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UNIVERSITY

PREDICTIVE EFFECTS OF COLLEGE-LEVEL WORK COMPLETED IN HIGH  
SCHOOL ON BACCALAUREATE DEGREE OUTCOMES

by

William Perkins

Dissertation

Submitted to the Faculty of

Harding University

Cannon-Clary College of Education

in Partial Fulfillment of the Requirements for

the Degree of

Doctor of Education

in

Educational Leadership

July 2020

PREDICTIVE EFFECTS OF COLLEGE-LEVEL WORK COMPLETED IN HIGH  
SCHOOL ON BACCALAUREATE DEGREE OUTCOMES

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William Perkins

Dissertation

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## **ACKNOWLEDGMENTS**

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## **ABSTRACT**

by  
William Perkins  
Harding University  
July 2020

Title: Predictive Effects of College-Level Work Completed in High School on Baccalaureate Degree Outcomes (Under the direction of Dr. Lynette Busceme)

The purpose of this dissertation was to determine the predictive effects of completing accelerated college credits over and above the predictive effects of the FASFA EFC index number, sex, and first-generation student status on baccalaureate outcomes on first-time college students on years to completion, graduation GPA, and number of hours completed. Accelerated college credits include AP, dual-enrollment, and dual-credit courses. The promise of completing college-level work in high school is that it prepares the student for the rigor of collegiate work, translating into a higher post-secondary GPA and a shorter time to degree attainment; however, little research has been conducted examining the effect of accelerated college credits on postsecondary graduation outcomes. This study used a hierarchical multiple regression to determine the predictive effects of accelerated college credit on years to completion, graduation GPA, and total hours completed on 2,817 students who graduated from a private university in Central Arkansas. The results of these regression analyses demonstrated a positive correlation between accelerated college credits and years to completion and graduation GPA, but not for total hours completed. Nevertheless, the students did not markedly

benefit from accelerated college credit. I recommend that colleges and high schools be more purposeful in recruiting students to participate in accelerated college credits.

Students should be better educated about how accelerated college credits can help or hinder their degree process. Best practice would be for postsecondary institutions to have a dedicated individual who helps students understand how these courses will fit into their degree program prior to enrollment.

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## CHAPTER I

### INTRODUCTION

The allure of earning college-level credit while in high school is firmly set within the American cultural mindset. Pierson, Hodara, and Luke (2017) provide the generic term *accelerated college credit* to cover the multiple ways high school students may earn these credits including Advanced Placement (AP), dual-credit, and dual-enrollment courses. While the differentiation of these methods is important on the secondary education level, when a student arrives on campus, what matters is that a student has college-level credit already completed. Myers and Myers (2017) indicated that the purpose of these accelerated college credit programs is to provide high school students with more rigorous coursework and opportunities to earn postsecondary experience and college-level credit. As a result, students may be more prepared for college-level work and have a shorter time to degree attainment, thus saving them on the cost of higher education. The benefits of earning college-level credit while in high school seem obvious but are deceptive.

Despite all the promises of the value associated with accelerated college-level credit, results from these programs are mixed. Politicians and higher education administrators continue to warn of decreasing college completion rates and the increasing need for remedial courses at the postsecondary level (Mokher & McLendon, 2009). The assumption has been that by allowing high school students access to college-level credit

programs, researchers would see positive benefits to bachelor's degree attainment, but these benefits have not always been found. Some researchers have judged that accelerated college credit programs are not influencing degree attainment at the higher education level (Miller et al., 2017; Speroni, 2011a, 2011b). These unexpected results raise the issue regarding what, if any, value is provided by earning college-level credit in high school. Therefore, investigating the effect of accelerated college credit on baccalaureate degree outcomes warrants further investigation.

Other factors may be involved. Dougherty, Mellor, and Jian (2006) indicated that a self-selection factor is involved in student participation in accelerated college credit programs. The researchers noted that students who participate in accelerated college credit programs tend to perform better academically and are anticipating going to college. Additionally, socioeconomic standing, sex, and first-generation status may be contributing factors influencing degree outcomes (Castleman & Long, 2013; Conger & Dickson, 2017; Redford & Hoyer, 2017). The individual characteristics of students who are self-motivated to work harder may affect each student's outcome. These variables will also need to be considered in relation to how they affect degree attainment.

### **Statement of the Problem**

First, the purpose of this study was to determine the predictive effects of the number of college-level hours completed during high school over and above the predictive effects of the Free Application for Federal Student Aid Expected Family Contribution (FAFSA EFC) index number, sex, and first-generation college student status on the number of years to completion for graduates who were first-time college students from a private university in Central Arkansas. Second, the purpose of this study was to

determine the predictive effects of the number of college-level hours completed during high school over and above the predictive effects of the FAFSA EFC index number, sex, and first-generation college student status on graduation GPA for graduates who were first-time college students from a private university in Central Arkansas. Third, the purpose of this study was to determine the predictive effects of the number of college-level hours completed during high school over and above the predictive effects of the FAFSA EFC index number, sex, and first-generation college student status on the total number of hours completed after enrollment for graduates who were first-time college students from a private university in Central Arkansas.

## **Background**

### **Theoretical Framework: Ecological Systems Theory**

To guide the research, Bronfenbrenner's ecological systems theory has been applied. May and Bridger (2010) noted that Bronfenbrenner's model provides a framework for thinking about how human development arises from an individual's interactions with the environment. Bronfenbrenner and Morris (1998) and Bronfenbrenner (2005) proposed five *systems* that influence the individual. First is the microsystem, which is comprised of the face-to-face relationships the person has. Second is the mesosystem, which is the interaction between any two microsystems. Third is the exosystem, which does not directly include the individual but has the potential to influence the person such as politics, the economy, media, and policies. Fourth is the macrosystem, which includes the overarching influence of culture and includes the socioeconomic context of the person. Finally, the chronosystem is the passage of time through all the systems and embraces the sociohistorical events that influence the

individual's development. Bronfenbrenner's theory provides a context in which the students' environment factors into their decisions regarding higher education. Ecological systems theory provides the theoretical framework to guide this research.

### **Motivation for Accelerated College Credit**

A critical indicator of students' success is the ability to reach their educational goals. Researchers at the American Association of Collegiate Registrars and Admissions Officers (AACRAO, 2019) conducted a survey in which more than 90% of registrar respondents indicated that graduation rates are considered one of their top indicators of student and institution success. Significant motivations for earning college credits while in high school are that these courses are reported to academically prepare students for the rigor of college-level work as well as save students time and money (Myers & Myers, 2017; Troutman, Hendrix-Soto, Creusere, & Mayer, 2018). However, little evidence-based guidance exists presenting ways to structure accelerated college credit programs to give the most benefits to high school students (Miller et al., 2017). If attaining college credit in high school does prepare students for the rigor of college, educators would expect to see these students with higher cumulative college GPAs. If receiving college credits while in high school reduces the amount of time students need to spend completing a bachelor's degree, educators would expect to see these students completing their bachelor's degrees at a faster pace than their peers. These educational achievements should cause students who completed college-level work in high school to stand out from their peers who did not participate in accelerated college courses.

## **History of Accelerated College Credit**

The debate concerning the preparedness of secondary students entering higher education dates to the late 19th century. Charles Elliot, then president of Harvard University, gave a speech in 1890 in which he advocated for an examination system, not just to evaluate a student's ability to do college-level work, but to elevate the rigor of secondary education (Valentine, 1987). In 1900, a group of administrators, mainly from Ivy League schools, formed the College Entrance Examination Board, later simply referred to as the College Board, and administered their first entrance exam. This exam later became known as the Scholastic Aptitude Test (Fuess, 1950). The College Board's influence in higher education was eventually expanded. In 1952, John Kemper, the Headmaster of Phillips Academy at Andover, Massachusetts, experimented with allowing high school sophomores and juniors to complete college-level coursework (Valentine, 1987). The rationale was that 18-year-old students were being drafted to serve in the Korean War and completing college-level courses in high school would allow servicemen to return home and enter sophomore-level work at the collegiate level. The experiment was greeted by mixed reviews; however, the College Board began the Advanced Placement (AP) program in the 1955-1956 academic year (Valentine, 1987). Students then had the potential to earn college-level credit for courses taken while enrolled in high school. The AP program was designed to challenge high school students to be better prepared academically for college. The discussion surrounding preparedness for college-level rigor is still ongoing.

Other methods of earning college-level credit in high school followed. In the fall of 1972, Syracuse University began Program Advanced. This program allowed selected

high schools to offer Syracuse University courses taught by high school instructors (Valentine, 1987). The University monitored the rigor of the courses by doing on-site visits and grading tests and papers. After completing these courses, students were able to order a transcript and transfer the credit to the institution of their choice. Syracuse University set the template for dual-credit courses (Valentine, 1987). The following year the state of California created the first statewide dual-enrollment program in which high school students could take college-level courses at institutions of higher education (Mokher & McLendon, 2009). These methods of completing college-level courses have become so popular that many first-time enrolled freshmen entering college arrive with some college-level credit (Miller et al., 2017). High school students are increasingly taking advantage of the opportunities available to them. With the advent of online learning, multiple methods of earning college-level credit in high school are available for the student who meets eligibility requirements.

### **FAFSA EFC Index Number**

The purpose of providing financial aid to students was to increase college access and success. Castleman and Long (2013) reported that the cost of higher education had risen faster than median income since the 1970s, making college less affordable. To address the issue, the government offered assistance through the FAFSA, which collects information about the financial resources of the student's family. From the data collected, the government determined the EFC index number, which colleges use to determine how much financial aid a student is eligible to receive. The EFC index number is determined according to a formula established by law (United States Department of Education, 2019). To calculate financial need, the total cost of attendance at the institution is subtracted from the EFC index number to determine the student's eligibility for loans and



grants (Castleman & Long, 2013). The EFC index number factors a student's family income and assets, the size of the family, and how many members of the family will be attending college during the year. Typically, the lower the EFC index number, the more financial aid a student is eligible to receive (United States Department of Education, 2020). The purpose of the EFC index number is to make college more affordable to students whose families have lower incomes. Two programs now represent the bulk of federal aid to college students, the Pell Grant and the Stafford Loan (Dynarski & Wiederspan, 2012). Many states offer grants to in-state students to supplement federal financial assistance. Additionally, institutions often provide scholarships. Without these resources, many students would not be able to afford to attend a higher education institution.

## **Sex**

Women are not just accessing higher education at a more significant rate; they are also completing degrees at a faster pace than their male counterparts. McFarland et al. (2019) reported that the 6-year completion rate was higher for females compared to males. McFarland's group also concluded that in the 2016-2017 academic year, women earned 57% and men 43% of all bachelor's degrees conferred within the United States, which coincides with the enrollment rates of males and females. The divide continues past the baccalaureate level, and the gap between females and males persists through graduate-level work (Adebayo, 2008). A clear connection exists between the student's sex and completion rates. Women are succeeding at outpacing men in earning postsecondary credentials, partially because there are more women than men enrolling in 4-year universities.

## **First-Generation College Student Status**

First-generation college student status applies to students whose parents did not complete a college degree. According to Toutkoushian, Stollberg, and Slaton (2018), most researchers tended to consider a student as having a first-generation status if either one or both parents did not graduate from college. Some common characteristics typify this group. These students tend to come from low-income households, with 77% of these earning less than \$50,000 a year (Pike & Kuh, 2005; Redford & Hoyer, 2017). In 2012, the overwhelming majority of first-generation students were White (Redford & Hoyer, 2017); however, current research indicates that they are now more likely to be from non-White backgrounds (Postsecondary National Policy Institute, 2018). Additionally, first-generation students tend to have life experiences that contribute to the development of skills that enable them to be successful in college. Because these students come from lower-income households, they are used to having to persevere despite obstacles and expect to have to work harder in college (Byrd & MacDonald, 2005; Cataldi, Bennett, & Chen, 2018). The attributes of first-generation students have the potential to influence them in both positive and negative ways. These common characteristics allow researchers to make some generalizations about these students.

### **Hypotheses**

1. No predictive effect will exist for the number of college-level hours completed during high school over and above the predictive effects of the FAFSA EFC index, sex, and first-generation college student status on the number of years to completion for graduates who were first-time college students from a private university in Central Arkansas.

2. No predictive effect will exist between the number of college-level hours completed during high school over and above the predictive effects of the FAFSA EFC index, sex, and first-generation college student status on graduation GPA for graduates who were first-time college students from a private university in Central Arkansas.
3. No predictive effect will exist between the number of college-level hours completed during high school over and above the predictive effects of the FAFSA EFC index, sex, and first-generation college student status on the total number of hours completed after enrollment for graduates who were first-time college students from a private university in Central Arkansas.

### **Description of Terms**

**Accelerated College Credit.** Any college-level credit a student earns while enrolled in high school is known as accelerated college credit. These college-level credit options include AP, College-Level Examination Program (CLEP), International Baccalaureate (IB), dual-credit, and dual-enrollment college credit courses (Pierson et al., 2017).

**First-Generation College Student Status.** The status of a college student when one or both parents did not complete a 4-year college degree is categorized as first-generation college student status (Toutkoushian et al., 2018).

**First-Time in College.** Any student attending a higher learning institution for the first time at the undergraduate level is considered a first-time college student. First-time in college is also referred to as a first-time enrolled or a first-year freshman student (State Council of Higher Education for Virginia, 2019).

**FAFSA EFC Index Number.** The index number is a measure of a family's financial ability to contribute to a student's educational costs. The index is calculated by a formula established by law and considers a family's income, assets, size, and the number of family members attending college during the year. The index number is not the amount of money a family is expected to pay, nor the amount of federal student aid a student will receive. Rather the index is used by the institution to determine the amount of federal student aid a student is eligible to receive (United States Department of Education, 2019).

**Grade Point Average (GPA).** The average obtained by dividing the total number of grade points earned by the number of credits attempted is referred to as a grade point average (Glossary of Education Reform, 2013).

**Number of Credit Hours.** The number of credit hours students earn is the amount of work represented in learning outcomes and verified by evidence of student achievement (Higher Learning Commission, 2019).

**Number of Years Completed.** The Higher Learning Commission (2019) defined a semester as a period of approximately 15 weeks or longer. An academic year is comprised of three semesters and is less than a calendar year. Therefore, a student who graduates in four academic years has completed 3.67 calendar years.

**Sex.** Sex is defined as the biological distinction between males and females (American Psychological Association, 2007).

## **Significance**

### **Research Gaps**

The disparity in the research as to the effectiveness of accelerated college credit courses on completion rates in higher education covers both extremes. Speroni (2011a) concluded that little to no evidence exists that accelerated college courses are increasing college success. Miller et al. (2017) evaluated students who earned accelerated college credit and concluded that they took just as much time to complete their degree programs compared to their nonaccelerated college credit counterparts. Alternatively, Wyatt, Patterson, and Di Giacomo (2015) noted that accelerated college credit students had higher college graduation rates than students who did not have accelerated college credit. A possible reason for these discrepancies was that some researchers only looked at student data at the end of the freshman year (Allen & Dadgar, 2012; An, 2015). Very few studies are following students through to their bachelor's degree attainment. The evidence of the success of accelerated college credit courses helping students reach degree completion has not reached an overwhelming consensus. This study extended the existing body of literature concerning the usefulness of accelerated college credits as associated with higher education success.

### **Possible Implications for Practice**

Understanding the predictive effects of accelerated college credit courses on completion rates has many practical applications. First is the management of expectations. When students arrive at institutions of higher learning with accelerated college credit, they can be guided as to what benefit they can expect from these courses. Students can also be informed that only when the number of accelerated college credit

hours reaches a certain threshold that these courses potentially could result in a reduction of semesters toward degree completion. A second application is that admissions officers will be able to use the information to help prospective students. These students can be directed to best practices that could help them achieve their educational goals in college. Third, college administrators will be able to use this information in the development of their accelerated college credit courses. Understanding how these courses affect the GPA and degree completion rates and who gains the most from them will allow administrators to target their course offerings to those groups of students who would most benefit from them. Fourth, these findings will be relevant to policymakers who are interested in advocating for students to participate in earning college-level credit while in high school. Decision-makers would be prudent to be informed how accelerated college courses affect students' academic progress, especially considering the current labor market demands for postsecondary credentials.

### **Process to Accomplish**

#### **Design**

I used a nonexperimental, hierarchical regression strategy for this quantitative study. The predictor variable for Hypotheses 1 through 3 was the number of accelerated college credit hours. The covariate variables for the three hypotheses were the FAFSA EFC index, sex, and first-generation college student status. The criterion variables were the number of years to graduation for Hypothesis 1, graduation GPA for Hypothesis 2, and the total number of hours completed for Hypothesis 3. The total number of hours was calculated by subtracting the number of accelerated college credit hours from the hours

used in the degree program to determine how many hours were completed after enrollment in the institution.

### **Sample**

Data used in the study were selected from the available population of undergraduate students who completed bachelor's degrees from Fall 2011 to Fall 2019 at a private university in Central Arkansas. The data sample was narrowed only to include information from degree programs that required the same number of hours to reach completion. The accessible population also excluded all data from students who had completed multiple majors or degrees at the same time. The data indicated that of the students, 44.8% were male and 55.2% were female. The data revealed that the majority of undergraduate students had a median age of 22 at the time of graduation.

### **Instrumentation**

Data were extracted from the institution's Student Information System. The data were pulled using *envisions' Argos 3.0* (Version 5.4.1, 1986) software, and any means by which to identify individual students was removed to maintain confidentiality. The Argos report provided the following fields: transfer hours, accelerated college credit hours, sex, first-time in college status, degree code, major code, years to graduation, overall GPA, first-generation student status, FAFSA EFC index number, and overall hours earned. University registrar officials confirmed all requirements were met before conferring degrees. Periodic audits by the University's various accrediting bodies continued to verify the reliability of the data.

## **Data Analysis**

To address the three hypotheses, a hierarchical, multiple regression was conducted to determine the degree of predictive effect the number of accelerated college credit hours had on different criterion variables over and above the other predictor variables in the model (FAFSA EFC index number, sex, and first-generation status). The three criterion variables included the number of years to completion, graduation GPA, and the total number of hours completed for graduates, respectively. The first model included the predictive effects of the covariate variables, and the second model added the predictor variable to determine the degree to which  $R^2$  changed and if accelerated college credit hours significantly added to the predictive effect of the group. Each hypothesis was tested using a two-tailed test with a .05 level of significance.

## **Summary**

The usefulness of accelerated college credits may not be as simplistic as initial appearances suggest. While Myers and Myers (2017) found there are benefits, Speroni (2011a) pointed out little to no evidence exists that college credits earned in high school increase college success. Nevertheless, despite the lack of research, policymakers are increasingly using accelerated college credit programs in high school to prepare students for the rigor of postsecondary work (An, 2015). Because the use of these courses has been promoted, the participation in college-level course work in high school has grown steadily since the early 2000s (St. Armor, 2019). Therefore, examining the role of accelerated college credit in degree attainment and final GPA has become crucial. To gain a better understanding of factors that predict baccalaureate degree outcomes was



sought through this research. Within Chapter II, I reviewed the related literature and the other researchers' conclusions about the literature.

## CHAPTER II

### REVIEW OF THE RELATED LITERATURE

When delivered to a higher education setting, the usefulness and the value of accelerated college credits earned in high school may become somewhat tentative. Those who are proponents of the use of such credits tout their worth in preparing students for postsecondary work with increased rigor, with the additional benefit of an increased postsecondary GPA and reduced time to degree attainment (Allen & Dadgar, 2012; An, 2015; Cowan & Goldhaber, 2015; Jackson, 2010). However, other researchers stated that accelerated college coursework, in its various forms, leaves students unprepared for college-level courses due to the lack of quality or structure of the coursework (Miller et al., 2017; Troutman et al., 2018). Therefore, opinions vary widely in terms of the value of college-level credit earned in high school. The benefits of accelerated college credit continue to be enigmatic.

Despite these contradictory findings, attaining college-level credit in high school is very popular. A national survey in the 2010-2011 school year showed that 82% of high schools reported having students enrolled in college-credit courses (Thomas, Marken, Gray, Lewis, & Ralph, 2013). Recordkeepers within the University of Texas system found that in the Fall of 2015, most first-time students entered their freshman year with some college credit (Troutman et al., 2018). However, long-range benefits of credits earned during high school careers are unclear and, in some instances, may result in

adverse effects for not only students but parents and college administrators as well. Therefore, additional research must be conducted to determine the usefulness of attaining these credits.

To provide a framework to consider the different factors that influence a student, Bronfenbrenner's ecological systems theory has been used. Bronfenbrenner (2005) proposed that human development is a joint function of individuals and their environments. His theory envisions a series of concentric circles in which the person is at the center, and each additional layer exerts its influence on the individual (McLinden, 2017). Therefore, an individual's participation in events that happen within a lifetime influences development and responses to various environments. Ecological systems theory has been applied to students and the various factors influencing their use of accelerated college credits associated with progression to degree completion.

In this chapter I provide a review of the relevant literature concerning ecological systems theory and its application to higher education. The chapter also includes a discussion of the FAFSA EFC index number, sex, first-generation college student status, and applications to postsecondary institutions. Additionally, the history of accelerated college credit attainment is explored along with how it is intended to assist students in their academic careers, and whether college-level credit earned in high school leads to higher education success.

### **Theoretical Framework: Ecological Systems Theory**

Ecological systems theory highlights the interactive nature of multiple levels of influence on human development. Bronfenbrenner (2005), the creator of the theory, noted that particular environmental conditions had been shown to affect the personal

characteristics of individuals living in that environment. These environments intermingle their stimuli upon the individual, who responds accordingly. The development of individuals is the result of numerous factors that affect people, and is demonstrated by their actions. Ecological systems theory (see Figure 1) is a series of concentric circles called *systems*.

Bronfenbrenner and Morris (1998) and Bronfenbrenner (2005) explained the five different types of ecological systems. Individuals defined by their personalities, ages, sex, and health are at the center. Closest to a person is the microsystem. The microsystem includes face-to-face relationships as well as social roles encountered during their lifetimes. Therefore, this environment encompasses the individual's relationships with family, friends, peers, school, and religious life. The second layer is the mesosystem, which is the relationship between two or more microsystems. An example would be the interaction between home and school life for the student. The third circle is the exosystem. This system does not contain the individual but has the potential to influence the individual. For example, what happens at the parent's workplace does not directly involve the child but could influence the child. If the parent has a bad day and takes his frustration out on the child or if the parent is laid off from work, and the family has to move, these situations would secondarily affect the child. The fourth layer is the macrosystem, which contains the overarching influences of a society's culture and the social context, as well as the subculture of the individual, which includes social class, ethnicity, and parents' professions. Bronfenbrenner (2005) later added the last system, chronosystem, to his original theory because he wanted to explain how sociohistorical events influence human development; therefore, chronosystem is the passage of time

through the other four environments. A child who experienced the hardships of the economic downturn of the late 2000s by his parents becoming unemployed and losing their house might respond differently to events than a child who did not experience the same event. According to Bronfenbrenner (2005), all these systems cause individuals to develop responses to their environments. Ecological systems theory allows the dynamics of individuals as well as their environments to be considered as motivation for the multiple reasons different individuals respond to the same event in a variety of ways.

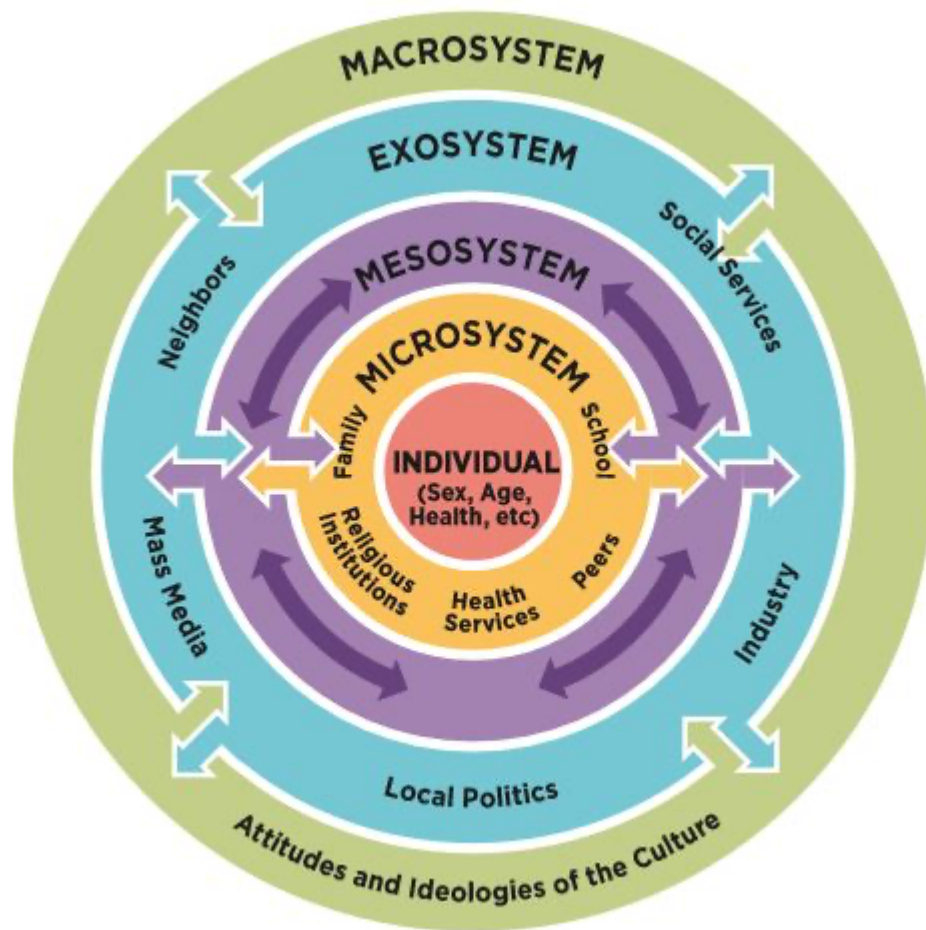


Figure 1. Ecological systems theory (Le Menestrel, 2016, p. 73.) Reprinted with permission.

Bronfenbrenner and Morris (1998) and Bronfenbrenner (2005) explained the five different types of ecological systems. Individuals defined by their personalities, ages, sex, and health are at the center. Closest to a person is the microsystem. The microsystem includes face-to-face relationships as well as social roles encountered during their lifetimes. Therefore, this environment encompasses the individual's relationships with family, friends, peers, school, and religious life. The second layer is the mesosystem, which is the relationship between two or more microsystems. An example would be the interaction between home and school life for the student. The third circle is the exosystem. This system does not contain the individual but has the potential to influence the individual. For example, what happens at the parent's workplace does not directly involve the child but could influence the child. If the parent has a bad day and takes his frustration out on the child or if the parent is laid off from work, and the family has to move, these situations would secondarily affect the child. The fourth layer is the macrosystem, which contains the overarching influences of a society's culture and the social context, as well as the subculture of the individual, which includes social class, ethnicity, and parents' professions. Bronfenbrenner (2005) later added the last system, chronosystem, to his original theory because he wanted to explain how sociohistorical events influence human development; therefore, chronosystem is the passage of time through the other four environments. A child who experienced the hardships of the economic downturn of the late 2000s by his parents becoming unemployed and losing their house might respond differently to events than a child who did not experience the same event. According to Bronfenbrenner (2005), all these systems cause individuals to develop responses to their environments. Ecological systems theory allows the dynamics

of individuals as well as their environments to be considered as motivation for the multiple reasons different individuals respond to the same event in a variety of ways.

### **Ecological Systems Theory Applied to Higher Education**

Bronfenbrenner's theory was initially designed to explain human development and, specifically, child development. However, researchers have adopted the use of Bronfenbrenner's theory to describe a student's interaction with the higher education system (May & Bridger, 2010; McLinden, 2017; Perez-Vergara, 2019). McLinden (2017) noted that this theory allows a multi-layer model that includes the institution as well as the student. As with Bronfenbrenner's original model, the student and his abilities, personality, sex, and intellect are at the center.

The first system is the microsystem. Bronfenbrenner (2005) defined this system as the individuals who exert a significant influence on the person, which includes face-to-face interactions the student has within his environment. An example of this system consists of a student's relationship with instructors, other students, and the classroom environment (McLinden, 2017). Additionally, the microsystem would include the interaction between students and their parents. An example of the microsystem is one where the parents went to college and encouraged the student to do the same. Perhaps the parents did not go to college but encouraged the student to do better than they did, or the parents did not go to college and do not support the student participating in any postsecondary work. Therefore, any human interaction students have within the context of their academic careers would be included in the microsystem.

The second system is the mesosystem. Bronfenbrenner (2005) defined this system as the interactions between two or more of the microsystems that contains the person.

This environment could be illustrated on the high school level by having a culture that encourages students to go to college and offers a wide variety of college credit opportunities (Perez-Vergara, 2019). Another example could be that the student's friends are all signing up for a dual-enrollment course, and the student does likewise. The mesosystem could also be explained by the parents going to a particular university and encouraging the child to follow their example and attend the same university. Additionally, a postsecondary institution support system designed to help students succeed by providing tutoring, a writing center, and mentoring would be another example. The interaction between two or more microsystems creates the mesosystem and requires the student to respond accordingly. The interaction of these systems may result in some form of tension for the student, especially if the two microsystems are opposed to one another.

The third environment is the exosystem. Bronfenbrenner (2005) stated that this system contains processes in which the student is not directly involved but that have the potential to influence the individual. Examples would include an economic downturn that results in less funding for higher education, or a statewide study that reveals the need for more trained workers; therefore, more funding sources are provided (Perez-Vergara, 2019). Additionally, any policy changes within the higher education system which the student is attending would be included (McLinden, 2017), especially the policies of how these institutions treat accelerated college credit. The exosystem has the potential to influence the student decision-making process because of policies and practices that are beyond the individual's control.



The fourth system is the macrosystem. Bronfenbrenner (2005) explained this environment as the overarching cultural attitudes, norms, and social context of the person. The cultural belief that one must go to college to be successful and have a well-paying career or a subculture that discourages academic achievement would be illustrations of the macrosystem and its effect on a student. A more specific example would be a student who lives in an area where going to college is not the accepted norm or a student who attends a private college-prep high school where the expectation is that everyone will go to college. The macrosystem would also include the subculture of the institution itself and whether the college environment is a good fit for the student's educational desires. The expectations placed on the individual by the cultural beliefs of those within the macrosystem influence the student's interactions within the higher education system.

The last system is the chronosystem. Bronfenbrenner (2005) defined this system as how the whole system operates over time. An illustration of the time element would be the student's progression through the higher education system from freshman to senior and beyond (McLinden, 2017). Another example would include generational differences, such as if the student's parents struggled with student loan debt and wondered if college was the right choice for their child or if other alternatives exist that would enable their child to accomplish the goal of gainful employment (Perez-Vergara, 2019). Perhaps, the student experienced an older sibling who was laid off during an economic downturn, and the student does not want to experience the same thing. Maybe, a worldwide event happened that required the student to postpone or change the plan to enter college. The chronosystem is the way the circumstances one experiences over a lifetime affect the

decisions that are made by the student and explains the reason for generational differences within a student body.

The ecological systems theory framework is flexible enough to consider the multiple factors that influence the learner. Those who pursue postsecondary work do not do so serendipitously. A reason or motivation usually exists for the choices made during a student's time at a postsecondary institution. Therefore, to consider the effects of accelerated college credit, one must also consider the factors that influenced the student to participate in experiences that facilitate access to these credits. Bronfenbrenner's theory provides the framework to examine the numerous aspects involved in a student's postsecondary experience.

### **Accelerated College Credits Completed in High School**

Multiple ways exist for a student to earn college-level credit while still in high school: Advanced Placement (AP) exams, dual credit (college course offered at the high school), and dual enrollment (college course offered at the college). Pierson et al. (2017) developed the term *accelerated college credits* to refer to all three of these avenues. While administrators and teachers of secondary education are concerned with these different categories, for higher education administrators what is essential is to recognize is that students arrive on campus with college-level credits already completed. Therefore, although the credits may be earned in a multitude of ways, the researcher examined these pathways collectively to discover their effect on baccalaureate degree outcomes and refer to them as accelerated college credit.

## **History of Accelerated College Credit**

The quest to make sure students are adequately prepared for higher education has a long history. Charles William Elliot, president of Harvard University, made a speech in 1890 in which he advocated for an examination system in secondary education to raise the level of students' preparedness for college (Valentine, 1987). Elliot, along with other leaders of higher education, believed that public secondary education was not adequately preparing students for the rigor of college-level work. In 1900, a group of university administrators, mostly from Ivy League schools, joined together to form the College Entrance Examination Board (later called the College Board), and in June of that year, administered the first entrance exam. The College Board selected chemistry, English, French, German, Greek, history, Latin, mathematics, and physics as the subjects for the exam (Valentine, 1987). While the exam evaluated students' preparedness for college, the primary goal was to challenge those facilitating secondary education to raise their level of instruction. The debate over the interplay between secondary and postsecondary education continues over 100 years later.

The College Board continued to evolve. Influenced by the intelligence test given to soldiers in World War I, the College Board accepted the recommendation to make psychological testing part of the college entrance exam and administered the first Scholastic Aptitude Test in 1926 (Fuess, 1950). A future war would again affect higher education. With America's engagement in the Korean War, John Kemper, the 11th Headmaster of Phillips Academy at Andover, Massachusetts, led a study in 1952, allowing sophomores and juniors in high school to take college-level coursework (Valentine, 1987). The impetus was to allow young men to gain college credit before

turning 18 and becoming eligible for the draft. When they returned home from the war, they would be able to enter sophomore-level college work. The experiment was greeted with mixed responses; however, the College Board picked up the idea and appointed Charles Keller the first director of the Advanced Placement Program, which started in the 1955-1956 academic year (Valentine, 1987). While initially, the Advanced Placement tests were geared to save servicemen time after returning home, the motivation now is to help students reduce time and money spent in college by receiving college credit for coursework completed in high school. The College Board changed from merely testing for knowledge and skills of students entering college to facilitating attainment of college-level credits for high school students.

Now that the opportunity was available for high school students to earn college-level credit, others created new opportunities. In the 1972-1973 academic year, Syracuse University started Project Advance (Valentine, 1987). The program aimed to provide more challenging courses to college-bound juniors and seniors in high school. Students enrolled in Syracuse University courses through their local high school. While high school instructors taught these courses, university faculty evaluated papers and tests and visited the classrooms to ensure standards were being met. Students who completed the courses could order a transcript from Syracuse University to transfer the courses to any college they chose. Syracuse University Project Advance laid the groundwork for future concurrent and dual enrollment programs (Valentine, 1987). The state of California followed in 1973 by creating the first statewide dual enrollment system, and now almost every other state has followed suit (Mokher & McLendon, 2009). High school students are now able to access a variety of college credits through multiple platforms. The

introduction of online learning means that high school students from anywhere across the globe can complete courses from any higher education institution where they meet the eligibility requirements. Students have multiple opportunities to receive college credits before admission to a higher education institution.

### **Delivery of Accelerated College Credit**

A student may earn college credit while being instructed by a teacher in high school. AP courses allow for this as the College Board collaborates with high schools' curricular programs. Once a course is chosen, the instructor must submit a syllabus to the College Board for course approval (College Board, 2020). While high school instructors teach the course, the College Board attempts to have quality controls in place to make sure the AP course is more rigorous than regular high school classes. The hope is that students may learn essential skills to be successful in college as well as earn course credit by attaining an acceptable score on an associated AP exam.

Critics of the AP program point out the fallacies of this model. Researchers disclosed that a self-selection process exists when students decide to take AP courses, because they are already academically motivated to do well (Dougherty et al., 2006; Speroni, 2011a). Participation in these courses does not prepare the students for the rigor of college-level work as much as confirming they are already willing to work hard. Speroni (2011a) revealed that a student only receives college credit if the student takes the optional AP exam at the end of the course and receives a score high enough to receive credit at the institutions in which they enrolled. Gruman (2013) reported that nearly half of all AP students do not score high enough to obtain college credit. Additionally, colleges often increase the score required to award AP credit (Reisberg, 1998). Therefore,

students must score very well to receive college-level credit for the AP course.

Furthermore, the National Research Council (2002) found that while more than half of collegiate mathematics departments granted credit to students with passing scores on the AP calculus exam, two thirds of departments required additional testing before allowing those students to be placed in advanced courses. The AP model has ease of accessibility for students, but no guarantee exists if the students complete the course and pass the exam that they will receive college-level credit for their efforts. While the College Board would be quick to rebuff these critiques, students should be aware of the limitations of the AP program.

A student may also obtain accelerated college credit by enrolling in a local college while in high school. Participation in this option has grown steadily since the early 2000s (St. Armor, 2019). However, the instructional method for these courses can vary. High school instructors may teach some college-level courses (Pierson et al., 2017; Reisberg, 1998). Thomas et al. (2013) found that schools offering college-level work to their students had high school instructors teaching 61% of those classes. The high school teachers of these accelerated college courses not only have to meet state teacher licensure requirements but also commonly are required to have a master's degree in the subject area (Hodara & Pierson, 2018). The State of Arkansas requires that the instructors of concurrent courses must hold a master's degree and have 18 graduate-level hours in the subject area to be taught (Arkansas Division of Higher Education, 2019). Despite these qualifications, having high school teachers deliver the instruction makes critics question the rigor of these courses (Miller et al., 2017; Troutman et al., 2018). Syracuse University's Project Advance, which follows this model, attempts to compensate for this

issue by having college faculty evaluate papers and tests as well as do onsite visits to ensure that the high schools' content and rigor are similar to courses offered at the University (Srinivas, 2012; Valentine, 1987). Yet, despite these safeguards, Srinivas (2012) concluded that not all Project Advance courses had the same rigor as introductory courses taught at Syracuse University. Not all higher education institutions even put these safeguards in place. Nevertheless, another option is available for students to earn college-level credit while in high school.

Students may also obtain accelerated college credit by completing a course from the campus of a partnering higher education institution. Colleges are creating formal dual enrollment programs so students may take college-level courses while fulfilling requirements for high school graduation (Reisberg, 1987). These arrangements between colleges and high schools are designed to help high school students become college-ready as well as accumulate credits toward higher education degree completion (Myers & Myers, 2017). Cowan and Goldhaber (2015) noted that this method is a way for students to try out college before making a substantial investment, but also incentivizes enrollment in a particular college. Miller et al. (2017) observed that critics of this method felt these courses did not adequately meet college-level rigor, and students often took unnecessary courses. However, An (2015) argued that students who participated had the opportunity to learn college rules and behaviors, and this socialization could improve persistence. These varied opinions make one wonder if the experience is as essential as the course itself. Regardless, more students are taking advantage of earning college credit while also finishing their requirements for high school.

The debate concerning the role of accelerated college credits continues. Miller et al. (2017) revealed that little evidence-based guidance exists on how to structure these courses to ensure students receive the most benefits for participating in them. Additionally, Adelman (2006) submitted the idea that the problem with allowing high school students to attain accelerated college credit in one area assumes students do not need remediation in another. If students complete a history course at the local college but need remediation in mathematics, completion of the history course has not helped as much with jump-starting a college career as first thought. Some students criticized receiving accelerated college credits as giving them a false sense of confidence (Troutman et al., 2018). Furthermore, little research has been conducted comparing the various methods students may use to complete accelerated college credits (Gruman, 2013). Because so many complicated variables exist, reaching a definitive conclusion based on the literature is difficult. Additional research is needed to help weigh the evidence concerning accelerated college credits toward more substantial conclusions.

### **Motivation for Accelerated College Credit**

One of the reasons students work for accelerated college credits is because they believe the courses will benefit their college GPA. Some researchers supported the claim of a higher postsecondary GPA for students who participated in accelerated college credit programs (Allen & Dadgar, 2012; An, 2015; Troutman et al., 2018). Jackson (2010) discovered that freshman level GPAs were higher for students who attained accelerated college credits versus their peers who did not; however, they were only higher by 0.03 points. Students had higher GPAs but not necessarily enough of an increase to justify the push to participate in accelerated college credit programs.



Other researchers claimed that earning accelerated college credit may not improve a student's GPA at all. Gruman (2013) wanted to compare the difference between AP and dual enrollment models and discovered no significant relationship existed between participation in either of these programs and the student's collegiate GPA. National Clearinghouse data were examined, and the researchers concluded that accelerated college credits had no significant effect on college GPAs (What Works Clearinghouse, 2017). The difference between the GPA findings may be due to looking at student data at the end of the freshman year versus overall. A more in-depth look into this concept is needed to get a better understanding.

The juxtaposition of the evidence suggested something else could be influencing these students' college GPAs. Pierson et al. (2017) revealed that students in Oregon who participated in accelerated college credit programs did have higher GPAs, however, could not determine a direct link between attaining credits and the students' grades. Students who completed college courses tended to be highly motivated, engaged, willing to work hard, and already had higher GPAs in high school (An, 2015; Dougherty et al., 2006; Jackson, 2010). Additionally, to even participate in these programs, students had to meet requirements that included a minimum high school GPA (Pierson et al., 2017; Speroni, 2011b; Thomas et al., 2013). One should not be surprised to find higher GPAs among students who complete college-level work while in high school because these students are already motivated to perform well. Researchers have not adequately provided a direct link between accelerated college credit programs and the student having a higher college GPA.

The rationale for the focus on high school GPA is that GPAs are typically a measure of college readiness. Proponents of accelerated college credit programs touted the ability of these offerings to challenge high school students and prepare them for the rigor of college coursework (Cowan & Goldhaber, 2015; Miller et al., 2017; Myers & Myers, 2017). Therefore, students who attain the more academically challenging accelerated college credits would be more likely to be prepared to succeed in college and have higher GPAs than their peers who did not participate in these accelerated programs. Considering the lack of clear evidence of the connection between accelerated college credits and student GPA, one can contemplate if students who acquire accelerated college credit are any more prepared than students who do not.

Another reason for participating in accelerated college credit programs is that the credits earned are supposed to reduce the time to completion. Many researchers cited the benefit of a shorter time to degree completion, which saved money and time (Allen & Dadgar, 2012; Cowan & Goldhaber, 2015; Miller et al., 2017; Mokher & McLendon, 2009; Myers & Myers, 2017; Pierson et al., 2017; What Works Clearinghouse, 2017). Adelman (2006) demonstrated that students with fewer than 20 credit hours completed after the first year of college faced issues with degree completion. Therefore, Adelman proposed that accelerated college credit programs should be expanded, and students should be encouraged to complete a minimum of 6 hours of postsecondary coursework while in high school. Speroni (2011a, 2011b) reported that acquiring just any accelerated college credit may not be beneficial, but completing a mathematics course, particularly college algebra, helps students the most in their higher education endeavors. These researchers do believe a positive link exists between college-level work completed in

high school and reduced time to completion. An assumption exists that students who have completed accelerated college courses have more credits than their peers do; therefore, these additional hours must bring the student to graduation more quickly.

However, the benefits of credit accumulation may vanish as students progress through degree programs. Inghram (2018) observed that students who possessed accelerated college credit, on average, had only one three-credit-hour course more toward degree completion by the second fall semester compared to their peers who did not have any accelerated college credit. Simply because students enter a higher education institution with credit for more hours does not guarantee they may keep up the pace, thereby shortening their time to degree completion. Other factors may influence students' decisions on how they progress through their degree programs.

Not many researchers have examined how much of a reduction in time completing college-level work in high school may give students toward completing their baccalaureate degrees. While Gruman (2013) did find a positive correlation between accelerated college credits and reduced time to degree completion, the reduction was only 25% of 1 year. The size of this reduction diminishes the time to complete a degree by less than a full semester. The consequences of not having a full-time course load the final semester can be positive or negative. Less than a full-time schedule does mean students have more time to focus on their courses, but not having a full-time schedule can affect financial aid.

Other researchers disagreed that a correlation exists between the attainment of college credits during high school and a shorter time to degree completion. Numerous studies indicated no relationship between the length of time to degree completion and

earning accelerated college credits (Adelman, 2006; Gruman, 2013; Jackson, 2010; Myers & Myers, 2017; Speroni, 2011b). Once again, researchers are divided on how these credits ultimately benefit students. Even if accelerated college credits may not reduce the time to completion, they may help students reach degree attainment.

Few studies have been conducted to test the concept that students with accelerated college credits will have higher graduation rates than those who do not. Myers and Myers (2017) tested the hypothesis that institutions who accepted accelerated college credits would have higher graduation rates and revealed that 6-year graduation rates were lower among schools that accepted accelerated college credits. Institutions that did not accept accelerated college credits had higher graduation rates, although this may be because they were more selective in their admissions process. The more prestigious a higher education institution is, the more selective the admissions are likely to be. Myers and Myers (2017) also found the less selective a school's admissions process, the more likely students were to benefit from their accelerated college credits. Students who invest many hours in accumulating college-level work before college may be at a disadvantage. If students want to get the most value out of their accelerated college credits, they should seek out higher education institutions with open enrollment policies so their credits will be applied more liberally.

The question remains whether receiving college credit for work in high school is beneficial toward degree attainment. While Dougherty et al. (2006) found a positive effect between graduation and accelerated college credits, they also discovered that when similar students were matched together, the significance dropped dramatically. College credit programs in high schools do appear to help students reach degree attainment.

However, the advantage of having completed accelerated college credits is directly related to how administrators of the institution which the student attends decide to award credit for those courses.

### **Nonacademic Benefits of Accelerated College Credit Programs**

The benefit of accelerated college credit programs may be best revealed in nonacademic areas. Researchers did find a positive correlation between enrollment and persistence in college and the attainment of college-level credits in high school (Jackson, 2010; Pierson et al., 2017; Speroni, 2011a; What Works Clearinghouse, 2017). Gruman (2013) noted that students who participated in accelerated college credit programs tended to enroll in 4-year institutions at a higher rate than students who did not. Troutman et al. (2018) pointed out that students felt exposure to college-level expectations did help them gain the skills necessary to succeed at the collegiate level. Jackson (2010) found a 3% greater persistence for participants who completed college-level work in high school compared to those who did not. The researcher revealed that college courses completed on college campuses by high school students may provide a period during which students may learn rules and behaviors expected by college students, and this socialization may improve persistence (An, 2015). Therefore, intangible benefits exist for participation in completing college-level work while in high school. Exposure to the college culture reaps benefits that cannot only be measured in academic terms.

Perhaps, the outcomes experienced by high school students who complete college courses have nothing to do with the courses themselves but rather are reflections of the students' internal drive and motivations. Speroni (2011a) speculated that high school students who participated in college courses were different in ways that studies were not

accounting for in their research. Dougherty et al. (2006) spoke of the self-selection principle in which students interested in college courses showed they were already willing to work hard. Gruman (2013) noticed that students who participated in earning college-level credit while in high school tended to enroll in 4-year institutions at a higher rate than students who did not. Students who enrolled in accelerated college credit programs were likely to be highly motivated and high achievers (Pierson et al., 2017; Speroni, 2011a). Therefore, the benefits experienced by these students may revolve around their motivation to succeed. The student's own internal drive inspires the need to excel.

### **Political Influences on Accelerated College Courses**

External factors exist that influence accelerated college credit acquisitions. Concerns over completion rates, the need for a more educated workforce, the rising cost of higher education, and the criticism of the lack of academic rigor in high school are the forces pushing accelerated college credit programs (Mokher & McLendon, 2009). For decades, parents, politicians, and college administrators encouraged high school students to complete college courses because of the perceived reduction in the cost of higher education and the opportunity to get ahead (Reisberg, 1998). Nevertheless, the evidence is inconclusive as to whether participating in accelerated college credit programs while in high school does deliver on the benefits and promises. Nevertheless, despite the lack of evidence, obtaining accelerated college credits is very popular.

With broad support and pressure applied to policymakers, legislative bodies have responded. Administrators of community colleges in Oregon are required by law to offer college courses for high school students and mandated to have the tuition discounted or to

offer courses tuition-free (Pierson et al., 2017). While the goal of making higher education accessible to all is noble, one wonders what the real cost of this goodwill may be. Someone is going to have to pay, and ultimately, the higher education institution and the student will bear the cost.

While the concept of accelerated college credits is popular with students and policymakers, the institutions ultimately have to deliver a quality product. St. Armor (2019) warned that these programs placed a strain on colleges in two distinct ways. First, while students enjoyed a discounted, if not free, tuition, they still had access to all the services available on campus. Second, faculty were expected to teach full loads, but the revenue generated from tuition used to pay them was less (St. Armor, 2019). Public higher education institutions that already run on tight budgets are being mandated by the state to do more with less. How postsecondary institutions may be affected by these financial challenges is yet to be determined.

The student earning college credit in high school may or may not benefit, but there may be some unintended consequences for others. Many of the courses offered as a part of the accelerated college credit program have postsecondary students enrolled as well as high school students (Thomas et al., 2013). The resulting mixture of student maturity levels and academic preparedness may mean the instructor will need to adjust the rigor of the course to accommodate the differences. Factoring in the reduced revenue provided by the high school student may prompt the instructor not to invest as fully in the course. The result may be a reduction in the quality of the course for all students.

## FAFSA

The current method of students receiving financial aid to attend a higher education institution goes back several decades. The College Board created one of the first incarnations of a financial aid application in the 1950s for a set of elite colleges to prevent a bidding war for students between these institutions (Dynarski & Wiederspan, 2012). The application form those at the College Board developed was designed to measure the student's family wealth and even asked about the model of any cars that were owned. The purpose was to determine what the family would be able to contribute monetarily to the student's financial need. The model created by individuals at the College Board was the precedent that is currently followed today.

Interactions concerning financial matters remained strictly between the student and the institution until the early 1970s. In 1973, the first federal aid, the Pell Grant, was established (Dynarski & Wiederspan, 2012). The grant was limited to a few states and institutions, and all had individualized aid applications. As the Pell Grant program expanded, an increased need for a universal financial aid application developed. In 1975, a task force was successful in getting those leading institutions, states, and the federal government to agree to develop a collective application for student aid (Dynarski & Wiederspan, 2012). The common application has become what is now known as the FAFSA. From the data collected, the government determined the EFC index number, which colleges use to determine how much financial aid a student is eligible to receive. The EFC index number is determined according to a formula established by law (United States Department of Education, 2019). To calculate financial need the total cost of attendance at the institution is subtracted from the EFC index number to determine the



student's eligibility for loans and grants (Castleman & Long, 2013). Typically, the lower the EFC index number, the more financial aid a student is eligible to receive (United States Department of Education, 2020). The institution is no longer the only one that provides support, but now students have the opportunity to receive financial assistance from federal and state sources, as well.

### **Financial Aid and Degree Attainment**

The purpose of providing financial aid to students was to increase college access and success. However, access to financial aid does not guarantee positive results. Castleman and Long (2013) noted that few researchers have investigated if need-based aid leads to degree attainment. The research that has been completed supported the idea that financial aid did provide access to higher education by boosting college enrollment, as well as helping students complete more courses than students who were not aid-eligible (Castleman & Long, 2013; What Works Clearinghouse, 2013). Logically, one might assume that if students who receive aid are earning more credits, they should also be graduating. However, that conclusion is difficult to draw since supporting research is scarce. Castleman and Long (2013) reviewed data associated with students who were eligible for the Florida Resident Assistance Grant and concluded that aid-eligible students were more likely to complete a bachelor's degree within 6 years compared to students who were not eligible. Also, Inghram (2018) disclosed that students who were Pell Grant-eligible and had completed accelerated college credits might be more likely to persist and reach completion because they needed fewer courses to obtain their degree. Alternatively, What Works Clearinghouse (2013) examined those who were within \$1,000 on either side of the Florida Student Access Grant eligibility and determined that aid did not

significantly affect degree attainment. While access to financial aid does help students enter a postsecondary institution and complete credits toward graduation, whether financial support contributes to degree completion is still uncertain. Further research is needed to determine if a correlation exists between having access to aid and completing a degree program.

The Pell Grant has eligibility requirements that may assist students in degree attainment. Continued Pell eligibility requires a student to demonstrate satisfactory academic progress, which includes completing courses that keep the student moving successfully to degree completion and maintaining a GPA of 2.0 or higher (United States Department of Education, 2020). Since students from low-income households tend to be the most likely recipients of the Pell Grant, having to demonstrate satisfactory academic progress may hinder students' persistence. Looking at national data, Schuddle and Scott-Clayton (2014) found that 21% of first-year Pell Grant recipients failed to meet the satisfactory academic progress guideline compared to 19% of non-Pell Grant recipient first-year students; satisfactory academic progress failure was most prevalent in the first year. Their research revealed that 29% of those who failed to meet the guideline within the first year did not return. However, those who did return were more likely to persist and obtain a bachelor's level degree. While satisfactory academic progress negatively influences first-year persistence, mandating progress toward a degree may improve degree attainment for those who do persist. Pell Grant eligible students who can continue with their academic progress have the motivation to increase their academic effort.

## **Financial Aid and Accelerated College Credit**

Few researchers examined whether a relationship existed between accelerated college credit, socioeconomic status classification in high school, and degree attainment. While students from wealthy households were more likely to obtain a college degree than students from low-income families, participating in dual enrollment courses increased the likelihood of degree attainment for these students (An, 2013). Karp, Calcagno, Hughes, Jeong, and Bailey (2007) found that students from poverty who participated in dual enrollment programs were more likely to enroll in college and earn more credits than students from higher income homes. Given the inference that students designated in high school as being of low socioeconomic status would likely also have a lower EFC index number and therefore would be more eligible to receive financial aid, it would seem advantageous for schools to encourage students from low-income households to participate in accelerated college credit programs. Having these students participate in programs that earn college-level credit in high school would help them obtain a degree.

## **Sex**

The gap between female and male students in postsecondary institutions is growing wider. The gap begins with a disparity of enrollment between females and males. McFarland et al. (2019) reported that between 2000 and 2010, the female enrollment rate increased by 42%, which far exceeded the increase in males at 28%. Recently, Conger and Dickson (2017) noted that almost 57% of college students are women; the balance has been in women's favor since the 1970s. Even in high school, 72% more women were expecting to earn a bachelor's degree than men (Seifert, Wells, Saunders, & Gopaul, 2013). Women are not just more likely to enroll in higher education,

but they are also more likely to persist (Abdbayo, 2008). In the 2016-2017 academic year, females earned 57% and males 43% of all bachelor's degrees conferred within the United States (McFarland et al., 2019). This result is expected because females are enrolling in higher education at a higher rate than males. Despite the overwhelming gap favoring women successfully entering colleges and earning degrees, some of the literature still focused on detriments to women's pursuit of their higher education goals (Corbett, Hill, & St. Rose, 2008; Dinan, 2016). However, researchers have demonstrated that women, compared to men, are not being held back from entering higher education institutions or obtaining advanced degrees. These disadvantages have not existed for almost 40 years. The divide favoring women relative to college successes does not appear to be narrowing in the immediate future.

When it comes to participation in accelerated college credits, the same divide exists. Pierson et al. (2017) found that female students participated in programs providing college-level credit in high school at a higher rate than males, and this gap existed among all ethnic groups. However, Karp et al. (2007) found that male students benefited more from accelerated college programs by being more likely to enroll in postsecondary institutions and more likely to persist to the second year. Therefore, while females are accessing higher education and taking advantage of accelerated college programs, males are experiencing a more significant benefit from their accelerated college credits. A gap exists between male and female participation in accelerated college credit programs.

### **Reasons for the Divide**

The reason for the divide that exists between males and females in higher education remains unknown. Conger and Long (2010) found that males take fewer credits

and earn lower grades in college than females. They discovered the discrepancy between credits and GPA exists after the first semester and persists through the end of the sixth semester. Conger and Dickson (2017) proposed that the motivation for the gap in higher education between men and women could be traced back to high school. Since females tended to academically outperform their male counterparts, they were more sought after by postsecondary institutions. Men also drop out of high school at higher rates and have higher propensities toward military service and incarceration (Birnbaum & Yakaboski, 2011). These choices may not be due to a lack of academic ability and aptitude to be successful. Dinan (2016) suggested that elementary and middle school teachers, who were predominately female, failed to understand the mindset of young boys and did not make allowances for their unique learning styles, which placed them at a disadvantage during these pivotal developmental years. Baum and Goodstein (2005) suggested that K-12 education has de-emphasized the academic achievement of males and overemphasized the strides of females. If something is going on that discourages males' academic pursuits during their early educational development, the results are manifesting in a decrease in the number of men who are interested in pursuing higher education credentials. However, the cause of the divide may lie elsewhere.

Perhaps, the reason for the divide is the result of attendance patterns and choice of majors. Conger and Long (2010) forwarded the idea that males tended to choose majors associated with lower GPAs and lower rates of persistence. However, Ewert (2012) found that even though more males majored in engineering, mathematics, and physical science, no link existed between the major of the student and completion rates. Instead, men were less likely to graduate because they were less academically engaged. Ewert (2012)

discovered that males were 31% more likely to take time off from college and 40% more likely to attend part-time than their female counterparts were, both of which affected persistence and completion rates. Additionally, males were less likely to be engaged in activities on campus and if not for men participating in sports, varsity and intramural, the gap between males and females would be even more extensive (Ewert, 2012). The female advantage in higher education is not merely that more females enroll, nor would facilitating the enrollment of more males solve the problem. Other factors related to male experience in postsecondary institutions may be contributing to the gap.

### **Effect of the Divide on Higher Education**

The disproportionate cohort of women may be placing pressure on higher education. Because institutions have goals of having equal access for all groups, having more females than males is a problem. Nevertheless, any plan to offset the balance by giving preference to males in admissions would be controversial (Birnbaum & Yakaboski, 2011; Dinan, 2016). Federal and often state funding are tied to graduation rates, and these policies may inadvertently affect male enrollment because they may be more likely to need remediation, which adds to their overall time to complete a degree program (Conger & Dickson, 2017). Therefore, funding and admissions policies may be inadvertently hurting male students. Having more females than males is exerting an influence on postsecondary education.

### **First-Generation College Student Status**

The definition of *first-generation college student* is not consistent across institutions. To determine first-generation college student status, Toutkoushian et al. (2018) discovered that institutions were using up to eight different definitions to describe

who was to be included as a first-generation student. Using data from the Educational Longitudinal Study 2002 that included a cohort of over 7,000 students, they found that depending on how the term was defined, the size of the cohort varied from 22% to 77%. One definition might ask if a first-generation student is one who had neither parent earn any postsecondary credential, associate or bachelor, or at least one parent who did not earn a degree. Another definition might ask if a first-generation student could be one who had at least one parent who attended, but who did not graduate. Additionally, researchers wondered whether the parental figures with whom the student resides or the biological parents were to be considered (Toutkoushian et al., 2018). Determining who met the qualifications of a first-generation student influenced the size of the cohort and how researchers drew conclusions about the group. The definition that will be used hereafter is a college student who has not had any parent graduate with a bachelor's degree.

Parents are the number one motivator for a child's desire to pursue a degree. Wells, Seifert, Padgett, Park, and Umbach (2011) stated that a student's educational expectations are strong predictors of future degree completion, and parents' expectations play a significant role. Females tend to be influenced by their mothers, as males are influenced by their fathers. However, one of the effects of divorce is that children are often confused as to what the expectations are and from whom the support should be expected to come. Additionally, because of the shifting gap between males and females, young women were more likely to be better educated than their mothers, and young men were more likely to be less educated than their fathers (Montenson, 2008). The role of a parent can have a considerable effect on males' or females' desire and ability to pursue

postsecondary education. Parental influences can help or hinder students' academic pursuits.

Parental education also influences students' willingness to participate in accelerated college courses. A positive relationship has been found between students who complete college-level work in high school and college degree attainment among first-generation students (An, 2013). An (2013) not only discovered that students whose parents did not earn a bachelor's degree were more likely to obtain a degree because they completed accelerated college credits, but they were also more likely to benefit from accelerated college credits than students who had college-educated parents. This positive correlation demonstrates a good incentive to encourage first-generation students to participate in accelerated college credit programs. If researchers continue to validate these findings, completing college-level work in high school will be a way for first-generation students to be able to move toward degree attainment.

### **Challenges of First-Generation Students**

Two social systems, their families and the higher education community, affect first-generation students. Foremost, the family often operates simultaneously as a positive and negative influence on student lives. When a first-generation student's family was encouraging and supportive of the student's desire to obtain a higher education, the family served in a positive role (Quinn, Cornelius-White, McGregor, & Uribe-Zarain, 2019). However, first-generation students often report that their families are a negative influence on their educational goals. Longwell-Grice, Adsitt, Mullins, and Serrata (2016) found that first-generation students often felt disconnected from their families because their college experiences changed them. Additionally, Quinn et al. (2019) reported that



families often placed additional pressure on students because they failed to understand the demands of pursuing a degree. Parents who have never attended a postsecondary institution would not necessarily have the knowledge base to know how to be helpful to their children. Therefore, families have the potential to be a positive or negative influence on first-generation students.

Furthermore, first-generation college students face cultural adjustment to the higher education community. First-generation college students are often confronted by new values and norms within postsecondary institutions (Longwell-Grice et al., 2016). Pike and Kuh (2005) found that first-generation students perceived the college environment to be less supportive of them, which could result in slowing the progress in their learning as well as in their intellectual development and could lead to a lack of social interaction on campus. Living on campus and becoming involved with fellow students outside the classroom increased the likelihood of persistence and degree attainment. Longwell-Grice et al. (2016) revealed that first-generation college students needed supportive relationships from faculty and staff to learn how to comprehend and navigate the college environment and working with mentors helped them manage issues and adjust to their circumstances. Support from institutions such as tutoring, first-year experiences, and advising for degree completion were seen as positive (Cataldi et al., 2018; Froggé & Woods, 2018; Longwell-Grice et al., 2016). Longwell-Grice et al. (2016) also reported that since first-generation college students tended to be from low-income families, they sensed a displacement on campus as they interacted with students from wealthier families. The adjustments for students who have never been outside their communities and arrive at a strange place where many already appear to be familiar with

the environment can be overwhelming. Support for first-generation students to acclimate to their new surroundings may facilitate more significant success.

First-generation college students also face academic challenges. Participation in remedial coursework was more common among first-generation students than their peers (Chen & Simone, 2016). The reason for the increase in remediation was because first-generation students were often unprepared for college-level work (Frogg  & Woods, 2018; Quinn et al., 2019; Redford & Hoyer, 2017). Pike and Kuh (2005) concluded that first-generation students often had low GPAs, but Frogg  and Woods (2018) revealed that no significant difference was discovered between the GPAs of first-generation students and their peers. While first-generation students tended to need to do leveling work to be ready to proceed with their academic career, they were more than adequate for the task. The challenges these students face are not so overwhelming that they are unable to overcome them.

### **Positive News for First-Generation College Students**

First-generation college students are taking advantage of the access they have to higher education. Redford and Hoyer (2017) found that 76% of first-generation students ultimately attend a public postsecondary institution. While increased access has led to more students enrolling, candidates continue to face issues as they progress through their postsecondary experience and may need additional encouragement to reach degree completion (Cataldi et al., 2018; Dyce, Albold, & Long, 2013). Because first-generation students tend to be from low-income backgrounds, they often end up working more hours off-campus, being more dependent on financial aid and scholarships, becoming more likely to attend college part-time, and taking longer than 6 years to complete their degrees

(Froggé & Woods, 2018; Gibbons, Rhinehart, & Hardin, 2019; Postsecondary National Policy Institute, 2018). While first-generation students face difficulties that could interfere with completing a degree, they are finding new ways to survive and thrive. First-generation students are meeting the challenges of pursuing higher education.

Merely having access to higher education is not enough to ensure success. However, positive news exists for first-generation students. Redford and Hoyer (2017) discovered that first-generation students were just as likely to return to college after their first year as students whose parents did go to college. Additionally, those that are entering and persisting in postsecondary work are doing well. Froggé and Woods (2018) found no significant difference between first-generation students and their peers. They were also seven times more likely to earn a bachelor's degree if they started at a 4-year institution rather than at a community college (Postsecondary National Policy Institute, 2018). While first-generation students face several challenges, with the correct amount of support, they can be successful in obtaining a higher education.

### **Summary**

The attainment of a college degree is the aspiration of every student who enters the higher education system. The average cost of attendance in the 2017-2018 academic year had risen by 12% to \$50,300 for private and \$24,300 for public institutions (McFarland et al., 2019). The cost of education fuels the desire of students to find the quickest and least expensive path to degree attainment. The use of accelerated college credit programs to assist in faster paths to completion holds much promise, but as the related literature review revealed, no overwhelming evidence existed that earning credits for college-level courses in high school bolstered college success for all students.

Nevertheless, Speroni (2011a) stated that students who participated in accelerated college credit programs were highly motivated and might simply do better than their peers. Therefore, the positive effect of earning college-level credit in high school on bachelor degree outcomes may have nothing to do with the credits but the attributes of the participants in the programs. Other factors may influence the ability of students to complete their degree programs.

Hence, this researcher sought to expand the knowledge base of the effects of accelerated college credits and to examine the factors that predict baccalaureate degree outcomes. Determining the predictive effects of college credits earned in high school may provide actions that could be taken by education professionals to ensure students receive the maximum benefits from participating in accelerated college credit programs. Covariates such as the FAFSA EFC index number, sex, and first-generation college student status were used in this model. The number of years to completion, graduation GPA, and the total number of hours completed served as criterion variables. Chapter III includes the research design of determining the predictive effects of the number of college-level hours completed during high school over and above the predictive effects of the FAFSA EFC index number, sex, and first-generation college status on the number of years to completion, graduation GPA, and the total number of hours for graduates who were first-time college students from a private university in Central Arkansas.

### **CHAPTER III**

#### **METHODOLOGY**

The review of literature indicated that the usefulness of accelerated college credits in bachelor's degree attainment is not as simplistic as it initially appears. While researchers are divided on the effects and usefulness of accelerated college credits, policymakers are increasingly advocating their use in high school to prepare and help students in their postsecondary work (An, 2015). Previous researchers have focused on the end of the first collegiate academic year of the student with accelerated college credits, and other researchers have extended that timeframe to include the end of the student's sophomore year. Very few researchers have examined the effects of accelerated college credits on bachelor 's degree attainment.

The purpose of this chapter is to introduce the research methodology for examining the value of accelerated college credits on bachelor's degree outcomes. This approach allowed for a deeper understanding of accelerated college credits predictive effects on the number of years to graduation, graduation GPA, and total number of hours completed after enrollment. The research design, sample, instrumentation, data collection procedures, analytical methods, and limitations are the primary components of this chapter.

## **Research Design**

A nonexperimental, hierarchical regression was used in this study. A hierarchical regression was determined to be appropriate because the I wanted to examine if there was a statistically significant amount of variance in the criterion variable after accounting for all other variables. This framework allowed two models for each hypothesis to be compared to discover if adding the predictor variable showed a significant improvement in  $R^2$  value (Kim, 2020). Hypotheses 1-3 were tested using the hierarchical regression model. The predictor variable for Hypotheses 1-3 was the number of accelerated college credit hours. The covariate variables for the three hypotheses were the FAFSA EFC index, sex, and first-generation college student status. The criterion variables were the number of years to graduation for Hypothesis 1, graduation GPA for Hypothesis 2, and the total number of hours completed for Hypothesis 3. The total number of hours was calculated by subtracting the number of accelerated college credit hours from the hours used in the degree program to determine how many hours were completed after enrollment in the institution.

## **Sample**

The data used in this study were derived from the available population of undergraduate students who completed bachelor's degrees from Fall 2011 to Fall 2019 at a private university in Central Arkansas. The data sample was narrowed only to include information from degree programs that required the same number of hours to reach completion. The accessible population also excluded all data from students who had completed multiple majors or degrees concurrently. Data gathered from students who did not have an EFC index number were also excluded from this sample. The Senior Director

of the Office of Financial Aid Services informed me that a null result in the EFC index number field was the result of the student not filing a FAFSA. He cautioned that best practice would be to remove such students from the population rather than attempting to presume why the student failed to apply for federal financial aid (J. Roberts, personal communication, October 28, 2019). Data associated with all remaining students were used to capture the most robust data set. The population consisted of 2,817 records of students who had earned Bachelor's degrees from the institution. Further examination revealed that of the students, 39.9% were male and 60.1% were female. The sample included 11.4% who were identified as first-generation students. The sample further revealed that the undergraduate students had a median age of 22 and a median cumulative GPA of 3.43 at the time of graduation.

### **Instrumentation**

Data were extracted from the institution's Student Information System. The data were pulled using *envisions' Argos 3.0* (Version 5.4.1, 1986) software, and any means by which to identify individual students were removed to maintain confidentiality. The Argos report provided the following fields: transfer hours, accelerated college credit hours, graduation term, sex, first term in attendance, degree code, major code, minor code, years to graduation, overall GPA, first-generation student status, FAFSA EFC index number, age as of the first day of the final semester, and overall hours earned. University registrar officials confirmed all requirements were met before conferring degrees. Periodic audits by the university's various accrediting bodies continued to verify the reliability of the data.

## **Data Collection Procedures**

After receiving approval from the Institutional Research Board in the Spring 2020 semester, I contacted the Director of Institutional Research from the participating institution about the creation of the Argos report to extract the needed data. Within 24 hours, the Director of Institutional Research responded that the report was ready and was available within the Argos software. I accessed and ran the report. The data were extracted as a comma separated file, which was converted into a Microsoft Excel file.

## **Analytical Methods**

Data from this study were analyzed statistically using the *IBM Statistical Packages for the Social Sciences Version 26* (IBM Corporation, 2019). Each of the hypotheses was analyzed with a hierarchical regression, and a two-tailed test with a .05 level of significance was used for the statistical analysis. Data were examined to verify that the assumptions were met for the test of significance and that no outliers existed before running the statistical tests (Leech, Barrett, & Morgan, 2015). The predictor variable for all hypotheses was the number of accelerated college credit hours. The covariate variables for the three hypotheses were the FAFSA EFC index number, sex, and first-generation college student status. The criterion variables changed with each hypothesis and included the number of years to graduation for Hypothesis 1, graduation GPA for Hypothesis 2, and the total number of hours completed after enrollment for Hypothesis 3.

## **Limitations**

There are limitations to this study. The participants in the study came from one private institution located in the rural South. Therefore, the students of this study may not



be representative of the larger population of students in the United States. Results may differ from those discovered within other institutions that vary in size, type, and location. These factors may make generalization of the results to other groups difficult.

I was unable to quantify the motivations or actions of students' use of accelerated college credit after enrollment in the institution. The data retrieved did not track the students' progress through the institution to monitor if students changed majors during their enrollment at the institution, causing their accelerated college credits to no longer match up to degree requirements. Additionally, the students may have used their accelerated college credits as a cushion of hours that enabled students to take lighter course loads each semester and still graduate in 4 academic years. Simply because students completed accelerated college credits did not mean they were motivated to complete a bachelor's degree program as quickly as possible.

Furthermore, I was unable to determine if the students' enrollment was continuous or if students dropped out for a time. Therefore, it was unknown if students who took longer than usual to finish a degree program deliberately went to school part-time, completed only a few hours each semester, or stopped attending for a while before returning to the institution to complete a degree. However, the large sample size should mediate any negative effects of these unknown factors.

### **Summary**

I used the most complete data set regarding accelerated college credits for students who were first-time enrollees at a private university in Central Arkansas. The data were derived from the institution's Student Information System and narrowed to exclude students who completed multiple degree programs in the same semester, degree

programs that required more than the standard number of hours, and students who did not have an EFC index number. A hierarchical regression was used so I could examine if there was a statistically significant amount of variance in the criterion variable after accounting for all other variables. In Chapter IV, I provided the results of the three hypotheses and demonstrated that I followed the methodology detailed in Chapter III.

## **CHAPTER IV**

### **RESULTS**

The purpose of this quantitative, hierarchical regression research study was threefold. First, the purpose of this study was to determine the predictive effects of the number of college-level hours completed during high school over and above the predictive effects of the FAFSA EFC index number, sex, and first-generation college student status on the number of years to completion for graduates who were first-time college students from a private university in Central Arkansas. Second, the purpose of this study was to determine the predictive effects of the number of college-level hours completed during high school over and above the predictive effects of the FAFSA EFC index number, sex, and first-generation college student status on graduation GPA for graduates who were first-time college students from a private university in Central Arkansas. Third, the purpose of this study was to determine the predictive effects of the number of college-level hours completed during high school over and above the predictive effects of the FAFSA EFC index number, sex, and first-generation college student status on the total number of hours completed after enrollment for graduates who were first-time college students from a private university in Central Arkansas.

Hypotheses 1-3 were tested using the hierarchical regression model. The predictor variable for Hypotheses 1-3 was the number of accelerated college credit hours. The covariate variables for the three hypotheses were the FAFSA EFC index number, sex,

and first-generation college student status. The criterion variables were the number of years to graduation for Hypothesis 1, graduation GPA for Hypothesis 2, and the total number of hours completed for Hypothesis 3. The total number of hours was calculated by subtracting the number of accelerated college credit hours from the hours completed by students to determine how many hours were completed after enrollment in the institution.

### **Hypothesis 1**

Hypothesis 1 stated that no predictive effect will exist between the number of college-level hours completed in high school over and above the predictive effects of FAFSA's EFC index number, sex, and first-generation college status on the number of years to completion for graduates who were first-time enrolled students from a private university in Central Arkansas. To test this hypothesis, a hierarchical linear regression model was developed. Before conducting a regression analysis, the data were examined to determine that assumptions for multiple regressions were met. Scatterplots of the correlation between the predictor variables and the outcome variable showed an acceptable degree of linear relationship (see Table 1).

Table 1

*Intercorrelations for Number of Years to Completion and Predictor Variables (N = 2,817)*

Pearson Correlation	Years to Complete	1	2	3	4
Years to Complete	1.000	-.117***	-.165***	.024	-.250***
1. FAFSA EFC	-.117***	1.000	.029	-.068***	-.017
2. Sex	.165***	.029	1.000	-.019	-.055**
3. First-Gen	.024	-.068***	-.019	1.000	-.010
4. ACC	-.250***	-.017	.055**	-.010	1.000
<i>M</i>	3.93	18080.70	0.40	0.11	6.17
<i>SD</i>	0.76	32687.74	0.49	0.32	9.40

*Note.* First-Gen = First-Generation; ACC = Accelerated College Credit Hours.

\* $p < .05$ . \*\* $p < .01$ . \*\*\*  $p < .001$ .

An examination of the intercorrelation table shows that none of the variables in the model have a strong correlation with each other, and neither did these variables have a tolerance less than  $1 - R^2$  (Leech et al., 2015). Therefore, multicollinearity was not considered a problem. To test the assumptions of normally distributed residuals as well as homoscedasticity of residuals, a residual plot was generated. An examination of this plot revealed that homoscedasticity had been violated; however, the violation merely weakens the regression analysis but does not invalidate the model (Tabachnick & Fidell, 2007). Furthermore, moderate violations of normality assumption may often be ignored, especially with a larger sample size, since there are no adverse effects on the analysis (Mertler & Vannatta, 2010).

To examine the fit of the regression model for predicting the number of years to completion, case-wise diagnostics, as well as tests for influential cases, were conducted. Following Brownlee's (2019) suggestion for a large sample size, the standard deviation was increased from 3 to 4. This diagnostic revealed 30 outliers. Schmidt and Finan (2018) argued that the removal of outliers from a large sample size might "severely bias a model" (p. 149). Therefore, the outliers were not removed because none of them were identified as exerting a significant influence in the model. However, one case was identified as exerting significant influence in the model [Cook's Distance = 1.22] and was deleted, and the regression analysis was conducted once more.

Model 1 yielded a result that predicted years to completion,  $F(3,2812) = 46.69$ ,  $p < .001$ ,  $R^2 = .047$ ,  $R^2_{adj} = .046$ . However, as indicated by the value of  $R^2$ , only 4.7% of the variance in the years to completion could be predicted from the covariate variables. When accelerated college credit was included in Model 2, the prediction was improved,  $R^2$  change = .056,  $F(1, 2811) = 176.93$ ,  $p < .001$ . From the value of  $R^2$ , 5.6% of the variance in the years to completion could be predicted from Model 2. The null hypothesis was therefore rejected. A summary of the regression model is presented in Table 2.

Table 2

*Model Predicting Years to Completion*

Model 1	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Regression	67.81	3	25.60	46.67	.000
Residual	1542.68	2812	0.55		
Total	1619.49				
Model 2					
Regression	168.16	4	42.04	81.42	.000
Residual	1451.33	2811	0.52		
Total	1619.49				

These findings indicate that accelerated college credits contributed to the prediction of the years to completion, after controlling for the covariate variables,  $F(4,2811) = 81.42$ ,  $p < .001$ ,  $R^2_{adj} = .103$ . The result is a medium effect size. An examination of the beta weights of the individual predictors (see Table 3) indicates that accelerated college credits ( $\beta = -.238$ ) and sex ( $\beta = .155$ ) had the highest beta and contributed to predicting the years to completion. The beta weight for sex indicates that females were more likely to benefit from accelerated college credits. The student's FAFSA EFC index number ( $\beta = -.132$ ) beta weight shows the higher the EFC, the more likely the student will have reduced time to degree completion. The students' first-generation status ( $\beta = .015$ ) did not significantly predict their years to completion. Accelerated college credits, on the other hand, showed a negative relationship with the outcome ( $\beta = -.238$ ), indicating that students who used accelerated college credits had a reduced time to degree completion.

Table 3

*Unstandardized and Standardized Coefficients for Predictors of Years to Completion*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
<b>Model 1</b>							
Constant	3.893	.021		185.62	.000	.047	.046
FAFSA EFC	-.001	.000	-.139	-7.54	.000		
Sex	.261	.029	.169	9.15	.000		
First-Gen	.040	.044	.017	0.90	.367		
<b>Model 2</b>							
Constant	4.017	.022		179.54	.000	.104	.103
FAFSA EFC	-.001	.000	-.132	-7.38	.000		
Sex	.241	.028	.155	8.69	.000		
First-Gen	.035	.043	.015	0.81	.417		
ACC	-.019	.001	-.238	-13.30	.000		

*Note.* First Gen = First-Generation; ACC = Accelerated College Credit Hours.

In conclusion, when years to completion were regressed on the covariant variables, the model showed a clear relationship between the predictor and outcome variables. The results from the coefficient table revealed the equation for predicting years to completion as the following: Years to Completion (predicted) = 4.017 + (-.001)(FAFSA EFC) + (.241)(Sex) + (-.019)(ACC). Specifically, accelerated college credit and sex were statistically significant and the most important predictors of the outcome. However, a lower FAFSA EFC index number negatively affected students' time to completion and the first-generation status of students was not statistically significant.



## **Hypothesis 2**

Hypothesis 2 stated that no predictive effect will exist between the number of college-level hours completed in high school over and above the predictive effects of FAFSA's EFC index number, sex, and first-generation college status on graduation GPA for graduates who were first-time enrolled students from a private university in Central Arkansas. To test this hypothesis, a hierarchical linear regression model was developed. Before conducting a regression analysis, the data were examined to determine that assumptions for multiple regression were met. Scatterplots of the correlation between the predictor variables and the outcome variable showed an acceptable degree of linear relationship (see Table 4).

Table 4

*Intercorrelations for Graduation GPA and Predictor Variables (N = 2,817)*

Pearson Correlation	Graduation GPA	1	2	3	4
Graduation GPA	1.000	.082***	-.266***	-.079***	.168***
1. FAFSA EFC	.082***	1.000	.029	-.068***	.017
2. Sex	-.266***	.029	1.000	-.019	-.055**
3. First-Gen	-.079***	-.068***	-.019	1.000	-.010
4. ACC	.168***	.017	-.055**	-.010	1.000
<i>M</i>	3.36	18080.70	0.40	0.11	6.17
<i>SD</i>	0.45	32687.74	0.49	0.32	9.40

*Note.* First-Gen = First-Generation; ACC = Accelerated College Credit Hours.

\* $p < .05$ . \*\* $p < .01$ . \*\*\*  $p < .001$ .

An examination of the intercorrelation table (Table 4) shows that the FAFSA EFC Index variable in the model had a strong correlation with Graduation GPA; therefore, the variable was removed from the regression analysis (Leech et al., 2015). The rest of the variables did not have a strong correlation with each other, and neither did these variables have a tolerance less than  $1 - R^2$  (Leech et al., 2015). Therefore, multicollinearity was not considered a problem. To test the assumptions of normally distributed residuals as well as homoscedasticity of residuals, a residual plot was generated. An examination of this plot revealed that homoscedasticity had been violated; however, the violation merely weakens the regression analysis but does not invalidate the model (Tabachnick & Fidell, 2007). Furthermore, moderate violations of normality assumption may often be ignored,

especially with a larger sample size, since there are no adverse effects on the analysis (Mertler & Vannatta, 2010).

To examine the fit of the regression model for predicting the graduation GPA, case-wise diagnostics, as well as tests for influential cases, were conducted. Following Brownlee's (2019) suggestion for a large sample size, the standard deviation was increased from 3 to 4. This diagnostic revealed no outliers, and no cases were identified as exerting a significant influence in the model. Model 1 yielded a result that predicted graduation GPA,  $F(2,2814) = 118.79, p < .001, R^2 = .078, R^2_{adj} = .077$ . As indicated by the value of  $R^2$ , only 7.8% of the variance in the graduation GPA could be predicted from the covariate variables. When accelerated college credit was included in Model 2, the prediction was improved,  $R^2$  change = .023,  $F(1, 2813) = 73.25, p < .001$ . From the value of  $R^2$ , 10.1% of the variance in the graduation GPA could be predicted from Model 2. The null hypothesis was therefore rejected. A summary of the regression model is presented in Table 5.

Table 5

*Model Predicting Graduation GPA*

Model 1	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Regression	43.92	2	21.96	118.78	.000
Residual	520.27	2814	.19		
Total	564.19				
Model 2					
Regression	57.13	3	19.04	105.64	.000
Residual	507.06	2813	.180		
Total	564.19				

These findings indicate that accelerated college credits contributed to the prediction of the graduation GPA, after controlling for the covariate variables,  $F(1,2813) = 73.25, p < .001, R^2_{adj} = .100$ . The result is a medium effect size. An examination of the beta weights of the individual predictors (see Table 6) indicates that sex ( $\beta = -.258$ ) and accelerated college credits ( $\beta = .153$ ) had the highest beta and contributed to predicting the graduation GPA. The beta weight for sex indicates that females were more likely to benefit from accelerated college credits regarding GPA. First-generation status ( $\beta = -.082$ ) beta weight shows that being a first-generation student negatively affects the graduation GPA.

Table 6

*Unstandardized and Standardized Coefficients for Predictors of Graduation GPA*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
<b>Model 1</b>							
Constant	3.468	.011		318.64	.000	.078	.077
Sex	-.245	.017	-.268	-14.78	.000		
First-Gen	-.119	.026	-.084	-4.65	.000		
<b>Model 2</b>							
Constant	3.419	.012		281.64	.000	.101	.100
Sex	-.237	.016	-.259	-14.48	.000		
First-Gen	-.116	.025	-.082	-4.61	.000		
ACC	.007	.011	.153	8.56	.000		

In conclusion, when graduation GPAs were regressed on the covariant variables, Model 2 showed a clear relationship between the predictor and outcome variables. The results from the coefficient table revealed the equation for predicting graduation GPA as the following: Graduation GPA (predicted) = 3.419 + (-.237)(Sex) + (-.166)(First Gen) + (.007)(ACC). Specifically, accelerated college credit and sex were statistically significant and the most important predictors of the outcome. In other words, one might predict that entering college with accelerated college credit and being female will positively affect graduation GPA.

### **Hypothesis 3**

Hypothesis 3 stated that no predictive effect will exist between the number of college-level hours completed in high school over and above the predictive effects of the

FAFSA EFC, sex, and first-generation college status on the total number of hours completed after enrollment for graduates who were first-time enrolled students from a private university in Central Arkansas. To test this hypothesis, a hierarchical linear regression model was developed. Before conducting a regression analysis, the data were examined to determine that assumptions for multiple regression were met. Scatterplots of the correlation between the predictor variables and the outcome variable showed an acceptable degree of linear relationship (see Table 7).

Table 7

*Intercorrelations for Total Hours Completed and Predictor Variables (N = 2,817)*

Pearson Correlation	Total Hrs Comp	1	2	3	4
Total Hrs Comp	1.000	-.004	.033*	-.028	-.505***
1. FAFSA EFC	-.004	1.000	.029	-.068***	-.017
2. Sex	.033*	.029	1.000	-.019	-.055**
3. First-Gen	-.028	-.068***	-.019	1.000	-.010
4. ACC	-.505***	-.017	-.055**	-.010	1.000
<i>M</i>	131.29	18080.70	0.40	0.11	6.17
<i>SD</i>	12.74	32687.74	0.49	0.32	9.40

*Note.* First-Gen = First-Generation; ACC = Accelerated College Credit Hours.

\* $p < .05$ . \*\* $p < .01$ . \*\*\*  $p < .001$ .

An examination of the intercorrelation table (Table 7) shows that accelerated college credits did have a correlation with total hours completed, and all the variables have a tolerance greater than  $1-R^2$  (Leech et al., 2015). Therefore, multicollinearity was considered a problem. To test the assumptions of normally distributed residuals as well as homoscedasticity of residuals, a residual plot was generated. An examination of this plot revealed that homoscedasticity had been violated; however, the violation merely weakens the regression analysis but does not invalidate the model (Tabachnick & Fidell, 2007). Furthermore, moderate violations of normality assumption may often be ignored, especially with a larger sample size, since there are no adverse effects on the analysis (Mertler & Vannatta, 2010).

To examine the fit of the regression model for predicting the total hours completed, case-wise diagnostics, as well as tests for influential cases, were conducted. Following Brownlee's (2019) suggestion for a large sample size, the standard deviation was increased from 3 to 4. This diagnostic revealed 17 outliers. Schmidt and Finan (2018) argued that the removal of outliers from a large sample size might "severely bias a model" (p. 149). Therefore, the outliers were not removed because none of them were identified as exerting a significant influence in the model. Model 1, without accelerated college credits as a variable, yielded the following result,  $F(3,2813) = 1.76, p = .152, R^2 = .002, R^2_{adj} = .001$ . Consequently, the null hypothesis was retained. Since Model 1 was not statistically significant, Model 2 was not completed. A summary of the regression model is presented in Table 8.

Table 8

*Model Predicting Total Hours Completed*

Model 1	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Regression	857.50	3	285.83	1.76	.152
Residual	456069.95	2813	162.13		
Total	456927.45				

When total hours completed were regressed on the covariant variables, Model 1 showed no clear relationship between the predictor and outcome variables. Therefore, the criterion variables could not be used to predict the total number of hours completed.

**Summary**

The results of the hierarchical multiple linear regression analyses indicate that when controlling for covariate variables, FAFSA EFC index number, sex, and first-generation status, accelerated college credits were a significant predictor of years to completion and total GPA but was not a predictive factor in total hours completed after enrollment. The summary of results is displayed in Table 9.



Table 9

*Summary of p Values for the Model 1, Model 2, FAFSA EFC Index, Sex, First-Generation, and Accelerated College Credits on Number of Years to Graduation, Graduation GPA, and Total Number of Hours Completed*

Variables by H <sub>0</sub>	H1	H2	H3
Model 1	.000	.000	.152
FAFSA EFC	.000	----	----
Sex	.000	.000	----
First-Gen	.367	.000	----
Model 2	.000	.000	----
FAFSA EFC	.000	----	----
Sex	.000	.000	----
First-Gen	.417	.000	----
ACC	.000	.000	----

*Note.* First-Gen = First-Generation; ACC = Accelerated College Credit Hours.

When examining the predictive effect of the variables on the graduation outcome of years to completion, the FAFSA EFC index number had a slight negative effect. Females benefitted over males with reduced time to degree completion; however, accelerated college credits did decrease the time to degree completion for both sexes. In other words, having a high EFC index number and being female had a positive and statistically significant influence on years to completion. Adding accelerated college credits to these attributes compounded the positive effects at a significant level. When examining the predictive effect of the variables on the graduation GPA, females who had accelerated college credits were more likely to have higher GPAs, being a first-

generation student negatively affected students' GPAs, and accelerated college credits were a positive predictor. Therefore, being female and not a first-generation student had a positive and statistically significant influence on graduation GPA. The addition of accelerated college credits to these variables had a positive effect and statistically significant influence on students' GPAs. No predictive effect existed of the variables on the total hours completed after enrollment. An examination of the regression model revealed that the criterion variables were intercorrelated with the predictor variable; therefore, multicollinearity was a problem. Since the criterion variables were not independent, the analysis was unable to determine the relationships between the variables. Chapter V contains a discussion of the results as well as the findings, the implications, and the recommendations from the study.

## **CHAPTER V**

### **DISCUSSION**

Many elements are involved in the use of accelerated college credits. Completing college-level work in high school is extremely popular and often promoted by postsecondary institutions and politicians (Reisberg, 1998; Thomas et al., 2013). Students are drawn to the promise of preparedness for college through increased rigor, an improved GPA, and a reduction in time to degree completion (Allen & Dadgar, 2012; An, 2015; Cowan & Goldhaber, 2015; Jackson, 2010). Therefore, giving students access to college-level coursework in high school theoretically should increase postsecondary degree success. This examination of accelerated college credits' role in degree outcomes furthers the conversation. The purpose of this study was to examine the predictive effects of accelerated college credits on baccalaureate degree outcomes. Within Chapter V, I reviewed the findings, compared the results with previous studies, and provided recommendations for the use of the results as well as for further research.

#### **Findings and Implications**

The primary aim of this study was to examine the extent to which students completing college-level work in high school influenced their bachelor's degree outcomes after accounting for students' sex, FAFSA EFC index number, and first-generation status. This study was anchored in Bronfenbrenner's ecological systems theory, as it relates to external factors that may influence students' participation in

accelerated college credit programs. The review of related literature demonstrated that the value of these credits remains unclear. I sought to add to the existing body of literature by examining the degree outcomes for students who were enrolled in a private college in Central Arkansas.

### **Hypothesis 1**

Hypothesis 1 stated that no predictive effect will exist between the number of college-level hours completed in high school over and above the predictive effects of the FAFSA EFC index number, sex, and first-generation college status on the number of years to completion for graduates who were first-time enrolled students from a private university in Central Arkansas. The examination of the hierarchical multiple regression resulted in the rejection of the null hypothesis and provided evidence that the inclusion of the accelerated college credits variable into the regression model did help reduce the time to completion for graduates. However, the effect size for this outcome was medium. The multiple regression analysis revealed that the higher the students' FAFSA EFC index number, the more likely the student could expect to receive a reduction in the time to completion; however, the predictor value was only slightly negative. The multiple regression also demonstrated that there was a positive effect on females' use of accelerated college credits on time to completion.

### **Hypothesis 2**

Hypothesis 2 stated that no predictive effect will exist between the number of college-level hours completed in high school over and above the predictive effects of the FAFSA EFC index number, sex, and first-generation college status on graduation GPA for graduates who were first-time enrolled students from a private university in Central

Arkansas. The examination of the hierarchical multiple regression resulted in the rejection of the null hypothesis and provided evidence that the inclusion of the accelerated college credits variable into the regression model did help improve the graduation GPA. However, just as with hypothesis 1, the results of the regression indicated a medium effect size for the results. The regression analysis revealed that females benefited over males in the use of accelerated college credits toward their graduation GPA. The study also demonstrated that being classified as first-generation resulted in a negative effect on students' GPAs.

### **Hypothesis 3**

Hypothesis 3 stated that no predictive effect will exist between the number of college-level hours completed in high school over and above the predictive effects of the FAFSA EFC index number, sex, and first-generation college status on the total number of hours completed after enrollment for graduates who were first-time enrolled students from a private university in Central Arkansas. Based on the examination of the hierarchical multiple regression analysis, I could not reject the null hypothesis. No evidence existed that a predictive effect existed between the covariate variables and the criterion variable.

### **Years to Completion**

The analysis revealed a positive connection between accelerated college credits and reduced time to degree completion. The outcome supported the findings of several researchers (Allen & Dadgar, 2012; Cowan & Goldhaber, 2015; Miller et al., 2017; Mokher & McLendon, 2009; Myers & Myers, 2017; Pierson et al., 2017; What Works Clearinghouse, 2017). The medium effect size for years to completion was somewhat

surprising considering researchers have reported the majority of freshmen entering college for the first time have already completed some college credit (Troutman et al., 2018). The expectation would have been a more substantial effect size because the anticipation associated with the value of accelerated college credits was that they saved students time and money (Myers & Myers, 2017; Troutman et al., 2018). The effect size outcome vindicates Gruman's (2013) finding that the reduction in time to completion did not make a tremendous influence. The fact that completing college-level work in high school provides only a small reduction in time to completion means that students may need many accelerated college credits to have a substantial reduction in their time toward a completion of a degree program.

Possible explanations for there not being a more significant effect size are that students took accelerated college credits that did not pertain to the degree program they ultimately completed, or perhaps students changed majors after enrollment, thus minimizing the effect of accelerated college credits on their degree outcomes. The effectiveness of college-level work completed in high school on bachelor's degree outcomes may have also been limited by the fact that the subjects of the study attended a private university, which is not required to follow state-mandated transfer rules.

The role of the FAFSA EFC index number was also interesting. Current research is inconclusive regarding the effect of financial aid on degree attainment with some researchers who find a correlation and others who do not (Castleman & Long, 2013; Inghram, 2018; What Works Clearinghouse, 2013). However, An (2013) disclosed that while students from wealthy households were more likely to complete a degree, students who participated in accelerated college credit programs increased their likelihood of

degree attainment. The results from my analysis validated An's conclusion. Additionally, the outcome concurs with Inghram's (2018) result that students who were Pell Grant eligible and had accelerated college credits were more likely to persist and reach completion. Students' being financial aid eligible was a slight disadvantage that was bolstered by their participation in accelerated college credits.

The fact that females benefited over males in the use of accelerated college credits was expected. Other researchers had already revealed that males do not participate in college-level courses in high school at the same rate as females (Pierson et al., 2017). Additionally, females are outpacing males in earning postsecondary credentials (McFarland et al., 2019). The fact that females leveraged accelerated college credits to reduce their years to completion means that males should earn more accelerated credits, so they could also reap the benefits. Until they do so, females will continue to outpace males in completing college-level work in high school to reduce their time toward bachelor's degree attainment.

### **Graduation GPA**

The analysis revealed a positive correlation between accelerated college credits and graduation GPA. One of the values associated with accelerated college credit is the preparation for college-level work with an increased rigor that is supposed to translate into a higher postsecondary GPA (Allen & Dadgar, 2012; An, 2015; Cowan & Goldhaber, 2015; Jackson, 2010). Furthermore, students who completed accelerated college credits were found to be more highly motivated, engaged, willing to work hard in school, and to have higher GPAs in high school (An, 2015; Dougherty et al., 2006; Jackson, 2010). However, with the widespread popularity of accelerated college credits

and the internal motivation of the students who complete these courses, the expectation would be that the regression would have indicated a more significant effect size for students who had completed college-level credit in high school on their college GPA. While the link between accelerated college credits and a higher postsecondary GPA exists, the fact that students benefit so little from the connection is troubling.

Additionally, I discovered a positive connection between females and graduation GPA. Several scholars have documented how females outperform males in their postsecondary academic endeavors (Birnbaum & Yakaboski, 2011; Conger & Dickson, 2017; Conger & Long, 2010, McFarland et al., 2019). Moreover, males also tend to be less academically engaged (Ewert, 2012). Conger and Long (2010) found that the discrepancy between males' and females' GPAs persist through most of their academic careers. The effects revealed by the regression support other researchers' conclusions that females are more successful academically than males. While there was a positive connection between females and graduation GPA, males can still benefit from using accelerated college credits toward their graduation GPA.

The negative correlation between first-generation students and graduation GPA was disappointing. However, the result is in keeping with other researchers who have found that first-generation students often need more remedial coursework or tutoring compared to their peers (Chen & Simone, 2016). The analysis supported the deduction of Pike and Kuh (2005), who concluded first-generation students often had lower GPAs. Postsecondary institutions will need to be purposeful in providing academic support to first-generation students for them to be successful in their higher education endeavors. However, the good news is that accelerated college credits can provide first-generation



students with a small boost to their graduation GPA. The outcome bolsters An's (2013) finding that students whose parents did not complete a bachelor's degree were more likely to obtain a degree because they earned accelerated college credits. Completing college-level course work in high school was a benefit to first-generation students.

### **Total Completed Hours**

The fact that the multiple regression did not lead me to find a predictive effect between the covariate variables and the total number of hours completed after enrollment was perplexing. The expectation was that since there was a positive result in Hypothesis 1 for a reduction in time to degree completion that a similar outcome would manifest here as well. The reason I wanted to examine the total hours completed after enrollment was not just to discover if students graduated with fewer hours completed at the institution but also to determine if students perhaps repeated the accelerated college credit courses.

The result seems to imply that students who completed college-level work in high school did not graduate from the postsecondary institution with fewer hours than their peers who did not have accelerated college credits. The analysis did not permit me to determine if the result was because students elected to take additional courses or if the critics of accelerated college credit programs are correct that students often take unnecessary courses (Miller et al., 2017). The outcome may be the consequence of the academic tenacity of students who complete college-level work in high school who tend to be highly motivated, engaged, and willing to work hard (An, 2015; Dougherty et al., 2006; Jackson, 2010; Pierson et al., 2017). Therefore, students who completed accelerated college credits may have taken more hours but also were able to experience a reduction in years to completion. Ultimately, perhaps the result is an example of

Bronfenbrenner's (2005) exosystem of how institutions treat accelerated college credit. Just because students' complete college-level credit in high school does not mean those credits eventually apply to their degree programs. Students did not see a reduction in the hours they completed after enrollment.

## **Recommendations**

### **Potential for Practice/Policy**

This study probed the predictive effects of accelerated college credits over and above the predictive effects of FAFSA EFC index number, sex, and first-generation status. I discovered that accelerated college credits were significant predictors of the time to completion and the graduation GPA. The following recommendations underscore the benefit derived from accelerated college credits.

First, high schools and colleges may want to be more purposeful in recruiting male and first-generation college students to participate in programs offering college-level credit during high school. Targeted recruitment of males will assist higher education institutions in addressing the disparity between male and female students among their ranks. Moreover, the targeting of first-generation college students will enable institutions to provide critical academic support to this cohort and allow them to begin to experience what it is like to navigate the inner workings of higher education. Both of these groups could benefit more from accelerated college credit programs, even if those courses ultimately do not reduce the time to degree completion or raise their graduation GPA. The experience of completing college-level work in high school, with the proper academic support, could help both males and first-generation students gain confidence in their academic abilities and put them more at ease with the college experience.

Second, secondary and postsecondary institutions need to do a better job of understanding how offering college-level credit to high school students ultimately affects their degree attainment. There is enough evidence available that demonstrates that not all the purported benefits of accelerated college credits are furthering students' baccalaureate degree outcomes. Institutions should provide students with a realistic assessment that the accelerated college credits they complete may be useful toward accomplishing academic goals. A best practice would be for postsecondary institutions to have at least an individual who helps students and their parents navigate how these courses could potentially be used within a degree program. Ultimately, students should check with the postsecondary institution they plan to attend for official confirmation.

Third, students and parents need to be better educated about understanding postsecondary institutions' transfer policies and what accelerated college courses would be most beneficial to them. Students coming into a bachelor's degree program with as many college-credits already completed may not be advantageous to students. Current financial aid rules prevent the use of federal money to pay for non-program of study courses or courses that do not directly apply to students' degree programs. Therefore, students who arrive on campus with several college hours already completed that do not directly pertain to their degree program will have used up their elective hours and will be limited to only taking required courses.

### **Future Research Considerations**

One of the limitations of this study was the lack of previous research focused on examining the use of accelerated college credits in degree attainment after postsecondary graduation. Since most researchers have focused on students' use of accelerated college

credits after their first year, there were limited data to compare with the results of this study. While this research will add to the existing body of literature, I was unable to compare the findings of this study to numerous studies with similar parameters. Therefore, it is recommended that other postsecondary institutions perform similar research on the predictive effects of accelerated college credits on bachelor's degree outcomes to examine if the results confirm or refute the findings of this study. Since this study was performed using data from a private institution, research of other private institution data may lead to generalizable conclusions.

Another research recommendation would be to conduct a longitudinal study, including qualitative components, of students with accelerated college credits. A limitation of this study was that participants had already graduated. Motivations and events that influenced the students were unknown. Therefore, tracking a cohort of students with accelerated college credits from the time they entered the institution would provide additional information on students' use of college-level courses completed in high school and the institution's transfer policies concerning those courses. A study such as this could include surveys and interviews of students to determine their motivations to complete accelerated college credits and, ultimately, how those courses helped or hindered students' degree progression. Once enrolled in the postsecondary institution, did the student change majors, and did changing majors affect the way the accelerated college credit was applied to their degree program? Following these students throughout their academic career until they graduate would provide researchers with more insight into how students ultimately used their accelerated college credits. After the cohort of students with college-level work completed in high school graduated, they could be

compared to their peers who did not possess these credits to discover what value accelerated college credit did or did not provide to them.

### **Conclusion**

My findings indicate a predictive effect between accelerated college credits and years to completion as well as graduation GPA. The effect was especially beneficial to females who had high FAFSA EFC index numbers and who were not classified as first-generation. The effect size for both outcomes was measured at medium. No statistically significant predictive effect was found to exist between accelerated college credits and the total number of hours completed after enrollment.

Overall, the findings support evidence provided by other researchers who found positive benefits for students who completed college-level course work in high school on their bachelor's degree outcomes. The results of this study are especially meaningful to private postsecondary institutions who often are not obligated to conform to state mandates concerning the transfer of courses. Additional research should be conducted on what effect accelerated college credits have on baccalaureate degree outcomes. The popularity of college-level work in high school appears only to be growing; therefore, policymakers and college administrators need to be informed on how to structure accelerated college credit to give students the most benefits.

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