instruction (Rovai, 2001; Vella et al., 2016). The review then provided an overview of dual-enrollment programs. Additionally, it provided an overview of Georgia's MOWR program (Mealer, 2015), providing an explanation of how this program differs from other dual-enrollment programs and the various modes of course delivery it offers. Last, it compared three modes of course delivery: college classes offered at the college campus, college classes offered at the high school campus, and college courses offered in an entirely online format.

While there has been much research on dual-enrollment programs, little research has been identified examining Georgia's MOWR program. The literature has demonstrated that the MOWR program differs from many other dual-enrollment programs in that it admits students in 11th and 12th grades into online courses and it has an option for an alternate completion of the high school diploma through technical education. The review of literature has also demonstrated that there are advantages and disadvantages of any mode of course delivery; however, while research has demonstrated the advantage of dual-enrollment programs on postsecondary persistence and success, little research was identified that has explored its relationship of the mode of course delivery. Additionally, the literature has demonstrated that the mode of course delivery can influence the level of student self-efficacy further substantiating the need for subsequent research on the effects the mode of course delivery.

The purpose of this proposed study was to determine if a statistically significant relationship exists in a dual-enrollment participant's level of college persistence, as measured on

the *College Persistence Questionnaire* (Davidson et al, 2015), based on students' gender and the mode of course delivery. In this study the researcher examined the results of using this instrument at a community technical college located in a Southern state by conducting a two-way Analysis of Variance (ANOVA) to determine if there is a statistically significant difference in the rate of student persistence (dependent variable) based upon their gender and the mode of course delivery (independent variables). This research is important as it provides policy makers with information that could affect decisions on future modes of course delivery offered for dual-enrolled high school students.

## **CHAPTER 3: METHODS**

### **Overview**

This quantitative, non-experimental, causal-comparative study examined the relationship among student gender, mode of course delivery, and the college persistence of dual-enrolled high school students. Three groups of dual-enrolled high school students in this study included: (1) Students enrolled in a college course at a local technical college, physically located on the technical college campus and taught by a college professor; (2) Students enrolled in a college course at their high school campus, physically located on the high school campus and instruction was provided either by a college professor sent to the high school by the technical college or by a high school teacher contracted by the technical college; (3) Students enrolled in a college course online, delivered completely in an online environment and taught by a technical college professor.

### **Design**

To explore the relationship that exists between student gender and the mode of course delivery on the college persistence of dual-enrolled high school students, the present study used a non-experimental, causal-comparative research design. This design is often used when the researcher does not have the ability to manipulate the level of the independent variables present (Creswell, 2015). This type of design is appropriate for identifying cause-and-effect relationships between groups of individuals with differing levels of the independent variable to test whether the groups differ on the dependent variable (Gall, Gall, & Borg, 2007). Additionally, non-experimental, causal-comparative studies are less expensive to conduct and results are easier to interpret than those of other designs because they are less technical (Gall et al., 2007). The present study used a two-way ANOVA to determine the relationship among

gender, the three modes of dual-enrollment course delivery, and college persistence. This analysis is the appropriate statistical method to use when comparing the means of two or more sets of scores (Warner, 2013).

The independent variable for this study, mode of course delivery, is defined as the location or setting in which the dual-enrollment course is delivered (D'Amico, Morgan, Robertson, & Rivers, 2013; Dixon & Slate, 2014; Vella, Turesky, & Hebert, 2016). The independent variable has three levels: college campus, high school campus, or entirely online instruction (Ozmun, 2013). The independent variable for this study, student gender, is defined as whether the student is male or female. The independent variable has two levels: male and female. The dependent variable, college persistence, is defined as a student remaining for regular college enrollment in at least one semester following their first year of postsecondary courses (Giani, Alexander, & Reyes, 2014) and was measured through the *College Persistence Questionnaire (CPG)* (Davidson, Beck, & Grisaffe, 2015; Davidson, Beck, & Milligan, 2009).

### **Research Question**

**RQ1:** Is there a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire*, based on mode of course delivery.

**RQ2:** Is there a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire*, based on student gender.

**RQ3:** Is there a significant interaction in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire*, based on student gender and mode of course instruction.

### Null Hypotheses

**H<sub>01</sub>:** There is no statistically significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on mode of course delivery.

**H<sub>02</sub>:** There is no statistically significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender.

**H<sub>03</sub>:** There is no statistically significant interaction in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender and mode of course delivery.

### Participants and Setting

The participants for this causal-comparative study were from a convenience sample from a Southern U.S. state. Within the state, there is a total of 23 institutions that belong to the technical college system, and 28 colleges and universities that belong to state's university system (Georgia Department of Education [GADOE], 2015). These schools are eligible to participate in the state's dual-enrollment program (Mealer, 2015). There is a total of 27 general education course that may be taken at any of the state's technical colleges that are guaranteed transfer to any of the state's public colleges or universities. *Move on When Ready* (MOWR) is the state's version of dual-enrollment program. Beginning in the 2015-2016 school year, all existing dual-enrollment programs were merged under the umbrella of the new MOWR program (Mealer, 2015). Within the MOWR program, eligible high school students can concurrently earn college credit while also satisfying their high school graduation requirements (Georgia Student Finance Authority [GSFA], 2017). The program is open to all 9-12 grade students enrolled at all public or private high schools within the state (GSFA, 2017).

Eligible postsecondary courses available to high school students include both academic

and elective courses that are taught face-to-face, at the college campus or the high school campus, or in online modalities (Mealer, 2015). The new MOWR program simplified the dual-enrollment process by combining multiple programs under one and expanding eligibility to high school students of all grade levels (Mealer, 2015). The new MOWR provides two ways that students can benefit. Under Senate Bill 132, high school students may earn dual credit while enrolled at local postsecondary institutions (Mealer, 2015). This is comparable to other dual-enrollment programs established in other states. Under the Senate Bill 2 program, students need only pass their eight high school courses that require an End of Course Test (EOCT) as well as a course in health and physical education (Mealer, 2015). They may then enroll in a postsecondary technical school and earn either an associate degree or two technical certificates in a career pathway (Mealer, 2015). Once completed, the student is awarded their high school diploma (Mealer, 2015).

The dual-enrollment population has trended upward tremendously over the last several years in this state and nearly doubled since 2012 (GADOE, 2015). Total dual-enrollment population for this state in 2015 was 18,097 (GADOE, 2015). The population for this study focused on the students in a dual-enrollment program at a single technical college, a member of the state's technical college system, located in a rural area in the southeast portion of the state. The school had a 2015 fall enrollment of 1,667 students with a persistence rate of 52% for full-time students and 47% for part-time students (National Center for Educational Statistics [NCES], n.d.). The population for this school is 28% male and 72% female with a demographic make-up of 66% White, 26% African American, 7% Hispanic, and 1% other races (NCES, n.d.). Twelve rural high schools, 11 public and one private, participate in dual-enrollment with this college, 10 of which nine public and one private, participated in this study. Six of the public school districts

agreed to participate in this study.

The six high schools for this study were given the pseudonyms of A, B, C, D, E, and F. These six high schools participate in dual-enrollment courses through the main campus of the technical college used in this study, as well as through dual-enrollment courses offered at the local high school campuses and courses in a completely online format. The sample of dual-enrollment students for this study was drawn from the population of 11th and 12th grade students from these 6 high schools.

High school A has a total population of 778 students, of which 51% are male and 49% are female with a demographic make-up of 55% White, 19% African-American, and 26% Hispanic. Dual-enrolled students in this school are enrolled in 209 courses with the technical college. High school B has a total population of 241 students, of which 56% are male and 41% are female with a demographic make-up of 56% White, 37% African-American, and 7% Hispanic. Dual-enrolled students in this school are enrolled in 36 courses with the technical college. High school C has a total population of 349 students, of which 54% are male and 46% are female with a demographic make-up of 57% White and 43% African-American. Dual-enrolled students in this school are enrolled in 51 courses with the technical college.

High school D has a total population of 991 students, of which 49% are male and 51% are female with a demographic make-up of 54% White, 26% African-American, and 20% Hispanic. Dual-enrolled students in this school are enrolled in 340 courses with the technical college. High school E has a total population of 491 students, of which 53% are male and 47% are female with a demographic make-up of 48% White, 32% African-American, and 20% Hispanic. Dual-enrolled students in this school are enrolled in 137 courses with the technical college. High school F has a total population of 684 students, of which 50% are male and 50%

are female with a demographic make-up of 47% White, 46% African-American, and 7% Hispanic. Dual-enrolled students in this school are enrolled in 230 courses with the technical college.

A total of 410 students participated in dual-enrollment courses during the 2017-2018 school year. This number exceeds the minimum required sample size of 126 for a two-way ANOVA with three groups for a medium effect size at a statistical power of 0.7 at the 0.05 level (Gall et al., 2007). The three groups were defined as male and female dual-enrolled students who either took college classes at the technical college campus (D'Amico et al., 2013; Dixon & Slate, 2014; Gross, 2016; Wallace, 2017), took college classes at their high school campus (D'Amico et al., 2013; Dixon & Slate, 2014; Gross, 2016; Wallace, 2017), or took high school classes in an online format (Vella et al., 2016; Wallace, 2017). This formation of groups is in response to existing literature calling for further exploration on how the location of dual-enrollment courses may affect the benefits experienced by dual-enrolled high school students (Dixon & Slate, 2014; Giani et al. 2014; Grubb, Scott, & Good, 2017).

To test the research questions and hypotheses to find confirming or dissenting evidence of the effect of student gender and the mode of course delivery on the college persistence of dual-enrolled high school students, the independent variables of gender and the mode of course delivery were used to develop three groups with varying levels of the independent variables. The first group consisted of students who took a college course at a local technical college (D'Amico et al., 2013; Dixon & Slate, 2014; Gross, 2016; Wallace, 2017). The second group consisted of students who took a college course at their high school campus (D'Amico et al., 2013; Dixon & Slate, 2014; Gross, 2016; Wallace, 2017). The third group consisted of students who took a college class in an online format (Vella et al., 2016; Wallace, 2017). The dual-enrollment

options for high school students at the site of this study (Mealer, 2015) are consistent with these groups discussed. The comparison among these groups is consistent with research in previous studies (D'Amico et al., 2013; Dixon & Slate, 2014; Wallace, 2017).

For the first group, male and female students who took classes at the technical college, these groups traveled from their high school to take the courses on the technical college campus. For the second group, male and female students who took college classes at their high school campus, an instructor employed by the technical college would travel to and administer instruction at the students' high school campus. For the third group, male and female students who took college classes in an online format, students would enroll in an online course through the technical college and either complete coursework at home or during the school day at their high school. The standards and content of these courses were the same regardless of the mode or location of instruction. A breakdown of these groups is described in Table 1.

Table 1

*Dual-Enrollment by Mode of Course Delivery*

	<b>HIGH SCHOOL</b>	<b>MALE COLLEGE</b>	<b>FEMALE COLLEGE</b>	<b>MALE HIGH SCHOOL</b>	<b>FEMALE HIGH SCHOOL</b>	<b>MALE ONLINE</b>	<b>FEMALE ONLINE</b>
<b>A</b>		09	54	41	74	05	26
<b>B</b>		09	15	00	00	03	09
<b>C</b>		00	11	04	24	01	11
<b>D</b>		27	19	54	100	54	86
<b>E</b>		04	00	64	44	07	18
<b>F</b>		18	17	48	91	17	39
<b>TOTAL</b>		67	116	211	333	87	189

**Instrumentation**

To measure the dependent variable college persistence, this study used the *College Persistence Questionnaire (CPQ)* (See Appendix A) (Davidson et al., 2015). The instrument was originally created by Davidson, Beck, and Milligan (2009) as a 53-item survey designed to predict student attrition from postsecondary institutions. This original version of the *CPQ* measured college persistence on six factors including: institutional commitment, degree commitment, academic integration, social integration, support services satisfaction, and academic conscientiousness (Davidson et al., 2009). Building on the success of the first version, Davidson et al. (2015) attempted to develop a stronger instrument that would also measure a student's level of institutional commitment. This second version of the *CPQ* added factors that

considered the stress created by the college environment, financial pressures, learning motivation, and self-efficacy (Davidson et al., 2015). The instrument contains 32 questions scored on a Likert scale (Davidson et al., 2015).

As with the original version, the latest version of the CQP measures the value of responses on a 5-point Likert scale, which ranges from -2 to +2 (Davidson et al., 2009; Davidson et al., 2015). The possible responses vary by the wording of the question asked and range from *very satisfied* to *very dissatisfied* or *very much* to *very little* (Davidson et al., 2009; Davidson et al., 2015). If the study subject felt a question did not apply, a sixth response option of *not applicable*, was available and if chosen, that survey item is omitted from scoring (Davidson et al., 2009; Davidson et al., 2015). Scores for items 1, 2, 4, 6, 7, 9, 10, 11, 12, 14, 16, 17, 19, 20, 21, 22, 26, 29, 30, and 32 range from +2 for the first response item and -2 for a last response item (W. B. Davidson, personal communication, July 11, 2017). Items 3, 5, 8, 13, 15, 18, 23, 24, 25, 27, 28, and 31 are reverse scored and have a value ranging from -2 for the first response item and +2 for a last response item (W. B. Davidson, personal communication, July 11, 2017). Reverse scoring is common when the survey item is negatively worded requiring respondents to change their way of thinking when they agree or disagree with the item (Hartley, 2014). When this type of question is used, they are typically reversed scored so that their scores can be included in the total score (Hartley, 2014). The scoring of the instrument results was conducted by the researcher in accordance with the survey instructions (See Appendix B). The 32 questions are scrambled so that they are not easily identified as linked to a construct. Additionally, the constructs are not listed on the survey instrument. A breakdown of the constructs and their corresponding survey items is described in Table 2.

Table 2

*Constructs by Item Number*

<b>Construct</b>	<b>Item Number</b>
Academic Integration	2, 12, and 22
Motivation to Learn	9, 19, and 29
Academic Efficacy	7, 17, and 27
Financial Strain	3, 13, 23, and 31
Collegiate Stress	5, 15, and 25
Social Integration	1, 11, and 21
Advising Effectiveness	6, 16, and 26
Degree Commitment	10, 20, and 30
Institutional Commitment	4, 14, 24, and 32
Scholastic Conscientiousness	8, 18, and 28

In developing the original version of the *CPQ*, Davidson et al. (2009) used direct oblimin rotation to conduct a component analysis for the 53 items, which resulted in producing the six factors with eigenvalues between 1.42 and 8.28. When an item is subjected to this type of analysis, an eigen value greater than 1.00 generally is considered to have a strong correlation to the factor (Minkov, 2012). This method was used to allow for a correlation between the survey items and the survey components (Davidson et al., 2015). The researchers conducted a second test of the original instrument to determine the extent to which it could predict student persistence (Davidson et al., 2009). Predictive validity testing for the *CPQ* was conducted in a second study using 283 first-semester college freshmen (Davidson et al., 2009). The results

showed the *CPQ* correctly identified the persistence 66% who returned for their sophomore year (Davidson et al., 2009). This version of the *CPQ* was used by more than 40 postsecondary institutions worldwide (Davison et al., 2015). The *CPQ* has been used in recent studies as an effective measure of a students' college persistence (Betts, Shirley, & Kennedy, 2017; Muller et al., 2017). In their 2017 study of nursing students, Betts et al. used the *CPQ* to identify risk factors contributing to student attrition. Likewise, in their 2017 study, Muller et al. used the *CPQ* to determine experiences associated with student attrition from college.

In developing the latest version of the *CPQ*, Davidson et al. (2015) added 15 additional items they had written to the original 53 and subjected the 68 items to a component analysis using direct oblimin rotation (Davidson et al., 2015). The results produced eigen values ranging from 1.41 to 11.93 (Davidson et al., 2015). The 32 items with the highest pattern coefficients were retained (Davidson et al., 2015). The 10 factors were subjected to a confirmatory factor analysis using the factors of scholastic conscientiousness and motivation to learn as control variables (Davidson et al., 2015). The resulting construct reliability coefficients for the other eight factors are described in Table 3.

Table 3

*Construct Reliability by Factor*

<b>FACTOR</b>	<b>CONSTRUCT RELIABILITY</b>
<b>INSTITUTIONAL COMMITMENT</b>	0.828
<b>DEGREE COMMITMENT</b>	0.771
<b>ACADEMIC INTEGRATION</b>	0.763
<b>SOCIAL INTEGRATION</b>	0.778
<b>ADVISING EFFECTIVENESS</b>	0.812
<b>ACADEMIC EFFICACY</b>	0.732
<b>COLLEGIATE STRESS</b>	0.747
<b>FINANCIAL STRAIN</b>	0.848

**Procedures**

Permission to use the survey instrument, *CPQ*, was obtained from Dr. William Davidson (See Appendix C). The approval to conduct the present study was received from the Liberty University Institutional Review Board (See Appendix D). Once approval was received, the researcher contacted Georgia Association of Technical Colleges to obtain permission to conduct the study for the students taking dual-enrollment classes at the college campus or in online modes of delivery (See Appendix E). The researcher then contacted the superintendents for high schools A, B, C, D, E, and F to obtain permission to conduct the study for the students taking dual-enrollment classes at the high school campuses (See Appendix F). The researcher provided recruitment letters and consent forms to administrators at each individual high school to provide to their dual-enrollment students. A recruitment letter (See Appendix J) and parental consent

form (See Appendix G) were provided to students under the age of 18. Students age 18 or older were also given a recruitment letter (See Appendix K) and consent form (See Appendix H). The researcher explained to the students and parents how data obtained from the survey would be secured. Parents and students were made aware that the survey was anonymous and no identifying information would be collected with the survey results. When consent forms were returned by students under 18, the participants were given a link to enter the online survey. Signed consent forms were not needed for students 18 or older and the link was provided at the same time as the recruitment letter and consent form. When the surveys were complete, participants for each of the three groups were identified. Random selection was used to ensure the three groups were of comparable size.

The instrument was placed into an online survey tool, *Survey Monkey*, to ensure ease of administering for all three modalities. Participants were provided with a link to give their students to take in class or at home as time permitted. The online instructors placed a link on their course website for students to access and complete the instrument. The time required to complete the survey was approximately 35 minutes (Davidson et al., 2015). The survey was made available to all dual-enrolled high school students identified for each of the three groups who had returned the appropriate consent forms.

When any of the students entered the online survey, they viewed and acknowledged a consent page that reiterated the purpose of the survey and that participation in the study was anonymous and voluntary (See Appendix I). Instructions for completing the survey were also made available. Prior to taking the *CPQ*, students were asked basic demographic information (See Appendix L). Both the demographic information and survey results were stored in a locked container at the researcher's residence. Participants were also asked to self-identify in which

modes of course instruction they have participated. Participants were placed in the group that coincided with the highest level of immersion they have experienced. Participants who were enrolled in or have completed a course on the college campus were included in the college campus group. Participants who were enrolled in or have completed a course on the high school campus but not the college campus were included in the high school group. Participants who were enrolled in or have completed an entirely online course only were included in the online group.

### **Data Analysis**

Once all the students in the three groups completed the surveys, the data was downloaded from the online survey tool, *Survey Monkey*, and analyzed using IBM SPSS version 23. The research question was analyzed using a two-way ANOVA with three groups at the alpha  $p < 0.05$  level. This analysis is the appropriate statistical method to use when comparing the means of two or more sets of scores on one dependent variable (Gall et al, 2007; Warner, 2013). The research question and hypothesis for this study compared three groups on the dependent variable. This sample for this analysis exceeds the minimum required sample size of 126 for a two-way ANOVA with three groups for a medium effect size at a statistical power of 0.7 at the 0.05 level (Gall et al., 2007). The three groups were dual-enrolled male and female high school students who took college classes on the college campus, college classes at the high school, or college classes online. The dependent variable was the mean student score as measured by the *CPQ*. The effect size of the study was set for medium effect at a statistical power of 0.07 and was interpreted through the eta square statistic (Gall et al., 2007).

Data obtained for the dependent variables, gender and level of college persistence for dual-enrolled high school students, was screened for each group's dependent variable to

determine if any inconsistencies or outliers were present. A Box and Whiskers plot was used to test for extreme outliers for each of the three groups (Gall et al., 2007). Two statistical measures were used to test the assumptions of normality and equality of variances. A Kolmogorov-Smirnov test was used to test for normality because the sample is greater than 50 ( $N = 126$ ) (Warner, 2013). The assumption of variance was examined using Levene's Test of Equality of Error Variances. A two-way Analysis of Variance (ANOVA) was used to test the null hypotheses that there is no statistically significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on mode of course delivery, that there is no statistically significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender, and that there is no statistically significant interaction in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender and mode of course delivery.

## CHAPTER FOUR: FINDINGS

### Overview

The purpose of this quantitative causal-comparative study was to determine if a statistically significant relationship existed between the level of postsecondary persistence of dual-enrolled high school students. The relationship examined is based on mode of course instruction and the student's gender among three groups of students taking dual-enrollment courses through a local technical college in a southern state.

The three groups of dual-enrolled high school students in this study included: (1) students enrolled in a college course at a local technical college, these courses were physically located on the technical college campus and taught by a college professor; (2) students enrolled in a college course at their high school campus, these courses were physically located on the high school campus and instruction is provided by a college professor sent to the high school by the technical college or by a high school teacher contracted by the technical college; and (3) students enrolled in a college course online, these courses are delivered completely in an online environment and taught by a technical college professor. This chapter will describe the composition of these groups and the results of the data collection. This chapter contains the research questions, null hypotheses, and descriptive statistics used to compare the level of postsecondary persistence among male and female dual-enrolled high school students participating in different modes of course instruction.

### Research Question

**RQ1:** Is there a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire*, based on mode of course instruction.

**RQ2:** Is there a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire*, based on student gender.

**RQ3:** Is there a significant interaction in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire*, based on student gender and mode of course instruction.

### **Null Hypotheses**

**H01:** There is no statistically significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on mode of course instruction.

**H02:** There is no statistically significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender.

**H03:** There is no statistically significant interaction in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender and mode of course instruction.

### **Descriptive Statistics**

The data was downloaded from *Survey Monkey* and placed in an Excel spreadsheet for data screening to begin. Upon initial examination, five possible duplicates were identified. These five entries were identified as duplicates because the overall score as well as the scores for each individual question were identical and the entries were submitted within a very short period. These five duplicates were removed from the data set. An explanation of these 5 duplicates is seen in Table 4. In the survey, each participant was asked to identify the modes of instruction in which they have participated to determine proper group assignment. One submission did not identify as having participated in a dual-enrollment course in any of the three modes and

Table 4

*Duplicate Entries*

<b>Gender-Mode of Instruction</b>	<b>Entry</b>	<b>Start</b>	<b>Stop</b>	<b>Score</b>
Female - College Campus	Original	11:47	11:53	1.125
Female - College Campus	Duplicate	11:54	11:54	1.125
Male - College Campus	Original	9:21	9:27	1.0
Male - College Campus	Duplicate	9:28	9:28	1.0
Female – High School Campus	Original	8:40	8:45	0.5
Female – High School Campus	Duplicate	8:45	8:46	0.5
Female – High School Campus	Duplicate	8:46	8:46	0.5
<b>Female – High School Campus</b>	<b>Duplicate</b>	<b>8:47</b>	<b>8:47</b>	<b>0.5</b>

therefore could not be placed into a group. This one entry was removed from the data set.

For the purpose of this study, dual-enrollment is defined as the earning of college credit for a course while still enrolled as a high school student (Grubb, Scott, & Good, 2017).

Participants were placed in the group that coincided with the highest level of college campus immersion experienced. This was determined in the beginning of the survey when each participant was asked to identify the modes of instruction in which they have participated in.

Participants who were enrolled in or have completed a course on the college campus were included in the college campus group ( $n = 42$ ). Participants who were enrolled in or have completed a course on the high school campus but not the college campus were included in the high school group ( $n = 59$ ). Participants who were enrolled in or have completed an entirely online course only were included in the online-only group ( $n = 7$ ). While numerous participants

had completed an online course ( $n = 81$ ), the majority had also completed other modes of instruction, which were more campus-immersive and were placed into one of the other two groups. Generally, in causal-comparative research, a minimum number of 15 subjects is needed in each group for a proper comparison (Gall, Gall, & Borg, 2007). With so few participants included in the online group ( $n = 7$ ), the group was removed from the study and only the high school and college campus groups were examined for research question one. These seven were removed from the data set leaving scores from 101 participants for a comparison of the two groups and this sample exceeds the minimum required sample size of 100 for a two-way ANOVA for a medium effect size at a statistical power of 0.7 at the 0.05 level (Gall et al., 2007).

The first research question and corresponding null hypothesis compared the college persistence scores of dual-enrolled 11th and 12th grade high school students based on mode of course instruction. Of a total of 101 participants who completed the survey ( $n = 101$ ), demographic data collected showed that within the sample of participants, 42% participated in a college class on the college campus ( $n = 42$ ), and 58% participated in a college class on the high school campus ( $n = 59$ ). A breakdown of these groups is provided in Table 5. The *College Persistence Questionnaire (CPQ)* was used to measure the college persistence of the participants.

The *CPQ* uses a 5-point Likert-type scale to measure a student's level of college persistence with two being the highest possible level of college persistence, and negative two being the lowest level of college persistence. The mean persistence score for dual-enrollment students who participated in a college class on the college campus ( $M = 0.829$ ,  $SD = 0.591$ ) and the mean persistence score for dual-enrollment students who participated in a college class on the high school campus ( $M = 0.535$ ,  $SD = 0.422$ ) are provided in Table 6.

The second research question and corresponding null hypothesis compared the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender. Of a total of 101 participants who completed the survey ( $n = 101$ ), demographic data collected showed that within the sample of participants, 43% were male ( $n = 43$ ) and 57% were female ( $n = 58$ ). A breakdown of these groups is provided in Table 5. The *CPQ* was used to measure the college persistence scores of the participants. The mean persistence score for female dual-enrollment students ( $M = 0.718$ ,  $SD = 0.508$ ) and the mean persistence score for male dual-enrollment students ( $M = 0.575$ ,  $SD = 0.524$ ) are provided in Table 6.

The third research question and corresponding null hypothesis examined the interaction of college persistence scores among dual-enrolled 11th and 12th grade high school students based on gender and mode of course instruction. A total of 101 participants completed the survey ( $n = 101$ ). Demographic data collected showed that within the sample of participants, 23% were female participants who participated in a college class on the college campus ( $n = 23$ ), 34% were female participants who participated in a college class on the high school campus ( $n = 35$ ), 19% were male participants who participated in a college class on the college campus ( $n = 19$ ), 24% were male participants who participated in a college class on the high school campus ( $n = 24$ ). A breakdown of these groups is described in Table 5. The *CPQ* was used to measure the college persistence scores of the participants.

The mean persistence score for female dual-enrollment students who participated in a college class on the college campus ( $M = 0.950$ ,  $SD = 0.543$ ) and the mean persistence score for male dual-enrollment students who participated in a college class on the college campus ( $M =$

Table 5

*Group Demographics*

<b>Mode of Instruction</b>	<b>Male Students</b>	<b>Female Students</b>	<b>Total Students</b>
College Campus	19	23	42
High School Campus	24	35	59
<b>Total</b>	<b>43</b>	<b>58</b>	<b>101</b>

0.684,  $SD = 0.629$ ) are provided in Table 6. The mean persistence score for female dual-enrollment students who participated in a college class on the high school campus ( $M = 0.566$ ,  $SD = 0.427$ ) and the mean persistence score for male dual-enrollment students who participated in a college class on the high school campus ( $M = 0.489$ ,  $SD = 0.418$ ) are provided in Table 6.

Table 6

*Group Statistics*

<b>Mode of Instruction</b>	<b>N</b>	<b>M</b>	<b>SD</b>
Female - College Campus	23	0.950	0.543
Male - College Campus	19	0.684	0.629
Female - High School Campus	35	0.566	0.427
<b>Male - High School Campus</b>	<b>24</b>	<b>0.489</b>	<b>0.418</b>

## Results

### Assumption Tests

The dependent variable (postsecondary persistence) was screened for inconsistencies and outliers (Gall et al., 2007). No inconsistencies or errors were noted. A Box and Whisker plot was used to check the data for the presence of extreme outliers (Gall et al., 2007). No

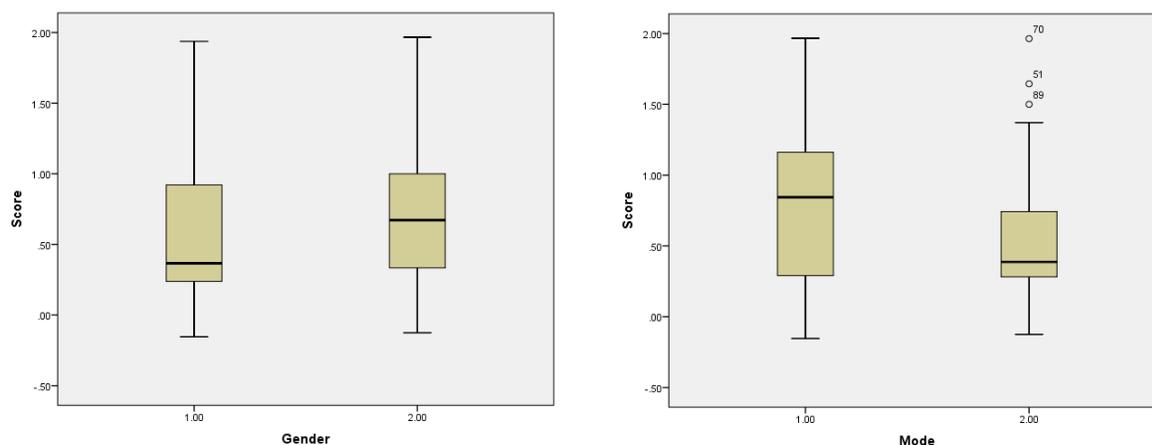


Figure 1. Box and Whisker Plot for mode of course instruction and gender.

extreme outliers were noted for either independent variable (See Figure 1 for Box and Whiskers produced by SSPS).

After checking for extreme outliers, the researcher screened the data for assumptions of normality and homogeneity (Warner, 2013). The assumption of normality was tested using the Kolmogorov-Smirnov test. This test was used because it is appropriate for sample sizes greater than 50 (Warner, 2013). The results of the Kolmogorov-Smirnov test revealed the assumption for normality for College Campus ( $p = 0.200$ ) was tenable. However, the assumption of normality for High School Campus ( $p = 0.003$ ) was not tenable (See Table 7 Kolmogorov-Smirnov results). The assumption of normality for gender was tenable for Females ( $p = 0.200$ )

Table 7 Kolmogorov-Smirnov Test of Normality

Mode Type	Kolmogorov-Smirnov <sup>a</sup>		
	Statistic	Df	Sig.
College	.085	42	.200*
High School	.145	59	.003*

\* This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Gender	Kolmogorov-Smirnov <sup>a</sup>		
	Statistic	Df	Sig.
Male	.221	43	.000
Female	.099	58	.200*

\* This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 8

*Levene's Test of Equality of Error Variances*

Dependent Variable: Persistence

F	df1	df2	Sig.
2.391	3	97	0.073

but was not tenable for Males ( $p = 0.000$ ). However, Warner (2013) suggested that ANOVA is robust to violations of normality if other assumptions are tenable. The histograms showed the data was approximately normally distributed. The next assumption tested was the assumption of homogeneity of variance for the dependent variable across levels of the independent variable. This assumption was tested using Levene's Test of Equality of Error Variances. The results of the Levene's were tenable ( $p = 0.073$ ) (See Table 8 for Levene's test).

**Null Hypothesis One**

The first null hypothesis for this research study stated there is no statistically significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on mode of course instruction. A two-way ANOVA was used to analyze this hypothesis at the alpha  $p < 0.05$  level. The result of the ANOVA analysis was significant ( $F(1, 97) = 8.175, p = 0.005, \eta^2 = 0.078$ ). The effect size  $\eta^2 = 0.078$ , indicated a medium effect when interpreted in terms of Cohen's  $d$  (Warner, 2013). Approximately 8% of the variance in the dependent variable, college persistence, can be attributed to the presence of the independent variable, mode of course delivery. See Table 9 results of the ANOVA. The first null hypothesis was rejected.

Table 9

*Tests of Between-Subjects Effects*

Dependent Variable: College Persistence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2.949	3	.983	4.000	.010	.110
Intercept	43.441	1	43.441	176.753	.000	.646
Gender	.709	1	.709	2.885	.093	.029
Mode	2.009	1	2.009	8.175	.005	.078
Gender * Mode	.214	1	.214	.869	.354	.009
Error	23.840	97	.246			
Total	70.413	101				
Corrected Total	26.789	100				

a. R Squared = .110 (Adjusted R Squared = .083)

**Null Hypothesis Two**

The second null hypothesis for this research study stated there is no statistically significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender. A two-way ANOVA was used to analyze this hypothesis at the alpha  $p < 0.05$  level. The result of the ANOVA analysis was not significant ( $F(1, 97) = 2.885, p = 0.093$ ). See Table 9 results of the ANOVA. Null hypothesis two was accepted.

**Null Hypothesis Three**

The third null hypothesis for this research study stated there is no statistically significant interaction in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender and mode of course delivery. A two-way ANOVA was used to

analyze this hypothesis at the alpha  $p < 0.05$  level. The result of the ANOVA analysis was not significant ( $F(1, 97) = 0.869, p = 0.354$ ). See Table 9 results of the ANOVA. Null hypothesis three was accepted.

## CHAPTER FIVE: INTRODUCTION

### Overview

This chapter contains a summary of the research conducted to compare differences in the levels of college persistence of dual-enrolled 11th and 12th grade high school students based on the students' gender and mode of course delivery. This chapter provides a discussion of the research questions, the findings of the analysis, and how they relate to the review of literature. Additionally, the implications of this study, its limitations, and recommendations for future research are also offered.

### Discussion

The purpose of this quantitative causal-comparative study is to determine if a statistically significant relationship exists between the level of postsecondary persistence of dual-enrolled students based on mode of course delivery and the student's gender. The current study was intended to build upon the existing literature (Bean, 1980, 1982; Bean & Kuh, 1984; Giani, Alexander, & Reyes, 2014; Grubb, Scott, & Good, 2017; Lawrence, 2017; Taylor, 2015; Tinto, 1975, 1993, 1997, 2007; Wallace, 2017), and use Tinto's and Bean's Student Integration Theories to explain participation in dual-enrollment programs with postsecondary success.

### Mode of Course Delivery

The first research question asked if there was a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *College Persistence Questionnaire (CPQ)*, based on mode of course delivery. To measure the level of participants' dependent variable, college persistence, 11th and 12th grade high school students dual-enrolled in a college class in a southern U.S. state in one of the three modes of delivery were administered the *CPQ*. A two-way ANOVA was conducted at an alpha  $p < 0.05$

level. The results of the analysis found there was a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on mode of course delivery and the researcher rejected the null hypothesis at a 95% confidence level where  $F(1, 97) = 8.175$  was greater than  $F$ -Critical (3.940) at 1 degree of freedom between groups and 97 degrees of freedom within groups,  $p = 0.005$ ,  $\eta^2 = 0.078$  (medium effect size).

These findings expand upon the body of literature on college persistence and the effect the various modes of course instruction may have. In one of his earliest studies, Tinto (1975) stated that dropping out often occurred because of an individual's lack of interactions with other individuals at the college or because of an inability to adopt the values of that segment of society, and that these two reasons were similar to the reasons an individual would choose to depart from society. Tinto (1997) also stated that there is an important relationship between the experiences in and the structure of the college classroom and the level of student persistence. Additionally, Tinto (1975) believed students who lack enough social integration could still drop out regardless of their academic performance.

The findings of the present study, which indicated a significant difference in the level of college persistence based on the mode of course delivery, supports the findings of many of the studies in the literature. According to Tinto (1997), a mix of both academic and social integration is required to fully integrate a student into college life. However, the different modes of course delivery do not offer the same level of integration. Lile, Ottusch, Jones, and Richards (2017) found, when it comes to college courses being offered at the high school, some students felt as if they were not the same as regular college students, and dual-enrollment students taking classes at the high school still did not change their social interaction routines and still interacted with the same groups of students as they did prior to taking college classes.

In the present study the researcher found the mean level of college persistence for students taking courses at the college campus ( $M = 0.829$ ,  $SD = 0.591$ ) was significantly higher than the persistence scores for students taking classes at the high school ( $M = 0.535$ ,  $SD = 0.422$ ). This finding is like other studies examined in the literature. Speroni (2011) found dual-enrollment courses taught at the college campus better exposed high school students to the college experience. Additionally, D'Amico, Morgan, Robertson, and Rivers (2013) found dual-enrollment students enrolled in classes at a technical college were 1.255 times more likely to persist than students who took dual-enrollment classes at their high school.

### **Gender**

The second research question asked if there is a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *CPQ* based on student gender. To measure the level of participants' dependent variable, college persistence, male and female, 11th and 12th grade high school students dual-enrolled in a college class in a southern U.S. state were administered the *CPQ*. A two-way ANOVA was conducted at an alpha  $p < 0.05$  level. The results of the analysis found there was not a significant difference in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender, and the researcher failed to reject the null hypothesis at a 95% confidence level where  $F(1, 97) = 2.885$  was less than  $F$ -Critical (3.940) at 1 degree of freedom between groups and 97 degrees of freedom within groups,  $p = 0.093$ .

These findings expand upon the body of literature indicating researchers have mixed opinions on the effect gender has on college persistence. Tinto (1975; 1993) and Bean (1980, 1982) theorized gender played a role in the level of college persistence. Clark (2015) found females are more likely to persist in college. Additionally, Giani et al. (2014) found female

students were more likely than males to successfully complete a dual-enrollment course. However, D'Amico et al. (2013) found gender was not a significant predictor of college persistence among dual-enrolled high school students. In the present study the researcher found the mean level of college persistence for female students taking dual-enrollment courses ( $M = .829$ ,  $SD = 0.591$ ) was not significantly higher than the persistence scores for male students taking dual-enrollment courses ( $M = 0.535$ ,  $SD = 0.422$ ). This finding is like other studies examined in the literature and implies more research is needed to determine the role of gender in college persistence.

### **Mode and Gender Interaction**

The third research question asked if there is a significant interaction in the college persistence scores of dual-enrolled 11th and 12th grade high school students, as measured by the *CPQ*, based on student gender and mode of course instruction. To measure the level of participants' dependent variable, college persistence, male and female 11th and 12th grade high school students dual-enrolled in a college class in a southern U.S. state in one of the three modes of delivery were administered the *CPQ*. A two-way ANOVA was conducted at an alpha  $p < 0.05$  level. The results of the analysis found there was not a significant interaction in the college persistence scores of dual-enrolled 11th and 12th grade high school students based on student gender and the mode of course delivery. The researcher failed to reject the null hypothesis at a 95% confidence level where  $F(1, 97) = 0.869$  was less than  $F$ -Critical (3.940) at 1 degree of freedom between groups and 97 degrees of freedom within groups,  $p = 0.354$ .

These findings expand upon the body of literature Tinto (1975, 1993) and Bean (1980, 1982), which theorized that gender plays a role in a student's level of college persistence. Studies have found females are more likely to persist in college (Clark, 2015) and female

students were more likely than males to successfully complete a dual-enrollment course (Giani et al., 2014). In the present study the researcher found the mean level of college persistence for female students taking dual-enrollment courses at the college campus ( $M = 0.950$ ,  $SD = 0.543$ ) was not significantly higher than the persistence scores for male students taking dual-enrollment courses at the college campus ( $M = 0.684$ ,  $SD = 0.629$ ). Likewise, the mean level of college persistence for female students taking dual-enrollment courses at their high school ( $M = 0.566$ ,  $SD = 0.427$ ) was not significantly higher than the persistence scores for male students taking dual-enrollment courses at their high school ( $M = 0.489$ ,  $SD = 0.418$ ). This finding, like D'Amico et al. (2013), did not find gender to be a significant predictor of college persistence among dual-enrolled high school students.

### **Implications**

The research conducted in the present study is important as it provides counselors and school administrators with information that could affect decisions on future modes of course delivery offered for their students. There is much literature that points to the importance of dual-enrollment programs. The results of both qualitative and quantitative studies have found positive benefits are realized by dual-enrolled students, regardless of course modality (Lile et al., 2017). The present study follows that trend. While in the present study the researcher did find a significant difference in the college persistence scores of dual-enrolled high school students, several similarities were found between the groups. In the present study the researcher found the mean persistence score of those enrolled in classes on the college campus was higher than those enrolled at the high school campus both groups scored highest on the same factors. Of the 10 factors measured by the *CPQ*, the average score of all participants was highest in the areas of degree completion and scholastic conscientiousness.

The high levels in these two areas are in line with the body of research. Cowan and Goldhalber (2015) found students who enroll on a dual-enrollment program are 8% more likely to complete a degree than students who did not participate in dual-enrollment. Grubb et al. (2017) found more than 30% of students who completed dual-enrollment programs graduated community college within two years compared to those who did not participate in such programs, of which only 15% completed within two years. Giani et al. (2014) found the participation in dual-enrollment courses had a greater effect on postsecondary outcomes than enrollment in traditional advanced placement courses. Grubb et al. also found less than 4% of students enrolled in a dual-enrollment program received remediation during postsecondary instruction, a rate significantly lower than those students who did not participate in a dual-enrollment program, more than 11% of whom received remediation.

While the present study does not question the benefits of dual-enrollment programs, its findings suggest some modes of instruction may have superior effects on the level of college persistence among students. In the present study the researcher found the mean score for students taking courses at the college campus ( $M = 0.829$ ,  $SD = 0.591$ ) was significantly higher than the persistence scores for students taking classes at the high school ( $M = 0.535$ ,  $SD = 0.422$ ). This difference is also seen when the *CPQ* results are examined by individual factors. The two areas in which the gap was greatest between students who took courses on the college campus and students who took them on the high school campus were financial strain followed by collegiate stress. While these two factors were the lowest for both modes of instruction, the high school group scored substantially lower in these areas. One reason for this difference could be exposure to college level work. Of the participants in the college group 95% have also taken courses in at least one other mode of instruction compared to only 56% of the high school group.

This additional college experience found among the college group may have had an impact on the students' ability to handle college-level rigor and ease fears regarding how to pay for their education.

### **Limitations**

The present study examined the college persistence score of dual-enrolled high school students taking courses at a single technical college in a southern U.S. state. The results of this study may not correlate to those found at other locations. The dual-enrolled high school students in this study were all enrolled in courses through a two-year technical school and the results found may not be like those for students taking dual-enrollment course through four-year institutions. The present study did not consider student achievement as a factor in their level of college persistence. The survey instrument used in the present study was administered to students between semester weeks 8 and 13 and did not consider students who withdrew from their courses prior to this time. Additionally, most of the participants in the present study had taken college courses in more than one mode of instruction or taken multiple courses within the same mode of instruction. The present study did not consider number of course taken as a factor in student college persistence levels.

### **Recommendations for Future Research**

The results of the present study raise several recommendations for future research. One reason for the lack of significant findings may be due to the small sample size of this study. Future research using a larger sample size, possibly with multiple postsecondary institutions, is needed to further explore the effect mode of course instruction and gender have on college persistence. In the present study the researcher only considered 11th and 12th grade high school students; however, some states now allow students as young as ninth grade to participate in dual-

enrollment programs. Future research could expand the present study by including high school students in all grade levels as well as consider student age as an additional variable. In the present study the researcher also did not consider the rigor of courses taken prior to participating in dual-enrollment courses as a factor in student persistence. Future research could consider the impact of such college predatory coursework on student persistence in dual-enrollment courses.

The courses taught at the high school in the present study were either taught by instructors sent from the technical college to the high school or by high school teachers contracted by the technical college. Future research could examine the impact of where the instructor is from, the high school or the college campus, on the persistence of students enrolled in college courses at the high school campus. Additionally, the researcher in the present study only considered students taking courses at a two-year technical college. Future research could examine the difference in college persistence levels between students enrolled in dual-enrollment courses at two- and four-year postsecondary institutions.

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**APPENDICES**

**Appendix A: College Persistence Questionnaire – V3 (Short Form)**

Contents removed due to copyright considerations.

**Appendix B: Scoring Instructions**

Contents removed due to copyright considerations.

### Appendix C: Permission to Use College Persistence Questionnaire

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From: Bill Davidson [REDACTED]  
Sent: Tuesday, July 11, 2017 3:05:28 PM  
To: Dephenhart, Joseph  
Subject: FW: College Persistence Questionnaire

Hi Joe,

I am attaching a copy of the CPQ and the scoring instructions. You have our permission to use it in your doctoral research.

Best wishes,

Bill

William B. Davidson, PhD

Professor of Psychology

Angelo State University

Department of Psychology, Sociology, and Social Work

[REDACTED] office)

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**Appendix D: Liberty University IRB Approval****LIBERTY UNIVERSITY.**  
INSTITUTIONAL REVIEW BOARD

June 15, 2018

Joseph Dephenhart

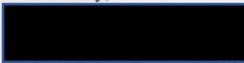
IRB Approval 3271.061518: Comparing the College Persistence of Dual-Enrolled 11th and 12th Grade High School Students Based on Gender and Mode of Course Delivery

Dear Joseph Dephenhart,

We are pleased to inform you that your study has been approved by the Liberty University IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

  
G. Michele Baker, MA, CIP  
*Administrative Chair of Institutional Research*  
The Graduate School

**LIBERTY**  
UNIVERSITY.  
*Liberty University | Training Champions for Christ since 1971*

### Appendix E: Technical College Permission

[REDACTED]

Nathan Deal  
Governor

Matt Arthur  
Commissioner

June 6, 2018

Mr. Joseph Depenhart  
[REDACTED]

Dear Mr. Depenhart:

The Technical College [REDACTED] has received the forms and documentation related to your intended dissertation research of dual enrolled students [REDACTED] in your doctoral research study *Comparing the College Persistence of Dual Enrolled 11<sup>th</sup> and 12<sup>th</sup> Grade High School Students Based on Gender and Mode of Course Delivery*. We have reviewed the summary of your research, as well as the IRB approval issued to you by Liberty University.

In accordance with the IRB approval, as well as the documents you submitted to TCSG with regard to the parameters and intent of your study, we authorize you to continue with the [REDACTED] research project with the stipulation that you do not obtain the list of dual enrolled students from [REDACTED] Technical College nor use class time for the surveys. You can obtain directory information on students and contact them and their parents directly for consent to participate in your study.

Please make it clear to participants that the study is a personal venture associated with your doctoral studies independent of TCSG, and that participation in the study is strictly voluntary.

If you have any questions, please do not hesitate to contact me. I may be reached at (404) 679-1614 or m [REDACTED]

Sincerely,

[REDACTED] Ph.D.  
Executive Director Accountability and Institutional Effectiveness

cc: [REDACTED] by [REDACTED]

[REDACTED]

## Appendix F: Permission from Each Participating High School

### High School A Permission

3/12/2018 Mail - jdepenhart@liberty.edu

Re: Dissertation Request

Richard [REDACTED].US>

Thu 2/1/2018 12:45 PM

To: Depenhart, Joseph <jdepenhart@liberty.edu>;

You have my permission to conduct your research at Toombs [REDACTED] if you send a formal letter, please let me know.

RS

Richard [REDACTED]  
Superintendent  
Toombs County  
478-230- [REDACTED]

*"All kids need is a little help, a little hope and somebody who believes in them." Magic Johnson*

On Wed, Jan 31, 2018 at 8:32 PM, Depenhart, Joseph <jdepenhart@liberty.edu> wrote:

Mr. S [REDACTED]

I am a doctoral candidate with the School of Education at Liberty University. As a final step in my degree, I am proposing a study: *Comparing the College Persistence of Dual-Enrolled 11th and 12th Grade High School Students Based on Gender and Mode of Course Delivery*. The purpose of my research is to determine if a statistically significant relationship exists between the level of postsecondary persistence of dual-enrolled high school students based on gender and mode of course delivery. The postsecondary persistence of the dual-enrolled students will be measured by the *College Persistence Questionnaire*.

As a part of the IRB process, I am required to obtain permission to complete my study from each of the study sites. I have attached my formal request to conduct research at [REDACTED] County High School to this message. Participants will be asked to complete a 30-35 minute online survey on how their experience in their dual-enrollment course has impacted their college persistence. Please take the time to review my request and let me know if there is any additional information about my proposed study that you require. I look forward to your reply.

Joe Depenhart

<https://outlook.office.com/owa/?realm=liberty.edu> 1/1

## High School B Permission

3/12/2018 Mail - jdepenhart@liberty.edu

Re: Research request

[REDACTED] JS>

Thu 2/22/2018 9:57 AM

To: Depenhart, Joseph <jdepenhart@liberty.edu>;

Hello Joseph,  
After speaking to our High School Principal, we are approving your request.  
Thanks,  
[REDACTED]  
Superintendent, MCS

"We are not retreating - we are advancing in another direction."  
[REDACTED]

On Sat, Feb 10, 2018 at 9:46 AM, Depenhart, Joseph [REDACTED] wrote:  
[REDACTED]

[REDACTED]

My name is Joseph Depenhart, I am an Assistant Principal [REDACTED] High School and doctoral candidate with the School of Education at Liberty University. As a final step in my degree, I am proposing a study: *Comparing the College Persistence of Dual-Enrolled 11th and 12th Grade High School Students Based on Gender and Mode of Course Delivery*. The purpose of my research is to determine if a statistically significant relationship exists between the level of postsecondary persistence of dual-enrolled high school students based on gender and mode of course delivery. The postsecondary persistence of the dual-enrolled students will be measured by the *College Persistence Questionnaire*.

As a part of the IRB process, I am required to obtain permission to complete my study from each of the study sites. I have attached my formal request to conduct research at Montgomery County High School to this message. Participants will be asked to complete a 30-35 minute online survey on how their experience in their dual-enrollment course has impacted their college persistence. Please take the time to review my request and let me know if there is any additional information about my proposed study that you require. I look forward to your reply.

Joe Depenhart

<https://outlook.office.com/owa/?realm=liberty.edu> 1/1

## High School C Permission

3/12/2018

Mail - jdepenhart@liberty.edu

Re: study

Depenhart, Joseph

Sent Items

To: Eddie Morris <eddie\_morris@johnson.k12.ga.us>;

Thank you Sir. I will make initial contact with your principal this week and will provide more information once final IRB approval is obtained.

Joe Depenhart

---

**From:** Eddie Morris <eddie\_morris@johnson.k12.ga.us>

**Sent:** Wednesday, February 21, 2018 8:40:02 AM

**To:** Depenhart, Joseph

**Subject:** study

to study the Johnson County School System

Superintendent

Johnson County Schools

"Rigor, Relevance, and Relationships"

CONFIDENTIALITY NOTICE: This email message and all attachments may contain legally privileged and confidential information intended solely for the use of the addressee. If the reader of this message is not the intended recipient, you are hereby notified that any reading, dissemination, distribution, copying or other use of the message or it's attachments is strictly prohibited. If you have received this message in error, please notify the sender immediately by electronic mail and delete this message and all copies and back ups.

# High School D Permission

5/19/2018 Mail - jdepenhart@liberty.edu

## Dissertation

[Redacted]@ga.us>

Fri 3/23/2018 8:30 AM

To: Depenhart, Joseph <jdepenhart@liberty.edu>

Mr. Depenhart,  
Thank you for explaining your dissertation research proposal to me. I will allow you to conduct your study using Tallapoosa County High School dual enrollment students.

Best of luck,

G  
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" [Redacted] es"

Mission

The Tat [Redacted] affirms

The Tat [Redacted] today

<https://outlook.office.com/owa/?realm=liberty.edu> 1/1

## High School E Permission

5/19/2018 Mail - jdepenhart@liberty.edu

### Study

[Redacted] rg>

Fri 3/23/2018 12:44 PM

To: Depenhart, Joseph <jdepenhart@liberty.edu>;

Joe,  
Thanks in advance for your research on student persistence in dual enrollment classes. As the Superintendent of [Redacted], I approve your request to survey students at [Redacted] on the aforementioned study. Please let me know if you need further clarification. Thanks again.

--  
B [Redacted]  
S [Redacted]  
C [Redacted]

<https://outlook.office.com/owa/?realm=liberty.edu&path=/mail/AAMkADY1N2QxMmFmLWJjM2UtNGU1Ni1hZTViLTdkMDEzMTZmY2MxZQAuAAAAABfAHshCt>

# High School F Permission

6/23/2018 [redacted] - Dissertation

[redacted] Joseph Depenhart <joseph.depenhart@liberty.edu>

---

**Dissertation**  
2 messages

---

Joseph Depenhart <joseph.depenhart@liberty.edu> Mon, Jun 11, 2018 at 10:07 AM  
To: gwil [redacted].a.us  
Cc: Joseph Depenhart <jdepenhart@liberty.edu>

Sir- I need an email from you stating I have permission to conduct my dissertation study at [redacted]. When you reply, please hit reply all and it will go to [redacted] and Liberty emails. Thanks for support in completing my research.

Joe Depenhart  
via [Newton Mail](#)

---

[redacted] Mon, Jun 11, 2018 at 10:11 AM

Joe,

You are more than welcome to include [redacted] your research and dissertation study.

--  
[redacted]

On Mon, Jun 11, 2018 at 10:07 AM, Joseph Depenhart <joseph.depenhart@liberty.edu> wrote:  
Sir- I need an email from you stating I have permission to conduct my dissertation study at [redacted]. When you reply, please hit reply all and it will go to both [redacted] and Liberty emails. Thanks for support in completing my research.

Joe Depenhart  
via [Newton Mail](#)

--  
[redacted]

## Appendix G: Parent/Guardian Consent Form

Comparing the College Persistence of Dual-Enrolled 11th and 12th Grade High School Students

Based on Gender and Mode of Course Delivery

Joseph L. Depenhart

Liberty University

School of Education

Your student is invited to be in a research study to examine the effects of mode of course delivery on the college persistence of dual-enrolled high school students. He or she was selected as a possible participant because he or she is an 11th or 12th grade high school student enrolled in a dual-enrollment course with the [REDACTED]. Please read this form and ask any questions you may have before agreeing to allow him or her to be in the study.

Joseph Depenhart, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

**Background Information:** The purpose of this study is to determine if a statistically significant relationship exists between the level of postsecondary persistence of dual-enrolled high school students based on mode of course delivery and gender. The postsecondary persistence will be measured by the *College Persistence* Questionnaire.

**Procedures:** If you agree to allow your student to be in this study, I would ask him or her to do the following things:

1. To participate in a 35-minute online survey consisting of 53 questions, which is designed to measure the level of a student's college persistence.

**Risks:** The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

**Benefits:** Participants should not expect to receive a direct benefit from taking part in this study. Society may benefit from this study through a clearer understanding of the benefits of the different modes of instruction used in dual-enrollment and how gender may affect those benefits.

**Compensation:** Students will not be directly compensated for participation in this study.

**Confidentiality:** The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records.

- Survey results will be anonymous.
- All data will be stored in a locked container at the researcher's residence. After three years, all records will be destroyed or deleted.

**Voluntary Nature of the Study:** Participation in this study is voluntary. Your decision whether to allow your student to participate will not affect his or her current or future relations with

[REDACTED]

[REDACTED] If you decide to allow your student to participate, he or she is free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

**How to Withdraw from the Study:** If your student chooses to withdraw from the study, your student should inform the researcher that he or she wishes to discontinue participation prior to submitting the study materials. Your student's responses will not be recorded or included in the study.

**Contacts and Questions:** The researcher conducting this study is Joseph Depenhart. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him by phone at 912-346-3309 or email at [jdepenhart@liberty.edu](mailto:jdepenhart@liberty.edu). You may also contact the researcher's faculty advisor, Dr. Phillip Alsup, at [palsup@liberty.edu](mailto:palsup@liberty.edu). If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Green Hall 1887, Lynchburg, VA 24515 or email at [irb@liberty.edu](mailto:irb@liberty.edu).

*Please notify the researcher if you would like a copy of this information for your records.*

**Statement of Consent:** I have read and understood the above information. I have asked questions and have received answers. I consent to allow my student to participate in the study.

(NOTE: DO NOT AGREE TO ALLOW YOUR STUDENT TO PARTICIPATE UNLESS IRB  
APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN  
ADDED TO THIS DOCUMENT.)

---

Signature of Minor Date

---

Signature of Parent Date

---

Signature of Investigator Date

## Appendix H: Informed Consent Form

Comparing the College Persistence of Dual-Enrolled 11th and 12th Grade High School Students

Based on Gender and Mode of Course Delivery

Joseph L. Depenhart

Liberty University

School of Education

You are invited to be in a research study to examine the effects of mode of course delivery on the college persistence of dual-enrolled high school students. You were selected as a possible participant because you are 18 years or older and are an 11th or 12th grade high school student enrolled in a dual-enrollment course with [REDACTED]. Please read this form and ask any questions you may have before agreeing to be in the study.

Joseph Depenhart, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

**Background Information:** The purpose of this study is to determine if a statistically significant relationship exists between the level of postsecondary persistence of dual-enrolled high school students based on mode of course delivery and gender. The postsecondary persistence will be measured by the *College Persistence* Questionnaire.

**Procedures:** If you agree to be in this study, I would ask you to do the following things:

1. To participate in a 35-minute online survey consisting of 53 questions, which is designed to measure the level of a student's college persistence.

**Risks:** The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

**Benefits:** Participants should not expect to receive a direct benefit from taking part in this study. Society may benefit from this study through a clearer understanding of the benefits of the different modes of instruction used in dual-enrollment and how gender may affect those benefits.

**Compensation:** Participants will not be directly compensated for participation in this study.

**Confidentiality:** The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject.

Research records will be stored securely and only the researcher will have access to the records.

- Survey results will be anonymous.
- All data will be stored in a locked container at the researcher's residence. After three years, all records will be destroyed or deleted.

**Voluntary Nature of the Study:** Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University,



Schools, or [REDACTED]. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

**How to Withdraw from the Study:** If you choose to withdraw from the study, please inform the researcher that you wish to discontinue your participation prior to submitting your study materials. Your responses will not be recorded or included in the study.

**Contacts and Questions:** The researcher conducting this study is Joseph Depenhart. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him by phone at 912-346-3309 or email at [jdepenhart@liberty.edu](mailto:jdepenhart@liberty.edu). You may also contact the researcher's faculty advisor, Dr. Phillip Alsup, at [palsup@liberty.edu](mailto:palsup@liberty.edu). If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Green Hall 1887, Lynchburg, VA 24515 or email at [irb@liberty.edu](mailto:irb@liberty.edu).

*Please notify the researcher if you would like a copy of this information for your records.*

**Statement of Consent:** I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

### **Appendix I: Online Consent Page**

**Confidentiality:** The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject.

Research records will be stored securely and only the researcher will have access to the records.

- Survey results will be anonymous.
- All data will be stored in a locked container at the researcher's residence. After three years, all records will be destroyed or deleted.

**Voluntary Nature of the Study:** Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University,



If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

**How to Withdraw from the Study:** If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, any data collected, will be destroyed immediately and will not be included in this study.

**Contacts and Questions:** The researcher conducting this study is Joseph Depenhart. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him by phone at 912-346-3309 or email at [jdepenhart@liberty.edu](mailto:jdepenhart@liberty.edu). You may also contact the researcher's faculty advisor, Dr. Phillip Alsup, at [palsup@liberty.edu](mailto:palsup@liberty.edu). If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Green Hall 1887, Lynchburg, VA 24515 or email at [irb@liberty.edu](mailto:irb@liberty.edu).

### **Appendix J: Recruitment Letter - Minor**

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctorate degree. Please review this information with your parent/guardian prior to completing the consent form. The purpose of my research is to determine if a statistically significant relationship exists between the level of postsecondary persistence of dual-enrolled high school students based on gender and mode of course delivery, and I am writing to invite your child to participate in my study.

Participant Criteria: If you are a student enrolled as a dual-enrollment student at Southeastern Technical College, and you are willing to participate, you will be asked to complete an online survey, the College Persistence Questionnaire. It should take approximately 35 minutes for you to complete the survey. Your participation will be completely anonymous and no personal, identifying information will be collected.

To participate, both you and your parent will need to sign and return the consent document to the researcher or your school administrator. The consent document is included with this letter and contains additional information about my research. Once a completed consent form is received, you will be provided with a link to take the survey online.

*Sincerely,*

Joseph Depenhart  
Researcher

**Appendix K: Recruitment Letter - Adult**

15 April 2018

Dear Dual-Enrollment Student:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctorate degree. The purpose of my research is to determine if a statistically significant relationship exists between the level of postsecondary persistence of dual-enrolled high school students based on gender and mode of course delivery, and I am writing to invite you to participate in my study.

Participant Criteria: If you are 18 years of age or older, are enrolled as a dual-enrollment student with [REDACTED] and are willing to participate you will be asked to complete an online survey, the *College Persistence* Questionnaire. It should take approximately 35 minutes for you to complete the survey. Your participation will be completely anonymous, and no personal, identifying information will be collected.

To participate, please review the consent document attached to this letter and then click on the link provided to take the survey. The consent form contains additional information about my research, but you do not need to sign and return it.

[https://\[REDACTED\]](https://[REDACTED])

*Sincerely,*

Joseph Depenhart  
Researcher

**Appendix L: Additional Demographic Information**

1. What is your gender?

Male / Female

2. Have you completed or are you enrolled in a dual-enrollment course online?

Yes / No

3. Have you completed or are you enrolled in a dual-enrollment course at a High School campus?

Yes / No

4. Have you completed or are you enrolled in a dual-enrollment course at the Technical College campus?

Yes / No