THE RELATIONSHIP BETWEEN TIME TO DEGREE COMPLETION AND DUAL-ENROLLMENT CREDITS

by

Peter Flint

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

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ABSTRACT

The purpose of this quantitative, correlational study is to determine if there is a predictive relationship between the number of dual-enrollment credits a student earns and the overall length of time to college degree completion. The continued growth of dual-enrollment programs and the encouragement for high school students to participate in efforts to reduce their time in college make this a necessary topic of research. Using the Higher Education Data Sharing Consortium (HEDS) Graduating Student Survey (GSS) a sample of students pursuing a baccalaureate degree at a private university were surveyed to determine if a relationship existed between the number of dual enrollment credits they possessed and their time to degree completion. Convenience sampling was used to acquire the necessary number of participants to establish if a predictive relationship existed. Multiple linear regressions were used to determine those factors that most impacted the time to completion. Ultimately, the research failed to reject the null hypothesis, and recommendations to further this research include expanding both the sample size and the population. Arnett's theory of emerging adulthood along with Tinto's Institutional Departure model served as the theoretical framework for this research.

Keywords: dual enrollment, time to completion, four-year degree, emerging adulthood.

Dedication

This work is dedicated to my family. To my children, who for countless hours tolerated Dad sitting alongside them at the kitchen table doing homework. To my gracious wife who patiently endured this project and encouraged me to go on in those moments when I was ready to quit.

Acknowledgments

To my family who has supported and encouraged my academic pursuit and are demonstrating their own pursuits with the talents God has given them.

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Countless teachers along the way that God has used to both instruct me in how to teach and in some cases how not to teach. I am grateful for the gift of both and for God's divine hand allowing our paths to cross. Thank you.

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Early College High School (ECHS)

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Grade Point Average (GPA)

Graduating Student Survey (GSS)

Higher Education Data Sharing Consortium (HEDS)

International Baccalaureate (IB)

Integrated Postsecondary Education Data System (IPEDS)

National Center for Education Statistics (NCES)

CHAPTER ONE: INTRODUCTION

Overview

The purpose of this quantitative correlational study is to determine if there is a relationship between the number of dual enrollment (DE) credits a high school student has upon entering college and their overall length of time to degree completion. Chapter One provides a background for the existence of DE programs and their role in the high school setting. Included in this background is an overview of the theoretical framework for this study. The purpose of this study is followed by the significance of the current research and the research question. The chapter concludes with a list of key terms and their definitions.

Background

While most college-bound high school graduates expect their next transition in life will take four years, research indicates that the time to procure a four-year baccalaureate degree is closer to six years (NCES, 2022; Witteveen & Attewell, 2021). A typical baccalaureate program consists of 120 credits, which if taken over four years, indicates eight semesters of 15 credits each semester. Within this model, the present time to completion for a four-year degree is four full years plus one semester or nine semesters (NCES, 2022; Witteveen & Attewell, 2021). This extended time to completion arises as students potentially face remedial college coursework to supplement what high school may not have adequately provided for them, or from changing their degree program following their enrollment. Other factors add to the increased length of completion such as institutional departure, not maintaining a full-time student status, and financial reasons for dropping out (Tinto, 2012). The extended time is particularly problematic as students consider their debt load upon graduation which understandably increases the longer a student is enrolled (D'Anna, et al., 2019; Troop, et al., 2020).

A variety of options exist for students to reduce the time to completion, one of which is to take dual enrollment coursework while in high school. DE coursework has been well documented as beneficial to bridging the gap from high school to college with research indicating an increased likelihood that students will successfully transition to college if they participated in DE coursework during high school (García, et al., 2020; Grubb, et al., 2017; Henneberger, et al., 2020; Kremer, 2020; Lee, et al., 2022). Further, DE coursework often eliminates the need for remedial coursework allowing students to enter well prepared, or at least have some flexibility in their course sequence, and potentially reduce their time to degree completion (Burns, et al., 2019; Morgan, et al., 2018).

Since their inception over 50 years ago, dual credit programs have proven themselves to be well-established entities within American education. Many of these programs are state-funded programs making them more palatable for high schools to offer college preparatory coursework in partnership with local community colleges and postsecondary institutions. College preparatory offerings such as International Baccalaureate (IB) and Advanced Placement (AP) coursework also bolster a student's resume of college preparatory work, yet these two rely on an end-of-course examination making them slightly less appealing than concurrent enrollment or dual enrollment coursework (Arnold, et al., 2017; Burns, et al., 2019). Programs have state oversight and therefore define student eligibility and admissions requirements as well as faculty expectations necessary in order to participate in DE programs (An & Taylor, 2019; Hemelt, et al., 2019).

Literature on this topic validates the role that DE coursework plays in helping students transition to college, reducing potential remedial coursework while in college, and greater college attendance rates. Students involved in DE coursework have been shown to demonstrate

higher levels of persistence than their counterparts who do not take DE courses while in high school (Alsup & Depenhart, 2020; Edmunds, et al., 2020). With the American high school curriculum continuing to become more rigorous and college-preparatory in aim, DE programs continue to increase in number and aid in improving the number of students who attend college directly after high school (An & Taylor, 2019; Arnold, et al., 2017). While these programs have grown in both popularity and availability, they have not in and of themselves helped drive down the average length of time to degree completion (An & Taylor, 2019). While DE programs do not overtly claim to reduce the overall average, on the individual level they are heavily promoted as reducing the time that individual students will have to spend in college.

By nature, dual enrollment allows students who are high school juniors or seniors to take college courses during their academic day which will count for college credit upon their graduation. Dual credit programs can be classified as singleton, comprehensive, or enhanced comprehensive based on how the credits are allocated (Dyer, et al., 2022; Nelson & Waltz, 2019). Singleton programs would include programs such as AP where an evaluative exam determines whether postsecondary institutions will recognize credit and would be reflected on the college transcript. IB programs, however, are classified as comprehensive in that it is intended to acquire college credit just as pure dual enrollment coursework would be (Dyer, et al., 2022; Nelson & Waltz, 2019). Furthermore, the high school is the offering agent of IB coursework whereas the college is the offering agent of Concurrent Enrollment Program (CEP) coursework and DE coursework. DE programs are a further cost benefit to students allowing them to essentially bypass college tuition for courses as most states provide the funding for students to participate (Huelsman, 2018). As the course structure is college preparatory in nature these allow the students to be both challenged and informed as to the nature of collegiate

coursework thereby making them more successful upon arriving on campus (Edmunds et al., 2020; Henneberger, et al., 2020). Numerous research findings indicate the close correlation taking advanced coursework during high school has on increased levels of college success (Demeter, et al., 2021; Henneberger, et al., 2020; Lee, 2022). Currently, DE programs are the most palatable approach to reducing the time a student will spend in college as they are concurrent with high school, are essentially zero cost to the student, and are college preparatory in structure.

Historical Overview

In 1955, Provost Albert Waugh of the University of Connecticut implemented a program to challenge high school seniors with college-level work thereby starting the dual enrollment program we recognize today (Olwell, 2021). As community colleges began partnering with high schools in the 1980's the present format of dual enrollment solidified around offering college-level coursework to high school students that would carry with them as they transitioned from high school to a postsecondary institution (Nelson & Waltz, 2019). This, along with other college interactions with high schools, further demonstrates that the college curriculum has typically been the driving force in shaping high school curricula. Colleges still essentially get to dictate to high schools what is necessary by means of preparation to enter college. This, along with the standardization of curriculum by state agencies and accrediting bodies has historically helped to form a divide between college and high school and foster a call for more college preparatory work on the part of high schools. However, since the late 1970's the rise in DE programs and the burgeoning growth of these programs has also helped bridge this divide as high schools and colleges find common ground (Mokher & McLendon, 2009). At present these programs are a stable fixture of the educational system as colleges recognize the pipeline of

students that is available as they have opportunity to introduce potential students to their institutions through DE programs (Hunter & Wilson, 2018; Jagesic, et al., 2021). Whereas prior efforts to align college and high school curriculum created a remediation crisis with colleges criticizing high school preparatory efforts, recent reforms have served to create a stable pipeline of students and crafted a partnership mindset between colleges and high schools (Duncheon, 2020; Jones, 2013).

Historically students who graduated from high school could enter a career, pursue military service, get married, pursue college, or simply remain at home. While these options remain, there is overt pressure to acquire a college degree with that degree linked to potential career opportunities and earnings (Edmunds, et al., 2020; García, et al., 2020) The seemingly mandatory college for all attitude has shifted the mindset from college being an option to college being a necessity with much of career placement being contingent on a college degree (Dirlam & Merry, 2021; Edmunds, et al., 2020; Henneberger, et al., 2020; Huelsman, 2018; Mulhern & Zaber 2021). Along with the shift in the mindset is a shift in the demographics of college students and adults. Monumental events which traditionally signaled adulthood, such as marriage and the birth of a child, are increasingly occurring later in life due to the increased importance of the college experience (Arnett, 2015). The seeming necessity of acquiring a college degree has therefore shifted the demographic producing an older entrance into adulthood which Arnett refers to as emerging adulthood (Arnett, 2015; Kremer, 2020; Mulhern & Zaber, 2021).

A baccalaureate degree typically consists of a four-year program with approximately 120 credits (Witteveen & Attewell, 2021). Referring to a baccalaureate as a four-year degree implies a student should enroll as a freshman and complete their course of study four years later as a senior. This scenario, while the normal protocol, is rarely the reality. Four-year degree times

continue to rise with NCES reporting a baccalaureate degree is closer to 7 years (NCES, 2022; Witteveen & Attewell, 2021). Time to degree is now evaluated against a six-year baseline mark by most evaluation schemes when looking to evaluate time to degree, persistence, and debt (Fischer, et al., 2021; Witteveen & Attewell, 2021).

The ability to pay for college has also changed from a historical perspective as the cost of obtaining a degree continues to rise. Shifting legislation and policy have moved from what was intended to be tax-based support for obtaining a degree, into tuition and fees which impact students directly (Huelsman, 2018). With this rising cost, the impetus for students to participate in DE programs becomes stronger as the incentive of reducing the cost of degree attainment is realized. As many states fund their respective DE programs in part, these programs have continued to rise in popularity amongst high school students and are essentially marketed as tools to reduce the overall cost of college. Students who persist to completion stand to incur substantial college debt which, depending on the course of study and career path, can have a lifelong effect on future success and overall self-concept (Dirlam & Merry, 2021; Troop, et al., 2020). Providing students enter with substantial credits, all of which are accepted by their postsecondary institution, and that they maintain their projected course of study, DE credits can indeed reduce the length of a college stay and its subsequent cost. State departments of education have generally been supportive of DE programs and are quick to put funding towards them in the belief that students who benefit from these programs will remain in state, become better educated, and serve the general good of the community (Hemelt, et al., 2019; Mokher & McLendon, 2009). Financial support of state education departments and the potential to reduce the cost of college by simply reducing the amount of time spent in college are real factors and

ones the DE programs are marketing broadly (An & Taylor, 2019; Burns, et al., 2019; García, et al., 2020; Jones, 2013; Mokher & McLendon, 2009).

Society-at-Large

Higher education is essential in preparing students for success in the workplace whether that preparation derives from trade schools, community colleges, or four-year universities. Further, tertiary education is recognized as providing a benefit to both the individual and the broader community (Clayton, 2021; García, et al., 2020). Encouraging students to pursue higher education by forming partnerships between high schools and postsecondary institutions within a community provides a benefit to both students and the community alike (Clayton, 2021; Grubb, et al., 2017; Haskell, 2016). As its namesake suggests, the community college is a focal point of the community and has characteristically enjoyed a close partnership with those high schools offering DE credits. Recently, as community college and dual enrollment partnerships become more common, community colleges report seeing close to one-quarter of incoming students being DE students forcing them to evaluate the impact this large number of younger students is having on the college populace (Liu & Xu, 2022). While some may perceive that increase being problematic, postsecondary institutions wisely see this as a potential recruiting tool. Colleges and universities are reaching out beyond their campuses into nearby high schools to offer DE courses aimed at not only bridging the high school-to-college transition but increasing the likelihood of participants earning a four-year degree at their institution (Kremer, 2020; Naff, 2022). Both four-year colleges and their two-year counterparts, enjoy partnerships with local high schools and often see those students enroll following graduation making dual enrollment programs a valuable recruitment tool. Marketing efforts on the part of local postsecondary institutions are being leveraged with evidence increasingly indicating students are more likely to go to the

college in which they received DE credits than to look elsewhere (Lawrence & King, 2019; Pretlow, et al., 2021; Tobolowsky & Allen, 2016). This relationship is one colleges and universities are wise to capitalize upon as many states also partner with the colleges to pay for tuition for DE students further enticing high school students to participate in what they perceive as free college credit. Noting this trend, many have incorporated dual enrollment programs as key elements to ongoing strategic initiatives for strengthening enrollment at their schools (Field, 2021; Jones, 2013). This partnership of convenience is only enhanced with credits students earn from their respective high schools being paid for by the state and accepted by the partnering postsecondary institution causing these programs to continue to grow in availability and popularity (Naff, 2022; NCES, 2022). With questions arising as to the inherent value of a two-year or four-year degree, due to cost obligations, potential debt load, and increased emphasis on trade school, colleges and universities are quick to encourage participation in dual enrollment programs noting that this is a potential source of ongoing revenue.

Western industrialized countries place great importance on achieving postsecondary education as both a preparation for the workplace as well as the transition into adulthood. This time of emerging adulthood exists within 18 to 25-year-old students who are transitioning from adolescents to adults but do not fit neatly into either category. This unique period of transition has typically isolated the college experience as the hinge point. High school students who transition to college are no longer adolescents yet would resist being classified as adults, and students who have graduated from college would likewise bristle at being considered adolescents (Reio & Sanders-Reio, 2020). Hence, a unique demographic exists that was the focal point of Jeffrey Arnett's work in defining "emerging adulthood" and identifying those who have left childhood behind, but are not classified as being adults (Arnett, 2000; Kremer, 2020). DE

programs straddle this unique time frame and serve as a demonstration for the theory of emerging adulthood. While coursework is taught at the collegiate level, it is still essentially being taught to adolescents or those who are emerging into adulthood. DE programs illuminate this transitional time frame as unlike college students, DE students reside at home with their parents but are technically enrolled in college. DE programs further emphasize this aspect as these programs straddle the Family Educational Rights and Privacy Act (FERPA) where student academic progress is only disclosed between the postsecondary institution, the parents, and the high school if the student is under 18 or still defined as a dependent (FERPA, 2022). This age bracket also has the highest level of residential instability as during these years they will live at home, at college, and potentially on their own (Arnett, 2000). This is also a time when the transition into adulthood becomes more obvious as a variety of experiences aimed at creating self-sufficiency such as accepting responsibility, financial independence, and separating from their parent become hallmarks of adulthood. DE programs are valuable in assisting with the transition from high school to college and have been the focus of marketing campaigns on behalf of colleges who are engaging with published literature suggesting students who participate in DE programs are better positioned to transition from high school to college (Field, 2021; Naff, 2022). All these factors have served to raise the importance of dual enrollment coursework in the minds of high school students and postsecondary institutions thereby creating a subset of society at large that sits both academically and developmentally between adolescence and adulthood.

Theoretical Background

While there is no theory explicitly underlying the effect dual-enrollment credits have on postsecondary time to degree completion, there are obvious parallels between Arnett's theory of

emerging adulthood and Tinto's institutional departure model that speak to this issue. Both theories provide insight into the unique experiences facing students who participate in dual-enrollment coursework and the realization that the time to completing a degree has been increasing (Arnett, 2000; Tinto, 2012).

Both Arnett (Arnett, 2015) and Tinto (Tinto, 2012) identify social and intellectual factors in emerging adults that affect their rate of success in the college environment. Arnett identifies five characteristics of emerging adults expressed as identity exploration, instability, self-focus, a feeling of in-betweenness, and the knowledge of vast possibilities before them (Arnett, 2000). Each of these aspects is demonstrated within this student group, and with more students entering postsecondary education than ever before, an expanding portion of the population will be affected (Arnett, 2015). Emerging adulthood developed as a theory of importance at a time when dual enrollment programs were also gaining importance and the two parallel closely in the age and experience of members within this group (Arnett, 2015). The characteristics identified by Arnett (Arnett, 2015) are clearly present in dual enrollment students who sit between the conclusion of their high school year and the start of their college years. In line with emerging adulthood, students who participate in DE coursework can exhibit the feeling of in-betweenness as they find themselves between high school and college and not fully belonging in either category. Furthermore, most students participating in DE coursework have a thinking process aimed at the future and the vast possibilities acquiring numerous credits before arriving at college will provide them. This acquisition of college credits even serves as an identity expression for many students as accolades are given for their accomplishments and accruing numerous credits before high school graduation. These factors are not to be minimalized as Arnett has accurately identified them as characteristics of emerging adulthood. It is notable that

these same characteristics can be observed in parallel with dual enrollment participants. Research further validates these factors as instrumental and it has been shown that students who exit high school with DE credits indeed are more inclined to enter college, be better prepared for the rigor of college coursework, and to place value on their individual postsecondary work validating factors identified by Arnett (Arnett, 201; Henneberger, et al., 2020; Kremer, 2020).

DE coursework is advantageous as it provides college exposure through rigorous coursework and some collegiate experiences that further assist in the high school to college transition (An & Taylor, 2015, 2019; Kremer, 2020). Yet, as Tinto (2012) indicates arriving at college does not necessarily assure one of completing college. Tinto defines the lack of persistence as institutional departure and references its ability to extend the time to degree completion (Tinto, 2012). Tinto indicates that more students leave college prior to completing their degree than persist to graduation and completion of their programs (Davidson, et al., 2009; Tinto, 2012). This assertion in comparison to the literature indicates that while emerging adults who take DE credits may transition into the college setting successfully, the ability to persist to completion remains a question. An and Taylor (2015) further assert that this area of degree completion by students who took DE credits while in high school is an area that needs further research (An & Taylor, 2019). Tinto's Institutional Departure Model and Arnett's emerging adulthood theory, therefore, are appropriate frameworks for this research and have served as the framework for other research that considers DE programs and their effect (Alsup & Depenhart, 2020; Kremer, 2020).

Problem Statement

Many students exit high school with the perception that the next academic step is to enter tertiary education and procure a degree or certification. This can be in the form of a trade degree,

a two-year associate, or a four-year baccalaureate degree. By nomenclature, many of these programs are inherently timed accomplishments yet the time to completion is not always accurate when compared to relevant data. Recent educational research has shown the time for completion of a two-year degree is roughly three years and for a four-year degree six years is often needed (Arnett, 2015; NCES, 2022; Tinto, 2012; Witteveen & Attewell, 2021). The most appealing and successful selling points in promoting dual enrollment credits to high school students and their parents are reducing time to degree completion, as well as increasing college readiness and providing academically challenging coursework (Troop, et al., 2020). However, with the apparent rise in time to degree completion in higher education, the question naturally arises of whether dual enrollment programs truly reduce the time to degree completion.

There is a lack of research aimed at determining if the time to degree completion is reduced by participating in DE programs. While existing literature points to the benefit of DE programs in providing a successful transition to college, increasing college GPA, and reducing the need for potential remedial coursework, they do not point to a reduced time to degree completion (An & Taylor, 2019; Grubb, et al., 2017; Henneberger, et al., 2020; Kremer, 2020). The problem is more research is needed to determine if there is a strong relationship between participating in DE programs and the length of time to college-degree completion (An, 2013; An & Taylor, 2019; Edmunds, et al., 2020; Kremer, 2020; Witteveen & Attewell, 2021).

Henneberger, et al. (2020), evaluated the role that dual-enrollment coursework taken during high school had on successfully transitioning to college noting several positive postsecondary outcomes (Henneberger, et al., 2020). While the research was valuable in identifying the connection between DE coursework to student success it lacked the capacity to identify the rate at which degree attainment occurred considering the quantity of DE credits.

The likelihood that a student in a DE program will attend the college which offered the program was the focal point of Jagesic, et al. (2021) in researching two-year and four-year institutions (Jagesic, et al., 2021). The research highlighted the likelihood of students enrolling in the credit-granting college that partners with the respective high school yet was focused on identifying potential college mismatch between student ability and college choice (Jagesic, et al., 2021). While this research was apropos to the realization that DE credits do increase the likelihood a student will attend the college that gave them their DE credits, it did not speak to the time to completion. Present literature addresses the factors of college attendance, reduced debt load, remediation, and college GPA, however, the problem is that more research is needed to determine if there is a strong relationship between the number of dual enrollment DE credits a high school student has upon entering college and their overall length of time to degree completion (An & Taylor, 2019; Edmunds, et al., 2020; Kremer, 2020; Witteveen & Attewell, 2021).

Purpose Statement

The purpose of this quantitative, correlational study is to determine if there is a predictive relationship between the number of dual enrollment credits a student earns and the overall length of time to college degree completion. This research specifically focuses on students about to graduate or who have recently graduated and evaluates the quantity of DE credits with which they entered college. DE credits are the quantity of credits a student has posted to their college transcript because of participating in concurrent enrollment programs while in high school (An & Taylor, 2019; Burns, et al., 2019). Graduating students from four-year postsecondary institutions were surveyed and inventoried for the number of DE credits they possessed at the time of high school graduation and evaluated against the time to college-degree completion. The criterion

variable is the length of time to degree completion. The predictor variable of the quantity of DE credits will be used along with the student's debt load following graduation. Witteveen's (2021) approximation will be used as the predictor variable for time to completion where a bachelor's degree consists of 120 credits, taken 15 per semester for a total of eight semesters (Witteveen & Attewell, 2021). Self-reporting of the number of DE credits was used with participants reporting the quantity of credits with which they entered college. It is hypothesized that the length of time to college degree completion can be predicted based on a combination of the number of dual enrollment credits and debt load upon college graduation. The predictor variable of college debt was also evaluated to ascertain whether DE credits sufficiently reduced debt load upon completion.

Significance of the Study

As DE programs continue to grow there are several reasons educators encourage students to participate, one of which is the prospect of reduced time in college and thereby a reduced debt load upon graduation (Burns, et al., 2019). The combined aspects of more challenging coursework, earning college credit at little to no cost while in high school, and participating in selected courses of interest are additional reasons high school administrators cite students opt for DE options (Hornbeck, et al., 2023). As these programs are often free for high school participants this is a strong reason to consider taking coursework as a high school student. This is of particular importance considering other programs, such as AP and IB programs require participants to pay for exam fees (Burns, et al., 2019; Clayton, 2021). While other promotional aspects of DE programs are viable, such as the rigor of the coursework, the college preparatory environment they offer, and the increased likelihood a student will bridge the high school to college transition, the length of time to completion remains a question (An & Taylor, 2019;

Edmunds, et al., 2020; Henneberger, et al., 2020). If indeed this is not as broadly experienced as is purported, then restructuring of how these programs are promoted should be considered (An & Taylor, 2019). Present research on this topic highlights the value these programs provide to students and can serve to guide high school students. Educators would be wise, however, to provide students with guidance on the typical time to complete a four-year degree when promoting the value of DE coursework (Witteveen & Attewell, 2021).

This study will focus on the length of time to degree completion and compare students who entered college with DE credits and those who did not. This data will provide clarity to the question of how much of an effect these programs have on reducing time to degree completion and thereby be useful in projecting the reduced debt load students will experience. Extensive research exists on this topic with little of it focusing specifically on the time to degree completion and represents a gap in the literature (An & Taylor, 2019). This study intends to close that gap and provide potential guidance to high school students considering participating in DE programs and what that can mean for their college plans and subsequent debt load upon graduating.

Research Question(s)

RQ1: How accurately can the length of time to college degree completion be predicted from a linear combination of the quantity of dual enrollment credits and college debt load?

Definitions

1. *Concurrent Enrollment Programs (CEP) –* CEP programs offer college credit to high school students by way of using a postsecondary approved instructor who is using the prescribed curriculum. (Burns, et al., 2019).

2. *Dual enrollment (DE)* – DE programs exists under a variety of styles but are aimed at providing high school students credit on their high school transcript for a college-level course. Upon arrival at college these credits may or may not transfer into the student's college transcript. (Barnett & Stamm, 2010).
3. *Emerging adulthood* – Emerging adulthood best describes the transitional time between when an individual leaves adolescence and enters adulthood. As it is not a prescriptive date and time, psychologist Jeffrey Arnett describes this protracted transition as emerging adulthood. (Sussman & Arnett, 2014).
4. *Early College High School (ECHS)* – Early college high schools are a unique dual enrollment program specifically aimed at helping struggling high school students succeed and be prepared for entrance into college. They are less aimed at completing college early and aimed more at ensuring high school students attend college upon graduating. (Zeiser, 2022).
5. *AP* – Advanced Placement – AP programs are managed by the College Board and ensure curricular continuity and teacher qualifications thereby promising equitable coursework across all AP courses. These college level courses culminate in a final exam that allows the course to potentially count for college credit based on the exam results (College Board, 2021).
6. *Graduating Student Survey* (*GSS*) – The GSS is an instrument to evaluate institutional conditions and assess the impact of the graduate's college experience and development (HEDS, 2022).
7. *Higher Education Data Sharing Consortium (HEDS)* – HEDS is an organization that operates a data-sharing consortium between of colleges and universities. Their purpose is

to make this data available for colleges and universities to advance undergraduate, liberal arts education. (HEDS, 2022).

8. *IB* – International baccalaureate – International Baccalaureate is a college preparatory program offered to high school students between 16 and 19 years of age. Admission requirements are determined by the individual schools and programs are focused more on global recognition (Iborganization, 2021).

CHAPTER TWO: LITERATURE REVIEW

Overview

A systematic review of the literature was conducted to explore the potential connection to the quantity of dual-enrollment credits upon entering college and the overall time to degree completion. This chapter will present a review of the current literature related to the topic of this study. In the first section, Arnett's theory of emerging adulthood and Tinto's institutional departure model will be discussed, followed by a synthesis of recent literature regarding dual-enrollment coursework and factors associated with length of time to degree completion. Lastly, literature surrounding the factors which lead to increased or decreased time to degree completion will be addressed alongside the role dual-enrollment coursework plays in these variables. In the end a gap in the literature relating to time to degree completion will be identified, presenting a viable need for this current study.

Theoretical Framework

Jeffrey Arnett introduced the theory of emerging adulthood in the early 2000s to explain the developmental years between 18 and 25 and the associated changes that occur during those years (Arnett, 2000). This age group, Arnett alleges, is an understudied age group with most psychological research leaning toward the young or pre-adolescent age group and very little aimed at this critical time. Emerging adulthood differs from both adolescence and adulthood with neither term adequately describing this group as it becomes evident in the context of postsecondary education. Arnett is clear to emphasize that emerging adulthood is not simply a semantic terminology to describe either late adolescence or young adult (Arnett, 2016). Social scientists differentiate adolescence and adulthood by discrete events that allow for a transition out of adolescence into adulthood such as marriage, completion of a postsecondary degree, or

becoming a parent (Arnett, 2000). Generally, none of these events have occurred in those considered late adolescents such as college students. Furthermore, most college-aged students resist sharply the connotation that they are an adolescent, late or otherwise. Arnett purports that the term late adolescent is therefore inadequate to fully describe this unique, transitional time frame that 18-to-25-year-olds are experiencing (Arnett, 2015). This group is also not adequately defined by the term young adult as its own nomenclature implies adulthood has been reached. Within the confines of legal standing, this may be the case but is not the case by educational and societal norms mentioned previously. Western culture has also adopted the term young adult to point to a variety of different age groups as demonstrated in the term young adult being a teen section in a bookstore, but a post-college age group in a church gathering (Arnett, 2015). By embracing the term emerging adulthood, Arnett explains both groups are represented, and the focal point no longer becomes a specific point of transition from one group to another but the reality that they exist as a unique group (Arnett, 2015). This age notably has an increased likelihood of engaging in risky behavior as they have yet to assume the responsibilities of adulthood but also have the freedom and independence they lacked as younger adolescents. This age group therefore exhibits higher incidences of substance abuse, addiction, and activities which are identified as lifestyle risks due primarily to both the availability and acceptance of these behaviors (Sussman & Arnett, 2014). This time frame is a notable departure from the social norms surrounding childhood, but it is not a full transition into the independence and responsibilities of adulthood. Arnett also notes that this time is longer than most other stages of an individual's experience such as toddler, elementary, middle school, or high school, while also possessing far more changes than any of the other stages (Arnett, 2015). A key element to emerging adulthood is its parallel to postsecondary education. As more students, both within the

United States and other developing countries, choose to pursue schooling following high school, the number of students who fit in the category of emerging adulthood is expected to rise in the twenty-first century (Arnett, 2000, 2016). Emerging adulthood aligns with developed countries of the West such as the United States and Canada, along with some Asian countries where tertiary education is of great importance and drives the median age of marriage and parenthood within these countries into the late twenties (Arnett, 2000, 2015).

The cultural context of emerging adulthood can be summarized in a series of causes and their subsequent effects. The causes are identified by Arnett through the illustration of four revolutions occurring within the past century: the Technology Revolution, the Sexual Revolution, the Women's Revolution, and the Youth Movement (Arnett, 2015). These revolutions generated a group of individuals identified by five main characteristics, namely, identity exploration, instability, self-focus, a feeling of being in-between, and a sense of optimism around future possibilities (Arnett, 2015). The Technology Revolution served to move populations in developing countries away from an agrarian existence into towns to produce goods and services forcing a transition from a farmer to a factory worker. These individuals moved away from the family farms and small towns becoming part of suburbs and cities where factories existed. Arnett further contends that the shift from farm to factory within society, along with the advent of "the Pill", ushered in the Sexual Revolution of the 1960's (Arnett, 2015). While often perceived as a time of less stringent standards of morality, the Sexual Revolution also helped shape the subsequent Women's Movement as more young people recognized they had differing options available to them than their predecessors had. The requirement to marry following high school and begin bearing children and filling the role of a stay-at-home mom was no longer the only option available to girls graduating high school. The option of postsecondary

education was now readily available and became palatable to an increasing number of young women thereby increasing the number of college students while concurrently decreasing birth rates and increasing the median age of marriage. These events, alongside a national feeling of disdain and distrust of adults that arose in the 1970's helped shape the Youth Movement which pondered the obligations of adulthood and opted not to participate (Arnett, 2015). This time saw students exiting high school and choosing to reject the obligations and responsibilities of adulthood and seeing marriage and parenthood as things to be avoided rather than aspired toward. While most internally wanted to experience adulthood, and eventually embraced it, this revolution effected a change that further increased the median age of marriage and parenthood (Arnett, 2015).

While described as a series of revolutions a precipitous series of events that occurred over the past fifty years has postponed a series of activities classically regarded as defining adulthood such as marriage and parenthood. While industrial technology and general resistance to adulthood were obvious factors, the key factor that unites emerging adulthood and education is the increasing importance placed by developing countries in acquiring postsecondary education making this an appropriate theoretical background from which to view dual-enrollment coursework.

While these revolutions can be labeled as the causes for emerging adulthood their effects are notable in the 18-to-25-year-old students that comprised the roughly 14 million students who attended college in 2020 (NCES, 2022). Arnett identified five key characteristics of this group in 2000 thereby introducing his initial theory of emerging adulthood which he reiterates in subsequent publication leading to his capstone text of 2015 entitled, *Emerging Adulthood: The Winding Road from the Late Teens to Early Twenties.* Emerging adults are characterized by a

sense of identity exploration, a sense of instability, a self-focused nature, a feeling of being in-between, and a sense of optimism about future possibilities (Arnett, 2015). Each of these facets are visible in dual-enrollment coursework where students typically experience the insecurity and overall instability of being between high school and college while not fully belonging to either group (García, et al., 2020; Henneberger, et al., 2020). Identity exploration within this group is also demonstrated through their expressions of who they are and what they want to become with much of that vision tied to their educational pursuits. Lastly, the characteristic optimism regarding their future is seen in students that participate in dual enrollment work as they often do so for the sake of reducing the time that they will spend acquiring their future degree. There is a palpable rush forward with optimism into full adulthood using dual-enrollment coursework being a means to that end.

Identity exploration within the context of DE coursework is best evidenced by students' identity being tied to their academic prowess. High school students are at the initial stages of identity formation with much of who they are and who they want to become being tied to their academic accomplishments. This is also a time where they are gaining independence from their parents' direct academic oversight. DE coursework is even further separated from parental oversight as most programs fall under the Family Educational Rights and Privacy Act (FERPA) where student academic progress is not disclosed to parents without student consent. Emerging adults become increasingly more independent from their parents, but not fully assuming roles and responsibilities of adults and are afforded opportunities to express themselves outside of parental guidance (Arnett, 2015). Similarly, DE students increasingly gain more independence from their high school peers but do not fully assume the roles and responsibilities of a college student. Emerging adulthood moves from tentative and transient exploration to more serious and

focused direction through a gradual process, again, exhibiting a similar parallel to DE coursework.

Instability is a second aspect of emerging adulthood that is paralleled with high school students taking DE coursework. Arnett points out that emerging adults have pressure to possess a life plan or route that they will be taking from adolescence to adulthood all the while their individual explorations through this time will likely alter that plan (Arnett, 2015). Parents and teachers continually asking what they want to be when they grow up along with the expectations of college plans needing to be settled before high school graduation are some of the pressures high school students face each year. Even though plans are declared upon high school graduation, it is an accepted norm that they will likely change. An example of this is provided by the common experience of changing one's college major and how this can often add time to degree completion thereby changing the original plan. Students in the United States are afforded the opportunity to explore majors and experiment early on in their initial college years and are not required to declare a course of study like their European counterparts (Kremer, 2020). This ability to change majors often extends the time to completion, but aids in the transition from adolescent to adult. Similarly, students taking DE coursework can potentially graduate high school with up to 60 college credits and articulate their plan to complete a four-year baccalaureate degree within two years. How many credits are accepted, the potential for a change of major, and a variety of other factors often cause that plan to be readjusted upon entering college (Liu, et al., 2021). Instability is a trait of this period as plans are made and then changes of those plans become necessary. Beyond this, instability of residency is a factor of emerging adulthood which, while not directly paralleling DE coursework, it is a factor these students will experience. No single age group moves more frequently than those in the 18-to-25-

year-old age group as they move from home to college and beyond during this time (Arnett, 2000, 2015). Within this span of seven years a student will feasibly leave home, live in a dorm, move out of a dorm, move into an apartment, or even possibly back home demonstrating instability in residency as being the norm for this age group.

Emerging adulthood is also a time of self-focus between two islands of expectations placed upon them by others. As an adolescent there are peers, parents, and teachers, all of whom have expectations which must be met. In adulthood there is a spouse, a boss, or a coworker that also has expectations which must be met. In between adolescence and adulthood, however, is a time of self-focus where external expectations by others are decreasing and internal self-focused expectations arise (Arnett, 2015). While self-focus is often considered a pejorative, in this instance it is merely a real expression where these individuals find themselves suddenly free from others prescribed expectations allowing the first occasion of true self-reflection. This is again, paralleled in DE coursework where the high school student has more prescriptive expectations placed upon them by teachers by way of assignments, deadlines, rubrics, and grades. College students likewise have expectations by their professors but are less prescriptive and more thought provoking. In between, however, is an area where the expectations are not gone, but are diminished by the high school as the college offering the DE coursework takes the lead. The college does not perceive these students as full college students, however, and there is often additional support provided to the dual enrollment students that college students do not receive (Field, 2021). This disparity in expectations between DE students and college students has created a point of contention on the part of college professors contending that DE courses are not equivalent (Duncheon & Relles, 2020; Field, 2021; Ison & Nguyen, 2021).

One of the more salient parallels between Arnett's theory of emerging adulthood and DE coursework lies in the sense of being in-between that this age group experiences. Emerging adulthood sees the gradual introduction of accepting responsibility for oneself, the need to make independent decisions, and the need to become financially independent as one moves away from adolescence into full adulthood (Arnett, 2015). These three factors leave most individuals feeling in-between as they gradually make these decisions, often with mistakes along the way, all the while developing confidence to the point where they fully embrace being an adult. This in-between nature generates feelings of uncomfortableness and insecurity around which group they belong to as they are capable of both looking backward toward adolescence and forward to adulthood. The parallel is striking as students in DE coursework look backward to high school and middle school teacher directed coursework, but also look forward to professor guided collegiate coursework. Whereas earlier education was directed by the teacher, now they find themselves in coursework where the professor is simply a guide, and their own initiative must propel them. These students are not full high school students, nor are they full college students, but rather lie in-between these two categories.

Within the framework of emerging adulthood, Arnett raises the importance of forming resilience among this group. Resilience is the ability to withstand and succeed despite adverse experiences (Arnett, 2015; Leung, et al., 2020). Emerging adults who experienced adverse childhood experiences (ACE) yet demonstrated resilience by completing a major life milestone or showed an absence of notable problems, did so by the presence of certain protective factors (Arnett, 2015). These protective factors included embracing a higher being, having a human role model, having higher aptitude or intelligence, or simply being physically attractive. (Arnett, 2015; Leung, et al., 2022; Young, et al., 2022). Most notable of these is the human role model

and the importance that has upon the formation of resilience and subsequent academic success of emerging adults. Within the context of dual enrollment, the role of school counselors and peer mentorship roles become even more important (Leung, et al., 2022; Young, et al., 2022). Emerging adults who had the protective factor of a peer mentor or school counselor demonstrated increased resilience and were able to transition more easily to postsecondary education (Arnett, 2015). Of particular interest were emerging adults who had adverse childhood experiences and were categorized as not being resilient yet still went on to complete a major life milestone successfully. When studied, this group often categorized postsecondary education as an experience that changed their lives for the better (Arnett, 2015). In summary, Arnett's theory of emerging adulthood shows the importance of postsecondary education during this transitional time while also highlighting the importance of protective factors that aid in forming resilience among individuals in this group.

Lastly, emerging adults look expectantly to the future with a general sense of optimism due largely to the dreams yet to be realized, the variety of directions available to them, and the capacity to forge their own path (Arnett, 2015). Arnett ties much of this optimism to family influences, whether positive or negative. Amidst the optimism and the positive forecasting for emerging adults, Arnett also identifies the wrong turns and pitfalls that are experienced during this time. These include internal problems such as anxiety and depression as well as external problems such as substance abuse and crime both of which appear during this formative time. Emerging adulthood, Arnett contends, is also a time where individuals can carry their family influences with them as they leave home either looking to replicate what was beneficial or to change what was less than valuable (Arnett, 2015). With great wisdom, Arnett also challenges those in the age of emerging adulthood to not allow anyone to stampede them into adulthood, for

once it is reached it cannot be left (Arnett, 2015). In the academic setting, the parallels again are obvious as students participating in DE coursework have great optimism about the value of college credit that they procured in high school and how those will benefit them in college. Dual enrollment students are also surrounded by parents, teachers, and peers who further embrace the stampede into adulthood, encouraging them to get as many credits as possible, to graduate sooner, to have less debt, and then get into a career more quickly. There are numerous outside voices encouraging high school students to propel themselves into adulthood at a faster rate with DE coursework being one of those tools used to speed this progress. Few, however, question the wisdom of propelling students into adulthood all the while these emerging adults are demonstrating reticence to embrace the traditional earmarks of adulthood. Even fewer are asking the salient question as to whether these DE credits truly do reduce the length of time to degree completion.

Arnett's focus on this group stemmed from observations surrounding demographic and cultural shifts exhibiting themselves in the 1970's with the age for marriage and having children being delayed due to college attendance (Arnett, 2000; Kremer, 2020). Emerging adulthood explains this delay and identifies the transitional time between adolescence and adulthood as a unique period. Arnett sought to bring clarity to this time of transition while also providing context to its causes and its effect on society. Just as a lack of clarity exists between adolescence and adulthood, a similar lack of clarity exists with dual-enrollment students where high school students are engaged in college coursework. The similarity carries over to where high school students may be reticent to consider themselves college students but would consider it complimentary in relation to their coursework being considered college level. The opposite is

also true where college students would be strongly opposed to their college coursework being considered high school level.

Tinto's institutional departure theory also speaks to dual enrollment students and their subsequent transition to college. Once a student has entered college the shift from adolescent to adult begins, and the question then becomes how long a student will remain in college and if they will complete their course of study within the allotted time. Tinto's model of institutional departure seeks to delineate between those students who depart college before completion, institutional departure, from those students who leave postsecondary education altogether, and system departure (Tinto, 2012). Further, he seeks to delineate those who depart voluntarily from those who are asked by their postsecondary institution to depart for reasons such as academic or disciplinary removal (Tinto, 2012). Tinto's contention is that research is minimal when it comes to the reasons surrounding why a student would leave an academic institution (Braxton & Francis, 2018; Tinto, 2012). In this contention, Tinto provides four factors that he believes influence departure from postsecondary education: adjustment, difficulty, incongruence, and isolation (Tinto, 2012). When considered alongside the theory of emerging adulthood, and the strong pressure to achieve a college degree, these factors serve to provide potential answers as to why a student, amidst the pressure to achieve, would in fact depart from college.

The transition from high school to college is a major life step in Western education and DE coursework has been shown to help ameliorate this adjustment (Arnold, et al., 2017; Edmunds, et al., 2020; Grubb et al., 2017; Henneberger, et al., 2020; Kremer, 2020; Lee, et al., 2022). Research further indicates that DE coursework aids in this adjustment process as students do not necessarily have to leave home to participate and can remain connected to their peer groups and adolescent activities as they eventually transition over to the collegiate experience

(An & Taylor, 2019). The ability to partially integrate into the college setting by interacting with college professors, the sense of accomplishment enjoyed, and the potential financial savings are all helpful markers to making the high school to college transition successfully (An & Taylor, 2019; Jagesic, et al., 2021; Johnson, et al., 2021; Witkowsky & Clayton, 2020). Interestingly, the optimal quantity of credits, however, has not been isolated in making the adjustment with some research indicating too many credits is detrimental (An & Taylor, 2019; Field, 2021)

Difficulty in completing college level coursework is also a factor in institutional departure with research indicating that DE coursework can potentially reduce such departure and bridge the high school and college gap (Braxton & Francis, 2018; Henneberger, et al., 2020; Tinto, 2012). However, contention surrounding the equality of course rigor arise as high school course instructors are argued to not hold students to the same level as a college professor (Field, 2021). This argument is countered by research indicating a key benefit to DE coursework is achieving the level of difficulty akin to college level work while in high school (Kremer, 2020; Lee, et al., 2022; Morgan, et al., 2018). Regardless, Tinto's institutional departure model appropriately identifies college difficulty level as a factor in student departure.

Incongruence between a student and their postsecondary institution of choice is another factor in institutional departure. This also affects DE coursework as there is a strong correlation between the institution offering DE credits to a high school and that student's selection of that institution for their postsecondary education (Grubb, et al., 2017; Jagesic, et al., 2021). However, with high school students associating with their peers, engaging in extracurricular activities at the high school level, and with their identity in their high school peer grouping, any disparity between the postsecondary institution and the student may not become apparent until fully enrolled in college. Tinto asserts that this full immersion into institutional life, faculty

interactions, and the academic and social ethos of the campus help to amplify personal incongruencies with their institution and can lead to eventual departure (Tinto, 2012).

Lastly, Tinto identifies isolation as a potential reason for departure yet recognizes the association of isolation as a byproduct of incongruence (Tinto, 1994). Just as emerging adulthood identifies the transitional nature of the high school to college age group, it also identifies the potential for isolation within this transition. Research shows the importance of students engaging with their peers, their faculty members, and others to avoid withdrawal from college due to feelings of isolation (Tinto, 2012). Isolation may be brief, and attributed to homesickness upon arrival at college, yet if students are not quickly pulled into academic and social opportunities this isolation may result in their eventual departure. Tinto is careful to point out that while these factors may be contributors to institutional departure, they may very well be necessary in the transition from adolescence to adulthood and such thinking parallels Arnett's theory of emerging adulthood.

Both Arnett's theory of emerging adulthood and Tinto's theory of institutional departure parallel the experience of dual-enrollment students and serve as effective theoretical frameworks for this research. As Arnett highlighted the transitional time between adolescence and adulthood, his theory parallels nicely with the objectives of DE coursework while in high school. Tinto further identifies factors that contribute to why students would not complete a collegiate course of study which also are germane to the topic of DE coursework. Both theories align with length of time to degree completion as students enter college with substantial credits yet not persist to degree completion or see the time to degree increase. Emerging adulthood and institutional departure are theoretical frameworks that have also been utilized by other researchers evaluating this topic and have been helpful in articulating the time of transition from high school to college

and how dual enrollment affects college persistence (Kremer, 2020; Reio & Sanders-Reio, 2020). Both theories are appropriate considerations when evaluating this topic and serve as valuable theoretical frameworks for this research.

Related Literature

Dual enrollment (DE) coursework has been helpful in merging the high school and college experiences by providing challenging coursework to high school students while also providing college credit for their work. Along with the successful transition to college, substantial literature supports additional benefits of college readiness, the acquisition of college credit, increased college GPA, reduced remedial work in college, higher college attendance rates, and higher college persistence rates. The major benefit presented to students encouraging them to take DE coursework, however, is the reduced time they will need to complete their degree and thereby a subsequent reduction of debt upon graduation (An, 2013; Arnold, et al., 2017; Burns, et al., 2019; García, et al., 2020). There is also prevailing research that questions the equality of DE programs in the high school environment with college courses offered on a college campus (Duncheon & Relles, 2020; Field, 2021; Mollet, et al., 2020). While the perceived benefits of DE coursework are prominent in the literature, there are also growing concerns over how college recruitment is affecting DE programs and if high school courses are truly college-equivalent (Lee, et al., 2022; Mollet, et al., 2020). Further concerns also surround the number of credits high school students are accruing and whether they possess the maturity to enter college ahead of their peers. Literature also contains ongoing research as to the role socioeconomic status, race, and ethnicity play in participation in DE programs. All these topics are prominent themes in the literature, yet little is presented that conclusively shows the reduction in time to degree completion and its correlation to DE credits.

Credit Procurement

Within the context of American education, a postsecondary degree has become a practical necessity with many careers requiring coursework beyond the high school level thereby making a degree essential for economic success (An & Taylor, 2019; Edmunds, et al., 2020; García, et al., 2020; Hemelt, et al., 2019; Morgan, et al., 2018). Even if a student does not aspire to a four-year, baccalaureate degree, there is strong pressure to attend a two-year community college, or trade school with the objective of acquiring an associate degree or requisite certification in a field of study. The degree or certification has become paramount not only in educational circles but for general success in life within the Western culture (Demeter, et al., 2021; Dirlam & Merry, 2021; Ison, et al., 2022). Procuring a degree or certification is no longer a question of its value, with the focus now shifting to the procurement of college credits before departing high school to expedite this process. Partnerships between high schools, local community colleges, and four-year colleges have made the initial steps towards completing a degree more obtainable by providing high school students early college credit via a variety of tools. These include Early College High Schools (ECHS), International Baccalaureate programs (IB), Advanced Placement courses (AP), and dual enrollment coursework (DE). DE coursework specifically assists high school students in procuring credits earlier and increasing their likelihood of attending college and completing their degree (An & Taylor, 2019; Henneberger, et al., 2020). The quantity of credits a student can achieve while in high school continues to increase with recent trends showing students capable of graduating high school with 60 credits or the equivalent of an associate degree (Ison & Nguyen, 2021; Lawrence & King, 2019). While much of a student's ability to acquire credits to this level is contingent on course availability and scheduling, the potential reduction of time to degree completion and subsequent reduction of cost

is a viable consideration. These factors are regularly used as tools to encourage students to participate in these programs and therefore become key points of deliberation in the minds of students as they consider taking DE coursework.

College Readiness

College readiness can be recognized on the academic front by several factors including a reduced need for remedial work, better decision making when selecting a course of study, and balancing the many demands of college life (Burns, et al., 2019; Henneberger, et al., 2020). Literature abounds that links college readiness with the role DE coursework provides by way of academic rigor, reduction of remedial work, and potential flexibility of a student's college schedule. Often, however, college readiness is simply evaluated by the sheer number of credits a high school student possesses, yet this is not necessarily a viable indicator as other research indicates that too many credits may even be detrimental (An & Taylor, 2019; Field, 2021). Simply acquiring numerous DE credits does not in and of itself indicate college readiness, however, data does indicate that students who participate in such coursework have a higher likelihood of completing their degree whether two-year or four-year (Ison, et al., 2022). One of the most frequent arguments for participating in DE programs is the academic rigor that coursework is intended to offer and the preparatory nature of these courses in establishing college readiness through this rigor (An & Taylor, 2019; Arnold, et al., 2017; Grubb, et al., 2017; Henneberger, et al., 2020; Kremer, 2020; Lee, et al., 2022; Morgan, et al., 2018). Research points to the academic rigor that dual enrollment coursework provides as being valuable in preparing students for college but also recognizes that not all programs are equal and that AP and IB programs are also adept at providing appropriate rigor (Clayton, 2021). These programs are not as palatable to parents of high school students as the ability to receive college credit lies within

their students scores and the postsecondary institution's evaluation of and acceptance of that score. Academically high-achieving high school students generally gravitate toward DE programs and are therefore representative of the typical DE enrollment population (An & Taylor, 2019). These programs all but guarantee college credit without an end-of-course exam. College readiness is also reflected in a student's achievement level and focus which is generally contingent upon familial perception of the importance of education, and the input from school guidance counselors (Duncheon & Relles, 2020; García, et al., 2020). High school counselors become vital as they provide direction to students as to which DE credits will have the best return once the student enrolls in college, particularly if familial education guidance is absent (García, 2020; García, et al., 2020).

The advent of Early College High Schools (ECHS) has also aided in increasing college readiness by providing some college credit for students who participate. ECHS's are structurally different but academically similar in purpose to DE courses as they embrace the high school in preparation for college as opposed to embracing the college to prepare high schoolers (Duncheon, 2020; Haskell, 2016). By offering rigorous college preparatory coursework in a supportive environment with the objective of forming a hybrid institution that will increase the likelihood a student will attend college, ECHS attempts to increase the number of first-time college attendees (Mollet, et al., 2020). A key differentiator, however, is the requirement of a GPA threshold for AP, IB, and DE coursework whereas ECHSs operate within the high school setting and do not have such requirements. The objectives of ECHSs are aimed more at readiness and future college attendance, whereas IB, AP, and DE coursework assume readiness through evaluation of GPA and other requirements set up by the college and participating high school. ECHS is also appropriately configured to select students who would not historically attend

college thereby looking to increase the likelihood that these underrepresented groups have access to college beyond high school (Duncheon, 2020). Socioeconomic status (SES) along with race and ethnicity make an ECHS valuable at selecting students within these cohorts to participate and thereby increase the likelihood of first-time college attendance.

Cost Savings

The potential cost savings of accruing college credits prior to enrolling in college is a predominant theme as to why students participate in DE programs (An & Taylor, 2019; Pretlow, et al., 2021; Witkowsky, 2020). The cost savings realized through participation in DE programs are appealing to parents of high school students and those carrying the cost of their education. As student debt upon completion continues to rise in America, the potential solution of completing at least a portion of a degree while still in high school has considerable appeal (González, 2019; Huelsman, 2018; Troop, et al., 2020). Cost savings are not guaranteed and require a substantial amount of research on the part of the student to ensure that the classes they are taking transfer and are representative of their potential major within the college curriculum (Liu, et al., 2021; Witkowsky, 2020). Much of the appeal for participation in these programs on the part of the postsecondary institution stems from the funding for these programs. Funding for many DE programs is initiated at the state level with all 50 states offering some form of DE program funding (Field, 2021; NCES, 2022; Stamm, 2010). Some states are even double funded with funds directed to both the high school and postsecondary institution (Clayton, 2021; Partridge, et al., 2020). A key concern in this funding puzzle is the financial challenges it poses to colleges with some research indicating large introductory freshman level classes are a financial boon to colleges and DE coursework is aimed at removing these classes from a student's course schedule (Field, 2021; Kremer, 2020). Meanwhile, other research indicates the

opposite in that colleges are provided essentially guaranteed funding by the state, and it is to their advantage to partner with local high schools as it provides a pipeline of future students to their institution (Edmunds, et al., 2020; Hunter & Wilson, 2018; Partridge, et al., 2020). Regardless, at present the structure of DE programs is constructed in such a manner if high school students are attuned to their future and are well advised as to which courses would be remedial and thereby transfer easily, DE credits can provide a financial cost savings (Partridge, et al., 2020; Witkowsky, 2020). A point of contention that exists in the cost savings argument is the barriers to participation in DE programs raising the question of equitable access (Hu & Ortagus, 2023). Eligibility of DE programs is contingent upon the student's GPA, test scores, faculty recommendations, and other hurdles. Research shows that students of color, students of lower socioeconomic standing, and students with lower academic levels of achievement are therefore less likely to be eligible to participate and unable to realize these cost savings (Hu & Ortagus, 2023). This disparity is further exacerbated as those same students, if they opt for postsecondary education, have a greater debt load upon graduation as they entered college with zero dual enrollment credits which in turn translates to a reduced overall earning potential (Witteveen & Attewell, 2021). Most participants, however, recognize these benefits and realize at least two to three thousand dollars of cost savings by arriving at campus with credits toward their degrees already completed. Degree (Hu & Ortagus, 2023).

Reduced Time to Degree

One of the strongest arguments provided for a student to enroll in DE coursework surrounds the reduction in time required to obtain a college degree (An & Taylor, 2019). This is particularly important as degrees have targeted expectation times identified as two-year and four-year with longer times than these being perceived as an anomaly (Witteveen & Attewell, 2021).

Those times have been increasing over the past years, and at present, the benchmark time frame is 150% or three years and six years respectively (Denning, et al., 2022; NCES, 2022; Witteveen & Attewell, 2021). Research indicates three primary reasons why these times have been on the rise even with the advent of time-reducing options such as DE coursework. First, students entering college have a broad selection of required coursework often referred to as general education requirements for the liberal arts degree. There are also remedial courses which must be taken based on placement testing. Leaving high school unprepared requires incoming students to take remedial coursework potentially adding time to their respective degree program (Duncheon & Relles, 2020; García, et al., 2020; Witteveen & Attewell, 2021). Even with the rise of DE programs, remediation remains a reason why student potentially do not complete a four-year degree within the allotted time. Second, a variety of factors such as jobs or apprenticeships being offered, family responsibilities, or lack of financial means can see a student drop out and then return later in a phenomenon referred to as 'stop out' (Witteveen & Attewell, 2021). Stop-out factors cause a student to stop out of college only to realize upon their return the four-year degree time frame has been lengthened due to changed degree requirements, added coursework, or the need to refresh past material. The amount of DE credits a student possesses upon entering college can influence these factors yet stopping out clearly has a detrimental effect and minimalizes their value. The requirement to start paying back loans once a student doesn't maintain full time status, impacts the financial stop out directly as it becomes advantageous to remain in school rather than to drop and return later (Farina, 2021; FSA, 2022). This is often only realized after the fact and effective college guidance counseling would encourage a student to persist to completion if possible. To this end, accumulating student debt is actually advantageous, and seeing a student complete their course of study is better than stopping

partially through their degree program. DE credits can therefore be helpful on the front end of college enrollment as a means of reducing future potential debt yet this statement is not intimating that student debt for postsecondary education is advantageous. Data shows there are significant barriers to future success put in place when students do not complete their degree yet have student debt due to institutional departure (González, 2019; Troop, et al., 2020). In essence, it is better to complete a degree and acquire debt, than to stop midway through a program and not return. Debt without completion is particularly problematic with DE credits serving to potentially minimize this phenomenon.

Third, students who change their major, or change institutions can potentially lengthen their degree program beyond the four-year mark if the migration of majors is not within the same field of study or at the same institution. Even if a student enters college with many DE credits, a change in major to a degree program that is outside of their original course of study will result in a lengthier stay (Witteveen & Attewell, 2021). Changing majors from a humanities field to an engineering or technical field will have a greater impact than changing within a school of a university. Furthermore, students who change institutions will likely see differing degree requirements and therefore a lengthier time to degree. While this is not directly linked to whether or not a student enters college with DE credits, it is noteworthy as institutions offering DE credits are often the ones where students eventually attend (Jagesic, et al., 2021). There is a strong connection between the postsecondary institution offering DE credits and the likelihood a student will enroll in that school as a college student (Jagesic, et al., 2021; Lawrence & King, 2019).

College Persistence and Completion

College persistence and completion are different entities where persistence refers to a student's continuation past their freshman year and enrolling for subsequent years, whereas college completion is the matriculation to graduation (Braxton & Francis, 2018; Davidson, et al., 2009). Both persistence and completion are key indicators of successful student experiences in college and are the focus of much research from institutional levels and otherwise (HEDS, 2022).

College persistence and the accompanying desire by postsecondary institutions to reduce attrition have been studied extensively with predictors such as modality of learning, college readiness, and remedial coursework in college being evaluated (Alsup & Depenhart, 2020; An & Taylor, 2019; Kremer, 2020). Persistence is a key determinant of completion meaning the likelihood that a student completes their first year and returns their second year will have a substantial impact on the completion of their program (Braxton & Francis, 2018). Presently, these rates are between 65 and 70 percent for four-year programs (Braxton & Francis, 2018; NCES, 2022). College persistence is a valuable metric for institutions and therefore has been broadly studied under the work of Davidson, et al. (2009) with the development of *The College Persistence Questionnaire* to help isolate at risk students. This instrument was initially developed at Angelo State University to provide college admissions and administration the tools necessary to evaluate why students may drop out of college yet has also shown itself useful as a research instrument in a variety of educational research projects (Alsup & Depenhart, 2020; Davidson, et al., 2009). Subsequently, the instrument has undergone several revisions with the most recent including a shorter version intended to be a two-minute test to predict if a student will drop out of college. This two-minute, seven question assessment is intended to be a predictive measure for identifying students who are likely to drop out of college affording postsecondary institutions the opportunity to proactively change a student's decision (Davidson,

et al., 2009).

College completion, on the other hand, tends to be a binary variable with students either completing college or not completing, and is a growing point of concern as completion rates wane (Braxton & Francis, 2018; Demeter, et al., 2021). Roughly one-third of students who enter college, and persist to their second year, will not graduate within the projected six-year time frame for a baccalaureate degree (Demeter, et al., 2021; Tinto, 2012; Witteveen & Attewell, 2021). This data is particularly alarming on two fronts; one that students have incurred debt without completion, and secondly students limit their future success due to lacking a completed degree. As cited previously, not completing college is troublesome when substantial student debt occurs. This debt, mixed with the inability to acquire degree-specific employment, means debts will become burdensome and cannot be discharged even through bankruptcy (Demeter, et al., 2021; Farina, 2021; Gonález, 2020).

From a postsecondary institution's viewpoint, college completion is a valuable metric used to evaluate the quality of a colleges program and overall collegiate ethos. This measure shows up in a variety of reports and analyses from internal promotional efforts by institutions to search engine results on a particular university. Completion rates are carefully recorded and published by the Integrated Postsecondary Education Data System (IPEDS) and are used by consumers to evaluate college effectiveness (NCES, 2022). When a substantial number of students complete college, this reflects well on the overall institution, and it therefore remains in the best interest of the college or university to retain as many students to completion as possible. The higher the rate of student success the better the benefit to the postsecondary institution making the partnership with local high schools to develop a cadre of college ready students by way of dual enrollment coursework even more valuable (Coleman & Latta, 2022).

Tinto's references reasons why both individuals and institutions should be concerned about college completion based on data that realize more students leave college before completing their degree than persist to completion (Tinto, 2012). For institutions, this is problematic as it represents lost revenue from incoming students, future recruitment opportunities, and overall perceptions of questionable quality (Tinto, 2012). For individuals, access to certain employment and positions is contingent upon completion of a college degree thereby hampering future success by not having a degree. Both persistence and completion are vital components that arise in the literature as to the role DE coursework plays in acquiring a baccalaureate degree.

Course Equivalency

A growing body of research following the rise of DE programs concerns the equality of the high school DE course with the college campus course. Much of the purported inequality stems from the variety of models currently in use. There are college courses taught at the high school by a properly credentialed high school teacher, college courses taught at the high school by a college professor, college courses taught on college campuses that include some high school students, and even online college courses available to high school students (Coleman & Latta, 2022; Duncheon & Relles, 2020; Ison & Nguyen, 2021; Mollet, et al., 2020). The variety of DE models allows for a lack of uniformity that IB and AP possess and are able maintain due to their standardized curriculum and expectations. The instructors' qualifications and adherence to the college standard becomes the point of focus when evaluating equivalency of course expectations. High school teachers who act as instructors in DE courses must have a minimum of a master's degree or 18 graduate credits in their teaching discipline per the Higher Learning Commission (Higher Learning Commission, 2022) to be allowed to teach a college level course (Field, 2021;

Hemelt, et al., 2019; Higher Learning Commission, 2022; Ison & Nguyen, 2021; Lawrence & King, 2019). This is often tied to the colleges ability to retain their accreditation under the HLC so it behooves postsecondary institutions to ensure faculty compliance. Most postsecondary institutions mandate a graduate level class for instructors prior to being allowed to teach in the DE environment in efforts to ensure compliance with both curriculum and university standards thereby protecting their accreditation status. Much of the perceived lack of equivalency settles on pedagogical expectations where qualified high school teachers are more likely to be lenient on struggling students as opposed to college professors' unwillingness to make modifications (Arnold, et al., 2017; Duncheon & Relles, 2020; Field, 2021). The question of equality of course structure has prompted some colleges and universities to limit the number of accepted credits. With the increased number of DE credits incoming college freshman arrive to campus with, some institutions limit the number of credits that are accepted and even allowing the only the transfer of those classes taught by an actual college professor (Field, 2021; García, et al., 2020). The importance of college readiness has already been addressed and the literature is conclusive to the value DE credits have in preparing students for success in college. Concern has been building as to the equity of DE courses in comparison to the identical course taught on campus by a college professor (Arnold, et al., 2017; Burns, et al., 2019; Clayton, 2021; Coleman & Latta, 2022; Duncheon & Relles, 2020). However, if there is a lack of course equivalency, this disparity will result in decreased matriculation, persistence, and completion all of which harm the postsecondary institution. Dual enrollment sits in on the horns of the dilemma where professors want a true college experience including the academic rigor of college, while students and high school qualified instructors want to bridge the transition from high school to college.

College Recruitment

With literature indicating that most high school students will attend the postsecondary institution which granted their dual-enrollment credits, college recruitment becomes an unintended consequence which can potentially blur the lines of academic credit and the institutions fiscal solvency (Jagesic, et al., 2021; Lee, et al., 2021; Meyer, et al., 2021). There is a clear benefit for the postsecondary institution to retain DE students, even if that benefit is not necessarily recognized by the student. Potential postsecondary mismatch is a theme in the literature demonstrated by students who are academically capable of completing a four-year degree yet settle for a two-year degree as the community college is more familiar. Mismatch can also occur where a student selects a major at a four-year college when that major is not a real point of interest or skill, but they have substantive DE credits with that institution (Jagesic, et al., 2021). It is noteworthy that this mismatch affects persistence and completion rates with students less likely to complete a two-year degree when undermatched and consequently underchallenged by not selecting a four-year degree (Jagesic, et al., 2021). Ironically, literature indicates these students are appropriately challenged in their DE coursework and must subsequently be appropriately challenged in their postsecondary choices (Henneberger, et al., 2020; Ison & Nguyen, 2021). Postsecondary institutions, therefore, should encourage students to do what is best to challenge themselves in their postsecondary decisions while attempting to remain mute on their own institutions financial benefit. College bound students remain focused on the value proposition of postsecondary education with cost of attendance and quality of education being key factors alongside the availability of their desired major while proximity to home is of lower importance (Lee, et al., 2021). This data point is notable as most DE programs partner with postsecondary institutions near their high schools (An & Taylor, 2019; Field, 2021). While recruitment may be an unintended consequence of dual-enrollment programs the impact these

programs have on the ease of enrolling college ready students which will further support their bottom line cannot be ignored.

Competing Offerings

The nature of the credits procured is a focal point of many college admissions processes as referenced in the present literature. Options for Advanced Placement (AP) courses, International Baccalaureate (IB) courses, and Dual-enrollment (DE) courses all contend for consideration among high school students and are evaluated as to their merit on college applications (Clayton, 2021). All three course structures require some form of academic qualification such as a particular GPA or a particular score on an accepted standardized assessment such as ACT or SAT (Coleman & Latta, 2022). Dual enrollment coursework can fall under one of three broad categories referred to as singleton, comprehensive, and enhanced comprehensive with the course structure being the determining factor (Dyer, et al., 2022). For example, an AP course offers an exam at the close of the course which determines credit on the college transcript making this type of course singleton as students receive a single reflection of credit only on the college transcript. It is noteworthy that students can choose to sit for the exam regardless of presence in the class to obtain potential credits. This, however, is rare. IB coursework does require presence in the class over the course of the term and includes an exam which must be successfully completed to receive college credit. Dual enrollment courses in partnership with a postsecondary institution would be considered comprehensive as there is no exam, but a student is under the requirements of the postsecondary institution and must meet those requirements for credit to be granted. Furthermore, a student in a DE course will receive credit on both high school and college transcript, often making these more palatable than either AP or IB courses and contributing to the rapid growth of such programs. The rapid rise in

availability and facilitation of dual enrollment offerings make them the most prominent form of college preparatory coursework with 82% of high schools partnering in these programs as of 2020 (Duncheon & Relles, 2020; Dyer, et al., 2022; Field, 2021). While not intended to be competing offerings, DE, AP, and IB programs end up serving different student demographics, have different instructor requirements, and have different outcomes, emphasizing the competitive nature of these three programs. AP and IB courses pale in their appeal to DE credits as they are contingent upon completion of the terminal exam with the score being relayed to the student's college choice whereas DE credits are merely applied to a transcript for review by college admissions (Clayton, 2021; García, et al., 2020; Jagesic, et al., 2021).

AP coursework has a longer history in postsecondary preparation and serves as a benchmark of rigorous, college-preparatory coursework. For a school to initiate an AP offering there needs to be a minimum number of students, a qualified instructor, and the use of an AP approved curriculum. Students prepare all year to sit for the national exam which occurs each year in May. Students must pay the exam fee and wait to receive their scores four to six weeks after the test date. These scores range from a 1 to a 5 with a passing score being 3 or higher. The fees for testing, the curriculum acquisition, teacher training, and the minimal student count all serve as potential barriers to implementation for rural settings and have therefore evidenced themselves to limit access to a demographic of students who tend to be lower on the socioeconomic scale (García, et al., 2020; Hemelt, et al., 2019; Myers & Myers, 2017). DE coursework on the other hand, tends to favor the rural, lower socioeconomic demographic student for a variety of reasons (Clayton, 2021). Conflicting data also arose with DE programs appearing to favor white students over minority students (Spencer & Maldonado, 2021). It can be argued that DE coursework has grown at a rapid pace due to many states stimulating growth in

the DE program by way of state funding for these programs (Hemelt, et al., 2019; Partridge, et al., 2020). Where few states fund an AP training program or pay for a student's exam fees, state funds are used to pay for course materials and students fees. The training for these programs varies from institution to institution yet with many accredited under the HLC the requirements; 18 graduate hours or a master's degree in the discipline of instruction, are the same (Field, 2021; Higher Learning Commission, 2022). There are also fewer restrictions on student numbers, faculty training, and no national exam students must take.

The major comparative factor is what postsecondary institutions do with AP and DE credits. Students must receive a 3 on an AP exam to pass, yet most postsecondary institutions will not grant college transcript credit unless the score is a 4 or a 5 (Clayton, 2021; Myers & Myers, 2017). DE courses, however, are far more appealing as there is no exam and the course is constructed to mirror the college level course and is therefore more broadly accepted by other colleges and universities. In essence, the incentives tip in favor of DE courses due to their almost assured transfer to college credit.

The major criticisms of DE coursework over that of AP coursework center on the lack of standardization of program that AP enjoys. With The College Board overseeing all AP programs there is a measure of continuity in expectations which DE coursework does not enjoy. It is correctly argued that not every DE program for a particular course of study is equal and colleges may be granting credit to students with strong and weak DE experiences alike (Arnold, et al., 2017; Clayton, 2021; García et al., 2020).

Evidence suggests that AP offerings when compared to DE coursework align in their rigor, yet pale in their ability to deliver college credit (Clayton, 2021). While both DE and AP are academically rigorous college preparatory programs, there is a potentially greater value for

students to take a DE course when the benefit to the student, the parent, and the postsecondary institutions are considered. This factor alone makes DE coursework more appealing as evidenced by its continued growth (Clayton, 2021, Myers & Myers, 2017; García, et al. 2020).

In summary, the opportunity for a student to enter a postsecondary institution with substantial college credits on their transcript is greater if they take DE coursework than if they chose AP or IB coursework. To that end, the momentum for success upon entering a postsecondary institution is greater with DE coursework. This momentum facilitates the realization of a potentially shorter time to completion and decreased debt load making DE coursework a more palatable option over that of other college coursework taken during high school.

Participant Equality

A final topic prominent within the literature surrounded equal access to college preparatory coursework. This topic has been broadly studied with much of the research focusing on equal access to these programs by students with low socioeconomic status (SES) and students of racial and ethnic minority (An & Taylor, 2019; Field, 2021; García, et al., 2020; García, 2020; Henneberger, et al., 2020; NCES, 2022). Literature confirmed that students with low-SES tend to be underrepresented in DE participation and there is a correlation to rural demographics to this phenomenon (An, 2013; An & Taylor, 2019, García, 2020). This is likely due to the lack of resources rural schools face, the potential for a diminished college focus among rural students, and the importance of trades education among rural communities (García, 2020). Even within the rural demographic Spencer and Maldonado report that white students participate in DE programs at a higher percentage than other ethnic groups (Spencer & Maldonado, 2021). Ethnic barriers to participation in college preparatory coursework were also notable among other literature with

black and Hispanic students falling behind white and Asian students in overall participation (An & Taylor, 2019; NCES, 2022, Spencer & Maldonado 2021). Family structure, as well as the importance family members place on education in general, alongside parental degree attainment were all notable factors in whether students of ethnic minorities participated in postsecondary preparation (Henneberger, et al., 2020; Warren & Goins, 2019). Edmunds, et al., (2020) reports that students who are the first in their families to attend college are less likely to complete a degree when compared to students whose parents completed college (Edmunds, et al., 2020). Underrepresented student groups are particularly benefited by DE coursework as it introduces them to the world of postsecondary education and overall introduction to college thereby increasing the likelihood of first-generation college students (Henneberger, et al., 2020). García, et al., (2020) further validates this assumption in reporting that participation in DE programs dramatically increases the likelihood students who have low socioeconomic backgrounds and racial and ethnic minorities will complete college (García, et al., 2020). With most programs operating under state funding, affordability of these programs therefore is not the issue yet rather access to, and guidance into, these programs. High school GPA and standardized test scores are broadly accepted determining factors for schools to select student for DE participation making school counselors the gatekeepers for these programs (Burns, et al., 2019; Henneberger, et al., 2020). Their encouragement and selection of students with borderline qualifications may shift underrepresented students into DE programs and increase first time college attendance and completion.

The literature indicates there are notable racial, ethnic, and socioeconomic causes for the disparity in both access and participation in DE coursework as well as a wide range of factors for this phenomenon stemming from different family, cultural, and economic reasons. As this topic

has been broadly researched and covered at length in the literature it will not be a part of this research but is not one to be disregarded. Equitable access to these DE programs and the encouragement to consider postsecondary education are important considerations that arose in the literature and should continue to be researched.

Summary

Literature clearly shows that participation in DE coursework while in high school is advantageous in preparing a student for the college experience. Students who participate in DE programs have higher college GPA's, are more college-ready, and require less remediation once in college (Grubb, et al., 2017; Henneberger, et al., 2020; Kremer, 2020; Morgan, et al., 2018). Literature indicates these courses place them in an academically rigorous setting, provide them with challenging coursework, a sense of achievement, and allow them to gather credits well prior to entering college. Most programs involve the students remaining within their peer group, on their high school campus, and under the tutelage of teachers with whom they are already comfortable thereby successfully bridging the high school-to-college divide. However, enrollment in the college as a high school student also allows them an opportunity to interact with college professors, college students, and isolated segments of the college experience (Witkowsky, 2020). Research indicates these factors all aid in making the transition to college more successful and that they will persist until completion. There is also a strong likelihood that they will enroll in the same institution that provided the DE partnership making it palatable for the postsecondary institution to foster these types of partnerships. An outstanding question surrounds the ability for these programs to reduce the amount of time spent in college and thereby reducing the cost of a college degree. One of the stronger arguments for students to participate in DE coursework, and one that is highly promoted, is the reduction of potential debt

a student will have upon graduation. With most states paying for DE programs, the cost to the high school student is essentially zero so the more credits acquired reduces the number of credits necessary in college. However, research associating the time to degree completion and DE credits is lacking with An and Taylor stating, “an understudied research question is whether dual enrollment reduces a student’s time to degree”. (An & Taylor, 2019, p. 117). This research seeks to remedy this gap and contribute to the body of literature by answering the question if DE credits procured in high school reduce the time to degree completion for a four-year baccalaureate degree.

CHAPTER THREE: METHODS

Overview

To determine those factors which have the greatest impact on the length of time to degree completion a quantitative predictive correlational study will be conducted. The research design will be outlined in this section and the reason for selecting this design will also be shared. The research question will be addressed, and the hypothesis related to the research question will also be presented. The participants for the research and the setting in which the research occurs will be explained along with the instrument utilized to conduct the research. Finally, the procedure by which the research is conducted, and a summary data analysis will be included.

Design

This research utilized a quantitative predictive correlational design to investigate those factors that have the most impact on the length of time to degree completion. Correlational research is valuable in that it helps analyze multiple variables in efforts to identify potential relationships between these variables and is therefore exploratory in nature (Gall, Gall, & Borg, 2007; Cohen, 2002). Further, if a relationship does exist, correlational research can determine to what extent these variables are predictive in nature (Gall, Gall, & Borg, 2007). This design is most appropriate as there are criterion and predictor variables that are continuous and is investigative in nature attempting to evaluate a potential relationship. As predictive correlations can be used to predict outcomes based on data collected prior, it makes this a proper tool for this research as students will have completed DE credits prior to enrolling and completing their degree.

The dependent, or criterion, variable for this research will be the length of time to degree completion for a four-year degree. The dependent variable is the variable that occurred because

of the predictor variable and occurred afterward (Gall, Gall, & Borg, 2007). This is a continuous quantitative variable that is a function of the independent variables which in this case will be time to degree completion. This variable will range from a potential low of one to a value of eight and higher for the number of semesters to completion (Cohen, 2002; Witteveen & Attewell, 2021). The independent, or predictor, variable is a variable that influenced the criterion variable. For this research, the predictor variables include the number of DE credits a student has upon enrolling in college and their debt load upon completion. DE credits will be a continuous variable based on the minimum of zero credits, to a maximum of 60 credits or the equivalent of an associate degree. The amount of debt incurred is derived from an ordinal response of dollar ranges in incremental units of $10,000 ranging from zero dollars to over $100,000 (HEDS, 2022). These will be categorized into Low Debt, 0 to $10,000, Moderate Debt, $10,000 to $40,000, and High Debt for amounts higher than $40,000.

Research in this area is extensive as it relates to two-year degrees and the college preparatory nature of DE coursework yet is lacking for four-year degrees and time to completion (An & Taylor, 2019). The purpose is to determine which of these variables are the best predictors to degree completion time and thereby contribute to the research related to this topic and fill that gap. The rationale behind using a quantitative predictive correlation is to investigate if these multiple predictors are indeed predictive to a significant extent of the criterion of length of time to degree completion. Correlational research design is therefore best as time to degree is a quantitative continuous criterion variable which will be evaluated alongside several predictor variables which are also continuous (Gall, Gall, & Borg, 2007). Correlational research is valuable in that it helps analyze multiple variables in efforts to identify potential relationships

between these variables and are therefore exploratory in nature (Gall, Gall, & Borg, 2007; Cohen, 2002).

Research Question

RQ1: How accurately can the length of time to college degree completion be predicted from a linear combination of the quantity of dual enrollment credits and college debt load?

Hypothesis

$H_0$1: There will be no significant predictive relationship between the length of time to degree completion and the quantity of DE credits a student possesses and debt load upon graduation.

Participants and Setting

The research population for this study consists of college students who are enrolled in a private, four-year postsecondary institution. A description of this population will be included in this section along with how the population will be obtained from the available pool of students. The sampling technique will be convenience sampling as the participation in the research is voluntary and will be explained in this section. The section will include an explanation of the setting and a description of the experimental and control variables. Lastly, the analysis of acquired data will be included along with the necessary tests for assumptions.

Population

The participants for this research were drawn from a convenience sampling of college students located in central Minnesota during the 2022-2023 academic year. The college is a private, non-profit, religious-based institution with over 1,800 undergraduate students. The gender population of the college is split between 61% female and 39% male (NCES, 2022). The racial and ethnic population is 81% white, 4% black, 5% Hispanic, and the remaining population

divided into Asian, International, or two or more races (NCES, 2021). The household income levels of families sending students to this institution range from 37% being in the $110,000 down to 10% in the less than $30,000 income level (NCES, 2021).

Respondents for this research must have graduated from a high school participating in a dual-enrollment program and then entered a private four-year degree-granting postsecondary institution upon graduation. Respondents also had to be in their concluding semester at the institution to participate. This selective population eliminated students who attended a high school that did not provide dual-enrollment options as well as eliminated students who opted for a two-year postsecondary institution or trade school. While DE programs are available to both private and public-school high school students alike, the focus of this research is on students who entered private four-year programs with anywhere from zero to 60 dual-enrollment credits. Convenience sampling was used to acquire the minimum requirement of 66 participants, yet 149 students participated (Gall, Gall, & Borg, 2007). Those participating were in their final semester and were preparing to graduate when the Graduating Students Survey (GSS) was administered. All participants, therefore, were enrolled in a private post-secondary institution with a graduation date of Fall 2022 or Spring 2023. For this research, it was essential to capture students from both semesters as the research focused on early graduation or potential extension beyond the four-year time frame.

Participants

For this study, the number of participants sampled was 149 which exceeds the required minimum when assuming a medium effect size. A minimum of 66 participants was required for predictive correlation when assuming a medium effect size with a statistical power of .7 at the .05 alpha level (Gall, Gall, & Borg, 2007). Participants were selected from a private

postsecondary institution within a dual-enrollment system. Within the institution, students about to graduate were asked to voluntarily complete the survey to assist in this research. These students were the most valuable candidates to provide input as to the value that their DE credits provided as they are at a point of reflection and are seeing the possible benefit of graduating early or otherwise. Gender-related questions were removed from the survey at the request of the research institution; therefore, no data is available as to the gender of the sampled participants. All participants had recently graduated or are within six weeks of graduating.

Participants must have been enrolled in a four-year bachelor's degree program during their time in college and were included regardless of how many DE credits they possessed upon enrollment as DE credits are a continuous variable. The criterion variable was the length of time to degree completion, and the predictor variables were the number of DE credits these students possessed upon entering college and their debt load upon graduating. The group will be evaluated as to the length of time to their respective degree completion by measuring semester units with a baseline being 8 semesters (Witteveen & Attewell, 2021).

Setting

The research setting consisted of four-year degree-seeking college students about to conclude their degree program. Two-year and certification-granting postsecondary institutions were not evaluated as there is already extensive literature for this cohort. The group that was used for this research had experience within the dual enrollment system prior to enrolling in college and subsequently completed or were within six weeks of completing their academic course of study. Their reflections were the most valuable as they prepare to enter adulthood and now recognize possible student loan debt and the effect that potential early graduation had on their experience. The number of DE credits that they entered college with served as a predictor

variable and spanned from zero credits up to 60 credits. Students may be fully on a college campus, partially on campus, and partially online, to participate yet the setting will not be fully online as the institution does not offer a fully online undergraduate program.

Instrumentation

The Higher Education Data Sharing Consortium (HEDS) produces a variety of survey instruments designed to evaluate college students and provide feedback for the institution administering the survey. This research utilized one of those instruments, entitled the Graduating Student Survey (GSS), to evaluate college students three to six weeks prior to departing their final semester. See Appendix A for the instrument. This instrument assessed the criterion variable of the length of time to degree completion by respondent's self-report. Bowman, et al. (2022) used this instrument to evaluate the long-term civic and intellectual value that a college degree held to post-college students yet does not tie the perceived value of DE credits to these measures. Dong (2019) also used the HEDS instrument to evaluate the effect of being a first-generation college student on a student's college experience yet also did not introduce a connection to DE credits in the research. The instrument has also been used to evaluate the college experience under a variety of topics such as textbook purchasing and pricing and several COVID-19-related inquiries about the college experience during the pandemic (Wertzberger & Elmquist, 2021).

Predictor variables of number of DE credits and debt load upon graduation were also collected using this instrument. It is to be noted that the inquiry surrounding number of DE credits was inserted into the survey instrument with permission by the authors (See Appendix B). This survey ran during a two-week time frame during the Spring of 2023 and was strategically assigned this time frame by the institution to avoid survey fatigue among the students. The

instrument was provided to all students who were graduating during the 2022-2023 academic year and therefore captured students who potentially graduated early.

Graduating Student Survey

The purpose of the Graduating Student Survey (GSS) is to evaluate institutional conditions and assess the impact of the graduate's college experience and development (HEDS, 2022). The Center of Inquiry oversees the Wabash National Study of Liberal Arts Education which is a longitudinal study aimed at providing postsecondary institutions data regarding teaching practices and intuitional conditions (Center of Inquiry, 2022). HEDS is a subsidiary of the Center of Inquiry and produces the GSS. The stated purpose of HEDS is to use evidence, "…to improve learning and teaching at 2- and 4-year colleges and universities (Center of Inquiry, 2022)". To this end, the GSS was developed under the guidance of the Center of Inquiry and was formative in the data acquisition for the Wabash National Study and continues to be a useful survey instrument to over 150 colleges and universities to this day providing valuable post-secondary outcomes (HEDS, 2022). Therefore, as an evaluative instrument for students graduating from 4-year colleges, the GSS instrument is appropriate to measure the criterion and predictor variables of the research question. This 15-minute survey uses 32 questions with logic flow and uses five-point Likert scales that range from Strongly Agree to Strongly Disagree, with responses as follows: Strongly agree = 5, Agree = 4, Neutral =3, Disagree = 2, and Strongly Disagree = 1. The instrument uses other questions using Very Often to Never on the same Likert scale. Permission was granted to use this instrument following initial correspondence and subsequent phone calls explaining the desire to use the instrument for doctoral research (See Appendix B). An updated version has since been produced following initial permission being granted and the name of the revised instrument changed from HEDS Senior Survey to the current

Graduating Student Survey.

The output for this instrument reports on five dimensions that reflect a student's overall college experience over their prior enrollment and is administered just prior to exiting the institution. These topics are outlined in Table 1 alongside the respective quantity of questions contained in the survey instrument and the Cronbach's alpha scores of these subcategories (HEDS, 2022).

Table 1

HEDS Survey Topics and Measures of Internal Consistency

Topic	Questions	Cronbach's alpha
Good Teaching and High-Quality Interactions with Faculty	9	$\alpha = 0.90$
Challenging Assignments and High Faculty Expectations	14	$\alpha = 0.88$
Interactions with Diversity	6	$\alpha = 0.86$
Growth on Intellectual Outcomes	10	$\alpha = 0.88$
Growth on Civic Outcomes	4	$\alpha = 0.81$

Procedures

After acquiring permission from the IRB to conduct the research (See Appendix C) a formal request for permission to survey students was sent to the university's Office of Human Research Protection along with a copy of the research instrument. Permission was granted to conduct the research at the university, and a request for student emails was then sent to the office of the Dean of Assessment and Academic Administration. The office provided student emails as well as assigned a window of time to conduct the research. The office filtered student emails to include only those students in a four-year degree program who were about to graduate or had

graduated one semester previously. Fall semester graduates would typically indicate students who are graduating earlier than four-years, or students who are staying longer for one semester and a valuable part of the data set. Spring semester students would typically indicate students who are completing at the four-year mark or are graduating potentially a year early. The office also was provided a copy of the survey instrument to review before allowing it to be disseminated. The office requested two questions relating to gender be removed and those questions were subsequently removed prior to administering the instrument. Data were gathered by converting the questions from the GSS into a SurveyMonkey® survey tool to administer the instrument electronically via email. Potential survey respondents were solicited via an introductory email explaining the purpose of the research as well as inquiring as to their interest in participating in the survey. If the student chose to participate, they were provided with a consent form that must be signed before being able to access the survey (See Appendix D). The survey instrument and accompanying consent form were sent via a Survey Monkey® link that allowed participants to complete the survey completely online. Only students whose emails were provided by the institution were utilized. A pilot study of 20 individuals was also conducted prior to the actual research to test the instrument, verify what it was intended to measure and to ensure the correct data will be collected (Gall, Gall & Borg, 2007).

Once the survey instrument was provided to the pending graduates, they were able to complete the survey. Before respondents were allowed access to the survey, a letter of consent had to be signed electronically (See Appendix D). In doing so, they were afforded the opportunity to complete the survey, while those who declined were not able to proceed to the survey. This was done to ensure only individuals who have consented to the research are a part of the concluding data set. The researcher was able to note when respondents completed the

survey yet did not have contact information or other personally identifiable information. Viable responses were evaluated as to the length of time to degree completion along with the predictor variables of the quantity of DE credits these students possessed before enrolling in college and their debt load upon graduating. After the window of research prescribed by the university concluded the survey tool was closed and the data were downloaded from Survey Monkey®.

At all stages of data collection, all information that could identify the participants was protected. Data were stored securely on the web interface of the survey instrument. When downloaded to a spreadsheet, all personal identifying information was protected by using password protection on the file. Only the researcher has access to the web interface containing the records. Spreadsheet data are stored on a password-protected cloud storage file. At all stages of data collection, all information that could identify the participants was protected. Data were stored securely and only the researcher had access to records. The data will be retained for a period of five years after the completion of this research study. A letter of appreciation was emailed to participants and contact information whereby the results of the research can be provided to them upon request. The collected data will be statistically analyzed by the researcher to determine which predictor variables impact time to degree completion the most.

Data Analysis

The quantitative data acquired from the survey tool were analyzed to determine if a significant predictive relationship existed between the length of time to degree completion and the quantity of DE credits a student possesses and their debt load upon graduating. Before conducting the analysis, data were screened for missing or extraneous values and outliers. Multiple linear regression was used to analyze the data as it served to maximize the predictive power by comparing scores of two or more of the predictor variables to predict the effect on the

criterion variable (Gall, Gall, & Borg, 2007). Data received from the GSS were analyzed using the IBM Statistical Package for the Social Sciences (SPSS). Multiple regressions were used to determine if a predictive relationship existed among variables. Descriptive statistics of mean and standard deviation were reported for all continuous variables. A scatterplot matrix was used to test the assumption of bivariate outliers to evaluate if extreme bivariate outliers exist within combinations of criterion and predictor variables (Warner, 2021). Extreme outliers were removed. A scatterplot matrix was used to address the assumption of multivariate normal distribution evaluating scatterplot shape between predictor variables and the criterion variable (Warner, 2021). Assumptions of non-multicollinearity were evaluated by conducting a multicollinearity test and examining the variance inflation factor (VIF) of each variable. This procedure determined whether predictor variables had a low degree of intercorrelation with the length of time to degree completion and that each affects the criterion variable individually (Moots, 2019; Warner, 2021). The null hypothesis will be rejected at the 95% confidence interval with a medium effect size. Using Cohen's *d* for effect size of small (d = 0.2), medium (d = 0.5), and large (d = 0.8), the value of R^2 was used to report effect size (Warner, 2021).

CHAPTER FOUR: FINDINGS

Overview

The purpose of this correlational study was to determine if the length of time to degree completion could be predicted from a linear combination of the quantity of dual enrollment credits and college debt load. There was a single research question that directed this correlational study. An examination of the research question, hypothesis, descriptive statistics, and results are included in this section.

Research Question

RQ1: How accurately can the length of time to college degree completion be predicted from a linear combination of the quantity of dual enrollment credits and college debt load?

Null Hypothesis

$H_0$1: There will be no significant predictive relationship between the length of time to degree completion and the quantity of DE credits a student possesses and debt load upon graduation.

Descriptive Statistics

The study initially consisted of responses from 149 college students who had graduated recently or were about to graduate from a four-year private university. Of these 39% are male and 61% are female and all were enrolled as full-time students. The university has an enrollment of 3,398 of which 3,289 of these students are enrolled as full-time students (NCES, 2022). As a four-year degree-granting institution majors and courses of study focus on professional degrees and certifications such as nursing, engineering, education, and theology with students seeking nursing or business degrees at a higher percentage than technology-based degrees. As a private religious-based institution, service-oriented degrees such as education and theology were also

awarded, yet at lower percentages than technology-based degrees. Degrees by most prevalent categories are listed in Table 2.

Table 2

Degree Attainment Percentages by Course of Study

Degree	Percentage
Nursing	20.4%
Business	16.5%
Education	8.07%
Engineering	5.38%
Theology	7.03%

Educational attainment demonstrated itself to be an area of importance in the lives of respondents. The second-generation effect was demonstrated by the investment participants showed in the persistence to completion of their respective degrees. Participants reported that 80.14% of their parents had previously acquired a postsecondary degree showing educational attainment was important within their family, while only 8% of respondents were the first in their family to be seeking a postsecondary degree. Degree completion times (M = 7.22, SD = 1.674), measured by the Graduating Student Survey (GSS) indicated that most respondents were able to complete their degree within the eight-semester time frame indicative of a four-year degree. Minimally, only 12.6% of respondents indicated they would need to take longer than the standard four years to complete their degree. When comparing the ethnic composition of participants to completion rates, results indicated that most students were white and had completion rates that were higher than their counterparts. These data are in line with the demographic of the population wherein the university derives its student population and are outlined in Table 3.

Table 3

Ethnicity and Completion Rates

Ethnicity	State	University	Graduation Rate
White	81.6%	82%	72%
Black	6.43%	4%	50%
Hispanic	6.1%	4%	45%
Asian	4.91%	3%	54%

Debt categories were categorized into one of three values based on the respondent's input. A debt category of 1 is indicative of a low debt load of $10,000 or less upon graduation, a 2 is a moderate debt load of between $10,000 and $40,000, and a 3 is a high debt load of over $40,000. Of the self-reported debt categories, 80% of respondents indicated their debt load to be low to moderate with the remaining 20% indicating a high debt load upon graduation meaning that they would owe $40,000 or more. A standard college semester consists of 15 credits with a minimum of 12 credits required to be considered a full-time student while 18 credits are considered an overload (College Board, 2021; Witteveen & Attewell, 2019). This means a college student can be expected to take between 24 and 36 credits per year. For this research study, the predictor variable of the quantity of DE credits showed most students entered college with approximately one year of credits on their transcript (M = 26.34, SD = 21.89). See Table 4 for the descriptive statistics.

Table 4

Descriptive Statistics for Criterion Variable and Predictor Variables

	N	*Minimum*	*Maximum*	*M*	*SD*
SEM	103	4	12	7.22	1.674
DE	103	0	60	26.34	21.89
Debt	103	1	3	1.82	.751

Results

A multiple regression analysis was used to assess the predictive relationship of the quantity of DE credits a student possesses and the length of time to degree completion using the Graduating Student Survey. The criterion variable was the number of semesters it took a student to complete a four-year degree and was continuous with values between 0 and 12. The predictor variables for the study were the quantity of DE credits a student possessed upon enrolling in college, and the student's subsequent debt load upon graduating from college. The debt load categorical variable was transformed to dummy variables to ensure continuous variables were utilized in the multiple regression (Green & Salkind, 2017). This section contains the presentation of the results and analysis of the hypothesis.

Data Screening

Before beginning the analysis, the researcher screened the data to ensure that inconsistencies did not exist. Several surveys provided incomplete information and were subsequently removed, with only data from students who correctly completed the survey included in the study. There were 48 students who failed to accurately complete the survey by not sufficiently completing the survey or by failing to answer questions regarding specific predictor variables such as semesters to graduation and debt load upon graduation. The final data set ($N = 103$) included only those students who completed all questions on the survey.

Assumption Tests

Assumption testing was conducted on the criterion and predictor variables to check for inconsistencies, bivariate outliers, independence of observations, linearity, homoscedasticity, multicollinearity, and multivariate normal distribution as recommended by Green and Salkind (2017), and Warner (2021) (Green & Salkind, 2017, Warner, 2021). The assumption of

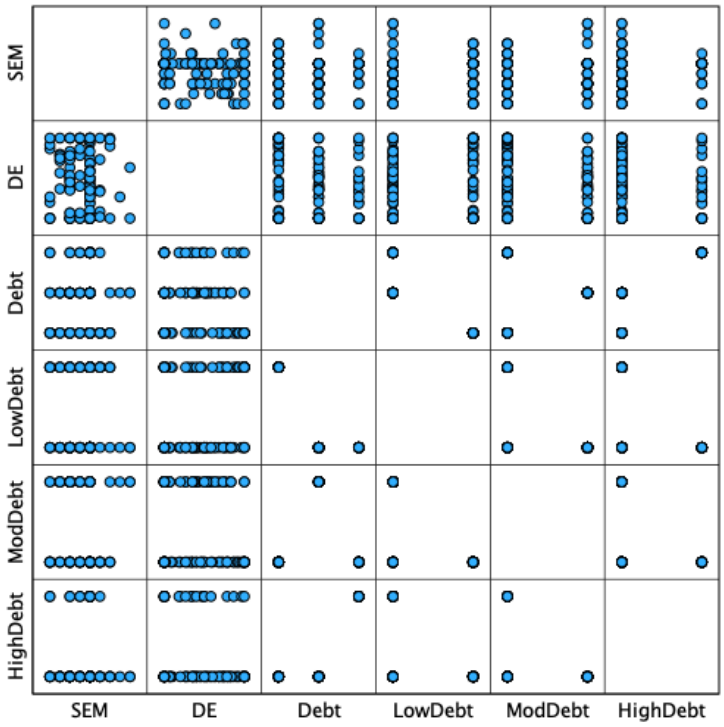
independence of observations was tested by the Durbin-Watson statistic to ensure adjacent observations were not related (Green & Salkind, 2017). Durbin-Watson statistic values range from 0-4 with the approximate value of 2 dictating acceptable independence of observations (Green & Salkind, 2017). The assumption for the model was met with a Durbin-Watson statistic of 1.988 (see Table 7).

To address the assumption of no bivariate outliers, a scatterplot matrix was created to identify inconsistencies or outliers that may have a disproportionately large impact on the analysis (Warner, 2021). Scatterplots were created among all the predictor variables and the criterion variable. No outliers were identified upon visual inspection. The assumption of no bivariate outliers was held tenable (see Figure 1).

Next, the scatterplot matrix was examined to test the assumption of multivariate normal distribution. Upon inspecting the scatterplot matrix and the shape of the data points, the distribution of data between the criterion variable and each of the predictor variables was found to be normal. The assumption of normal distribution was held tenable (see Figure 1).

Figure 1.

Scatterplot Matrix of SEM, DE, and Debt Load



The assumption of non-multicollinearity was tested to ensure that the predictor variables were not highly correlated with each other. To address this assumption, Variance Inflation Factor (VIF) and Tolerance were examined (see Table 5).

Table 5

Collinearity Statistics

Model	Tolerance	VIF
DE	.945	1.059
LowDebt	.803	1.246
HighDebt	.837	1.195

Each of the Tolerance values scored mid-range between 0 and 1, and the range of VIF values were between 1.059 and 1.246 indicating they were all within range. The assumption of non-multicollinearity was held tenable.

Null Hypothesis

To test the null hypothesis, a multiple regression was conducted to test the predictive relationship between the quantity of DE credits a student possesses at college entry (predictor), and debt load upon college graduation (predictor) upon the length of time to degree completion as measured in semesters (criterion). The correlation between the criterion variable of semesters required for degree completion (SEM) and the linear combination of predictor variables (DE credits, Debt load) was not statistically significant, $F(3, 99) = .444$, $p < .722$. (See Table 6). These results indicate the model for predicting time to degree completion based upon dual enrollment credits and debt load upon college graduation is not statistically significant. The researcher failed to reject the null hypothesis.

Table 6

ANOVA[a]

Model		*SS*	*df*	*MS*	*F*	*p*
1	Regression	3.793	3	1.264	.444	.722[b]
	Residual	282.072	99	2.849		
	Total	285.864	102			

a. Dependent Variable: SEM
b. Predictors: (Constant), DE, HighDebt, ModDebt.

The coefficient of determination which measures the effect size of the statistical model is provided in Table 7. The effect size was measured as $R^2 = .013$, suggesting a very small effect size as this effect can be interpreted as just 1.3% of the variability of the regression model being

attributed to the combination of predictor variables. This finding gives further indication that the prediction model is not significant.

Table 7

Model Summary[b]

Model	*R*	R^2	*Adjusted* R^2	*SE*	Durbin Watson
1	.115[a]	.013	-.017	1.688	1.988

a. Predictors: (Constant), DE, HighDebt, ModDebt
b. Dependent Variable: SEM

Further, the slope coefficients of each predictor variable were examined. Among the predictor variables, none reported statistically significant relationships (see Table 8). There appears to be little evidence of a predictive relationship between any predictor variables and the criterion variable.

Table 8

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		*B*	*SE*	β	t	*p*
1	(Constant)	7.504	.371		20.252	<.001
	ModDebt	-.208	.381	-.061	-.545	.587
	HighDebt	.041	.464	.010	.088	.930
	DE	-.008	.008	-.102	-.989	.325

a. Dependent Variable: SEM

CHAPTER FIVE: CONCLUSIONS

Overview

This study examined if a predictive relationship existed between the quantity of dual enrollment credits a student has prior to entering college, subsequent debt load upon graduating, and time to degree completion. This chapter contains a discussion of the purpose of the study, the implications of the study, the limitations of the study, and suggestions for future research.

Discussion

The importance of a postsecondary degree among emerging adults cannot be underestimated. Western culture has made the acquisition of a degree or certification beyond high school a seeming necessity with many finding their identity wrapped up in the attainment of that degree (Dyer, et al., 2022; Edmunds, et al., 2020; Ison, et al., 2022; Mulhern & Zaber, 2021). The attainment of a postsecondary degree is also a key factor in the identity exploration indicative of those classified as emerging adults. Arnett (2015) identifies emerging adults as those within the 18-to-25-year-old age bracket who have not fully left adolescence but have not fully entered society's expression of adulthood (Arnett, 2015). Acquisition of a college degree serves as one of the milestones identified as establishing adulthood with dual enrollment potentially expediting that accomplishment for many. Procuring college credits before arriving on campus using the dual enrollment model is becoming the norm and ushering an increasing number of students into society's perception of adulthood. The dual enrollment credits high schooler enters college with have also become an aspect of their identity exploration during this transitional period. Arnett (2015) indicates that emerging adulthood is also the time when students begin making commitments and decisions that will define who they become as adults (Arnett, 2015). Dual enrollment credits support this concept as the decision-making process

during high school is helping shape the college experience, which further shapes adulthood. Field (2021) showed that students who completed dual enrollment coursework had a higher level of confidence in their decision to take on the challenge of college and became more successful as adults (Field, 2021).

As partnerships between college campuses and local high schools continue to flourish, in some locations students are now able to graduate from high school with 60 credits of dual enrollment coursework before ever stepping foot on a college campus. Participants in the current study averaged 26.3 dual enrollment credits with 12 participants having acquired 60 credits, or the equivalent of an associate degree. This value represents almost a complete year of college credit when considering a minimum college load is 24 hours per year and the max load is 36 hours per year (College Board, 2021; Witteveen & Attewell, 2019). This advantage is also reflected in the average time to degree completion with participants in this research averaging 7.2 semesters, slightly shorter, than the prescribed 8-semester time frame for a four-year degree.

Research Question

The research question asked if a predictive relationship existed between the length of time to college degree completion and a linear combination of the quantity of dual enrollment credits and college debt load. A multiple regression analysis was utilized to evaluate this relationship and to determine if a predictive relationship exists between the criterion variable (semesters) and each predictor variable (DE credits, debt load). Findings from the analysis of the current study indicate there is not a statistically significant relationship between the criterion and predictor variables. The null hypothesis was therefore accepted, indicating that the quantity of DE credits and subsequent debt load upon graduation do not predict overall degree completion time.

The criterion variable for this research was a continuous value between 0 and 12 indicating the number of semesters the participant needed to complete a four-year degree. With a standard college semester consisting of 15 credits, a typical four-year degree consists of 120 credits over eight semesters (College Board, 2021; Witteveen & Attewell, 2019). Many students fall outside of this norm with the National Center for Educational Statistics (NCES) using 150% of the normal time to completion as a benchmark (NCES, 2022). This means completion times are evaluated by comparing a four-year degree against 12 semesters and a two-year degree against six semesters (Denning, et al., 2022; NCES, 2022). As the postsecondary degree is often the last milestone before assuming adulthood, the time to degree completion is an important factor for emerging adults, particularly within their peer cohort.

Arnett (2015) identifies three criteria that are potentially realized as one completes a post-secondary degree: the ability to fully accept responsibility for oneself, the ability to make independent decisions, and the capacity to become financially independent. Participants in this research indicated completion times of 7.22 semesters on average which is slightly below the eight semesters of a four-year degree. Further, this is well below the 150% value reported by the NCES. While it is apparent that these emerging adults value the accomplishment of the college degree milestone, they do not appear to be expediting this accomplishment through acquiring dual enrollment credits in a manner that significantly reduces time to degree completion. Even if the time to degree completion is not reduced, acquiring dual enrollment credits does provide students with greater flexibility in their course sequence allowing them to explore educational options, change the course of study, or even switch schools. Liu, et al., (2021) showed that this aspect is important as decisions surrounding majors not only determine the career objectives of college students but also establish peer groups (Liu, et al., 2021). Just as in high school, peer

associations around dual enrollment participation help shape emerging adults' decisions regarding the future.

While emerging adults are characterized by optimistic perspectives about future opportunities, there remains within this group a less optimistic side found in the feeling of in-betweenness experienced (Arnett, 2015). Students involved in dual enrollment, or further, students who have graduated from college early find themselves not belonging to either adolescence or adulthood based on these criteria. García, et al., (2020) indicated that these feelings of in-betweenness are not without merit, stating students in this category indeed experience feelings of isolation and concern over belonging. More importantly, this in-betweenness corresponds to a decrease in the number of voices available when key decisions need to be made, validating tenets of Arnett's theory of emerging adulthood (Arnett, 2015).

The predictor variable of dual enrollment credits was a continuous variable from 0 to 60, indicating the number of dual enrollment credits a student possesses at college entry. Dual enrollment credits assist students in potentially reducing the time to completion by allowing students to arrive on campus with anywhere from 0 to 60 credits on their college transcript because of work completed while in high school. This means students could potentially reduce the time to completion by up to four semesters or two years assuming the full transfer of all 60 credits. The quantity of dual enrollment credits a high school student enters college with is quickly becoming a factor in establishing identity as an emerging adult. With the focus on identity exploration combined with the ability to make decisions that have an impact on the future, high school students may see dual enrollment credits as a means of shaping their perception of what adulthood looks like, and this perception validates Arnett's (2015) tenets of emerging adulthood. Students in the current study indicated that they arrived as college freshmen

with an average of 26.3 dual enrollment credits. While this number does not appear to statistically reduce the overall degree completion time, it does validate the importance this group finds in dual enrollment credits and their ability to potentially reduce time to degree completion as emerging adults. There are, however, some concerns surrounding the rise in the number of dual enrollment credits students are accruing and the implication on the educational experience of emerging adults.

As dual enrollment programs continue to rise, and the quantity of credits expands, some postsecondary institutions are questioning the course equivalency between a high school campus offering and a college-level course (Clayton, 2021; Coleman & Latta, 2022). The inception of these programs was built on offering rigorous college coursework to high school students during their final year of high school to better prepare them for postsecondary experiences (Coleman & Latta, 2022; Ison & Nguyen, 2021). Clayton (2021) highlights the role that state funding has played in increasing participation in dual enrollment programs while also diminishing participation in AP courses yet noting both were intended to provide rigorous postsecondary preparation (Clayton, 2021). The ability of a high school student to accrue 60 credits of college-level coursework while a high school junior or senior is rightly raising questions surrounding the original purpose of dual enrollment programs, the maturity of the students involved, and the academic rigor of the coursework (Burns, et al., 2019; Duncheon & Relles, 2020; Witkowsky, 2020).

The predictor variable of debt load upon graduation was a categorical value that was transformed to dummy variables to ensure continuous variables were utilized in the multiple regressions (Green & Salkind, 2017). The debt load variable had a value of 1 indicating low debt of zero to $10,000, a value of 2 indicating moderate debt between $10,000 and $40,000, and

a value of 3 indicating a high debt load of $40,000 or higher. On average respondents in this study had an average debt load value of 1.82 indicating most were graduating with low to moderate debt in the range of $0 to $40,000. College debt load following graduation is a determining factor in decisions surrounding the careers and residency of emerging adults. Witteveen and Attewell (2021) indicated students who take longer than the normal four years incur a greater debt load and earn 15% less overall income than their respective peers who graduated on time (Witteveen & Attewell, 2021). Therefore, a substantially lower debt load, combined with greater earning potential allows college graduates greater flexibility in residential decisions. Arnett (2015) correlates these residential decisions that emerging adults face with the term instability as this group potentially moves from home to a college campus to their own residence as an adult all within the years of 18 to 25 (Arnett, 2015). Those with a lower debt load upon graduation have a greater level of flexibility in deciding residency while those having a substantial debt load are more likely to consider moving back home upon completing their degree. In this research, 22% of participants indicated they had zero debt load upon graduation. Of those who had some measure of debt load, close to 60% indicated they were the ones solely responsible for mitigating that debt. This further validates the point that debt load upon graduation is a factor for consideration for graduates when it comes to residency, further contributing to Arnett's (2015) emphasis on the instability of residency among emerging adults. While debt load is an important consideration for the participants in this study, debt did not appear to limit futuristic thinking and responsibility around that thinking, both tenets of emerging adulthood (Arnett, 2015). Students with higher numbers of dual enrollment credits can explore options when considering degree pathway providing closer alignment between career objectives, peer groups, and income levels. A majority of participants in this research indicated that

alignment between their course of study and future career objectives was more important than financial stability, indicating they would not settle for a job simply because it paid the bills. In essence, regardless of debt load upon graduation, they are not selecting income over career satisfaction in their course of study demonstrating an introspective nature that is not to be underestimated.

The expectation of accepting responsibility for oneself and the pressure to make decisions for oneself increase due to being in a dual enrollment situation whether as a high school student or college student. Witkowsky and Clayton (2021) articulate the importance of school counselors in aiding dual enrollment students through these key decision points. While most counselors are asked to fulfill roles that are primarily administrative, Witkowsky and Clayton (2021) indicate that more time needs to be dedicated to assisting dual enrollment students with navigating the categories of career and interest exploration, thereby ensuring dual enrollment coursework aligns with these goals (Witkowsky & Clayton, 2020). Witkowsky (2020) in subsequent work also points out that high school counselors and college academic advisors have vastly different perspectives on dual enrollment students with the latter indicating a lack of maturity and the necessary soft skills required of being a successful college student (Witkowsky, 2020). This further points to the difference between dual enrollment students and college students and emphasizes the in-betweenness Arnett (2015) indicates throughout his theory of emerging adulthood.

While extensive research has been conducted on those factors which contribute to successful college completion, little has been conducted as to the impact that dual enrollment credits have specifically on time to completion. An and Taylor (2019) indicated the relationship between the number of DE credits and overall time to completion remains an area of needed

research. This study sought to add to the body of literature surrounding dual enrollment credits and time to completion. The results of this study aligned with other studies indicating more research is necessary to properly understand the role dual enrollment credits have on reducing time to degree completion and college debt load (An & Taylor, 2019; Ison, et al., 2022; Witteveen & Attewell, 2021). As dual enrollment programs continue to grow and take on different forms, it is essential that guidance be provided to potential students that is accurate in its ability to express the result of taking dual enrollment credits and focused more on the non-monetary benefits of participating in these programs. There is sufficient research to indicate that a student will profit from participation by being better prepared for college, more successful in college, and provided greater course flexibility while in college. If the time to degree completion is reduced, and if the debt load is reduced, these are only added benefits but not sufficient within the scope of the present research to be the primary reasons for participation.

Implications

When high school students are presented with the opportunity to take dual enrollment credits, they are often encouraged to do so for the fact that it will reduce the amount of time spent acquiring a four-year degree and how that will reduce the amount of debt they will experience once completing college (Burns, et al., 2019; Meyer, et al., 2021). While these are valid reasons why students should participate, the outcome of this research does not sufficiently support that model. Prevailing research indicates that students who do participate in dual enrollment programs are better prepared for college, have a higher college GPA, and persist to completion at higher rates than those who do not participate in dual enrollment, yet the argument for reduced time lacks evidence (An & Taylor, 2019; Henneberger, et al., 2020; Kremer, 2020).

An unintended consequence of promoting dual enrollment coursework has been the formation of recruitment partnerships between high schools and local postsecondary institutions. Ison & Nguyen indicated that 75% of the dual enrollment credits awarded to students occur through partnerships that are local and familiar to high school students (Ison & Nguyen, 2021). These can potentially blur the lines as institutions are placed in the dilemma of providing academic credit to the student and looking to increase the fiscal benefits for the institution (Jagesic, et al., 2021; Lee, et al., 2022; Meyer, et al., 2021). Following the completion of high school, Jagesic, et al, indicated that 84% of students enrolled in the college where they received their dual enrollment credits (Jagesic, et al., 2021). This is not to suggest impropriety, yet there is an obvious benefit to the institution to retain dual-enrollment students regardless of if the school is the best fit or the courses are truly equivalent. An interesting facet of this research would have been to inquire as to the alignment of where the students who participated in this study received their dual enrollment credits and their postsecondary choices.

Teachers, parents, school counselors, and others involved in giving postsecondary guidance to students should consider more carefully the reasons why dual enrollment should be pursued. The inception of dual enrollment programs focused on providing more academically challenging coursework to high school seniors who were college-bound yet has morphed into reduced time and debt reduction, (Burns, et al., 2019; Duncheon & Relles, 2020; Nordquist & Lueck, 2020). Subsequent research showed that college-bound students who participated in dual enrollment programs performed better upon arriving at college as indicated by increased college GPAs, less need for remedial coursework, and greater commitment to completing their degree (Kremer, 2020; Lee, et al., 2022; Meyer, et al., 2021). Entrance into these programs, therefore, has typically had parameters tied to high school GPA and academic performance to ensure

college-bound students seeking an academic challenge are selected. Acquiring dual enrollment credits for the sake of academic challenge and better transitions to college has morphed into completing college in the shortest amount of time under the auspices of cost savings. As the cost of a college education rises, and the amount of debt graduating students are carrying also rises, it is understandable that the prevailing reason for reducing one's time in college is reducing debt (Huelsman, 2018). This shifted objective has also created arguments focused on equity for underrepresented socioeconomic groups and racial and ethnic population equity in dual enrollment programs. While these are important factors, participation should remain in the ability to perform at an academically rigorous, college-preparatory level regardless of race, ethnicity, or rural or suburban residency. The inclination of completing college in the shortest time possible has hijacked the intent behind acquiring a degree and stripped the college learning process of elements that made more mature students adept at enhancing society. Further, it has formed enrollment pipelines from high school to college that may not be the most beneficial for the students and their interests or future careers. Students should therefore consider participating in dual enrollment coursework based on research that indicates it will make them a more successful college student than it does reducing their time to completion and potential debt load.

Limitations

The limitations of this study involve the population and sampling. A convenience sampling method was used due to the researcher's familiarity with and local proximity to the university where the population was derived. The population consisted of a narrow demographic and is part of a private, not-for-profit, religious university. Convenience sampling has limitations when applying the results to a broader population and one must be careful about interpreting results from one study across the population (Gall, Gall & Borg, 2007). University students were

allowed to voluntarily participate therefore racial, socioeconomic, and gender factors were not a part of the analysis. For example, 81.2% of the students enrolled are white, which reflects the population demographic of the state, results of this study may not accurately reflect those outside this demographic. Another limitation surrounds the socioeconomic status of participants. While this was not considered in this study it could prove valuable in ascertaining the ratio of debt load to family socioeconomic status and what role DE credits could play.

Recommendations for Future Research

After reviewing the findings of this study which examined the predictive relationship between dual enrollment credits and time to college degree completion and subsequent debt load upon graduation, five recommendations are made for future research.

1. Future research should be conducted that involves an expanded sample size. To provide more accurate data that can be interpreted across a greater population more colleges and universities should be invited to participate in this research.
2. Additional research should consider the socioeconomic status of participants to evaluate if low, moderate, and high levels of debt are a burden to the graduate. While this study evaluated whether students graduated with debt or no debt there was little indication provided as to the capability of the graduates to remedy that debt. This research could also be expanded to investigate the role that student loans have and whether a predictive relationship exists between student loan amounts and dual enrollment credits.
3. Further research is needed that differentiates private and public postsecondary institutions. The role that private and non-private colleges and universities should be considered as expanding this population will reflect a more diverse population.

4. Future research on this topic should utilize a more streamlined instrument. While the GSS is a valuable instrument in capturing data surrounding postsecondary experiences it is an extensive survey. Further research should utilize a more simplified instrument that focuses solely on DE credits, debt load, and potentially even socioeconomic factors. This would encourage more students to participate due to the brevity of such an instrument.
5. Additional research should be conducted around the argument of dual enrollment and college course equivalency. With an increase in the number and variety of dual enrollment courses being offered to high school students, there is a need for research to determine if there truly is an equivalency of experience and content between what a dual enrollment high school student experiences on a high school campus, and what that same student would experience if that course were taken on a college campus or even online.

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APPENDIX A

2022 HEDS Graduating Student Survey

This is a PDF representation of the online version of the survey. It includes all questions and response options, as well as notes (in italics) about how questions will display to survey takers.

Welcome to the Graduating Student Survey. Thank you for agreeing to participate!

This survey asks you to evaluate teaching practices and institutional conditions you experienced at [Institution Name], assess the impact of your college experience on your intellectual growth and development, and describe your plans following graduation. It should take about 15 minutes to complete. People at [Institution Name] will use this information to improve programs and practices for students.

Your survey results will be shared with a handful of people at [Institution Name] who work to help students succeed and improve teaching and learning. Anyone who has access to your responses is legally obligated to keep them confidential.

By clicking "Next", you indicate that you are at least 18 years old, have read and considered the above information about the survey, and agree to participate in the survey. Thank you for taking the time to share your thoughts. We appreciate it.
Students will see a "Next" button here.

1. Below are statements about your views of your faculty's interest in teaching and students. Please indicate the extent to which you agree or disagree with each.

Most faculty with whom I have had contact at [Institution Name] were . . .

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Genuinely interested in students.	☐	☐	☐	☐	☐
Interested in helping students grow in more than just academic areas.	☐	☐	☐	☐	☐
Good at providing prompt and useful feedback.	☐	☐	☐	☐	☐
Willing to spend time outside of class to discuss issues of interest and importance to students.	☐	☐	☐	☐	☐

2. Below are statements about your contact and interactions with faculty at [Institution Name]. Please indicate the extent to which you agree or disagree with each.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
My nonclassroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.	☐	☐	☐	☐	☐
My nonclassroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.	☐	☐	☐	☐	☐
My nonclassroom interactions with faculty have had a positive influence on my career goals and aspirations.	☐	☐	☐	☐	☐
I developed a close, personal relationship with at least one faculty member.	☐	☐	☐	☐	☐
I am satisfied with the opportunities I had to meet and interact informally with faculty members.	☐	☐	☐	☐	☐

APPENDIX B

Wed 2/2/2022 9:30 AM

You have our permission to use the survey per your description here. Please credit HEDS as the source as you indicate. Best of luck with your research.

Best,
[redacted]
Assistant Director
Center of Inquiry and HEDS Consortium

APPENDIX C

February 28, 2023

Re: IRB Exemption - IRB-FY22-23-527 The Relationship Between Time to Degree Completion and Dual-enrollment Credits

Dear [redacted]

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:104(d):

Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).
The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at [redacted]

Sincerely,
Administrative Chair of Institutional Research
Research Ethics Office

APPENDIX D

Consent

Title of the Project: The Relationship Between Time to Degree Completion and Dual-enrollment Credits
Principal Investigator: [redacted]

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be 18 years of age or older and either within 6-8 weeks of graduating from a four-year baccalaureate program at the [redacted] or graduated from a four-year degree program at [redacted] within the last year. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to determine if there is a predictive relationship between the number of dual enrollment credits a student earns and the overall length of time to college degree completion.

What will happen if you take part in this study?

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

1. Complete the survey using the provided Survey Monkey® link (15 minutes).

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

The benefit of this research to society is to provide better guidance to high school students as to which courses they should take in a dual enrollment model, why they should take these courses, and what the actual benefit of these courses are as it pertains to graduation and college debt load.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses to the online survey will be anonymous.

- Data will be stored on Survey Monkey® servers and downloaded to the researcher's computer once the required number of respondents has been acquired. Data will be stored on a password-locked file and may be used in future research and presentations. After three years, all electronic records will be deleted.

How will personal information be protected?

[redacted] Email addresses will be requested for compensation purposes; however, they will be collected through a separate survey from the study survey to maintain your anonymity.

Does the researcher have any conflicts of interest?

The researcher serves as an adjunct dual-enrollment professor at the [redacted] To limit perceived or potential conflicts, names will not be collected so the researcher will not know who participated. This disclosure is made so that you can decide if this relationship will affect your willingness to participate in this study. No action will be taken against an individual based on his or her decision to participate or not participate in this study.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with [redacted]. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is [redacted] You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at [redacted] or [redacted] You may also contact the researcher's faculty sponsor, [redacted]

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB. [redacted]

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.