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Dual Credit Instructor and Counselor Opinions Concerning the Effectiveness of Dual Credit Programs on Post-Secondary Readiness in Southwest Missouri

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by

Natalie Gail Cook

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A Dissertation submitted to the Education Faculty of Lindenwood University in partial fulfillment of the requirements for the degree of

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

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Abstract

Dual enrollment numbers continue to increase in public school districts; therefore, dual credit programs must be effective for students, adequately challenging them academically and preparing them for the college environment (Flores, 2014). The intention of this study was to survey dual credit instructors and counselors to determine their opinions of post-secondary readiness among dual credit learners in southwest Missouri. Results of the study were organized based upon significance regarding effectiveness. Researchers are uncertain concerning the effectiveness of dual credit programs for post-secondary readiness (Cowan & Goldhaber, 2015). This study was intended to close gaps in the research and to support educational participants as they continue developing and promoting effective mechanisms of the dual credit program. Data were gathered from instructors and counselors in southwest Missouri districts with dual credit programs to examine the effectiveness of dual credit on post-secondary readiness. In accordance with this investigation, dual credit has a statistically noteworthy effect on learners' post-secondary readiness by graduation. Dual credit students were observed to be more equipped for post-secondary settings by instructors and counselors.

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Chapter One: Introduction

As dual credit courses become more prevalent in the secondary school setting, it is probable more high school students will utilize dual enrollment programs not only to expand their education but to more adequately prepare for the college experience after high school (Giani, 2014). Though many states have developed specific policies to detail the frameworks of dual enrollment programs, varying state-based policies, as well as changing educational standards at higher education institutions, have resulted in significant differences among dual enrollment programs throughout the country and even within the same state (Giani, 2014). This can lead to circumspection among policymakers and decision-makers as to the efficacy of dual enrollment programs and to dissatisfaction with how programs are implemented.

Background of the Study

Dual credit curricula originally initiated sometime in the early 1970s to present secondary school learners the option to receive both secondary and post-secondary course credit concurrently and to make the high school-to-college conversion simpler for learners (Alfeld & Bhattacharya, 2012). Districts and colleges affiliate to present the program to secondary school participants (Barnett & Kim, 2014). Dual credit enables students to develop skills advantageous in secondary environments, post-secondary environments, and the labor force by means of amplified educational uniformity (Gehrig, 2010). As an additional advantage, dual credit offers real-life post-secondary involvement to secondary learners, resulting in improved curiosity in college programs (Barnett & Kim, 2014).

Participants in dual credit programs frequently move to post-secondary environments with an additional amount of self-confidence in their educational capabilities (Gehrig, 2010). According to Hofmann (2012), the platform can be outlined as an approach to advance students' completion statistics in both secondary and post-secondary programs, therefore decreasing the quantity of time to graduation. By decreasing the time to graduation, dual credit decreases the finances necessary for college for learners, families, and even the national budget (Trombley & Sallo, 2012).

In contrast, Edwards and Hughes (2011) noted the concurrent enrollment method for progressing student transition to college is of interest because its efficacy as a tactic for growing post-secondary completion rates is relatively untested. In addition to a deficiency of data on whether or not secondary students enroll and finish post-secondary plans of study due to concurrent enrollment coursework, there are complications and objectives connected with the following: classwork and curriculum value and reliability, participants who receive post-secondary classes rather than standard classes, and complex procedures for course transferal (Edwards & Hughes, 2011).

Fairness apprehensions concerning restricted admission also occur due to socioeconomic discrepancies, gendering to professions, cultural differences, and rural sites (Ferguson, 2014). The Association of American Colleges and Universities (2011) maintained dual enrollment, as well as Advanced Placement (AP) choices, are unsuccessful instruments for progressing post-secondary achievement of underrepresented learners. Dual credit and AP courses fail to quicken achievement of college credentials for a considerable number of students (Association of American Colleges and Universities, 2011).

According to Franklin (2010), the practice of permitting high school students to receive secondary and post-secondary coursework concurrently was initiated by J. W. Osborn in the early 1920s. Osborn confirmed this theory would eliminate unexceptional-level programs, which presented lack of rigor to more intellectually forward-thinking secondary learners (Franklin, 2010). Alfeld and Bhattacharya (2012) stated the program initially was put into practice to provide above-average learners more thought-provoking tasks outside of standard secondary classes. However, dual credit classes are no longer only for advanced learners; learners enrolled in dual credit courses are presently of varying levels of intelligence and from all backgrounds (Hughes, Rodriguez, Edwards, & Belfield, 2012).

Dual credit is intended to augment the shift from secondary to post-secondary by presenting more educational challenges comparable to college organizations (Gehrig, 2010). The conversion from secondary to post-secondary is not as simple for some learners as it is for others (Hofmann, 2012). There are numerous constituents influencing each student's decision to join a post-secondary program (Early College High School Initiative, 2010). Arum and Roksa (2011) declared learners are often not equipped with the educational expertise required for post-secondary coursework. In addition, some learners are missing the drive and social development required for the educational and societal obligations of higher education (Trombley & Sallo, 2012). Educational legislators have observed dual credit curriculum is a method of addressing educational and social issues that tend to increase high school and college dropout rates (Trombley & Sallo, 2012).

Balfanz et al. (2014) emphasized educational stakeholders are working to increase responsibility in schools as it relates to the knowledge level and abilities of secondary students. Dual credit permits secondary schools and universities to work together on learning principles and paths to reach national learning objectives (Balfanz et al., 2014). According to An (2013), educational professionals and policymakers are championing involvement in dual credit as one option to decrease post-secondary fees. A majority of dual credit participants begin their first official post-secondary year classified as sophomores (McDonald & Farrell, 2012). Learners who begin post-secondary programs with only three years left to graduation decrease out-of-pocket payments and educational debt by nearly 25% (McDonald & Farrell, 2012).

Educators have observed reduced degree achievement time and fewer educational fees are means of motivation for student involvement in dual credit coursework (Lichtenberger, Witt, Blankenberger, & Franklin, 2014). Educational stakeholders view the drive for education, in addition to enthusiasm pertaining to attaining post-secondary coursework during secondary school, as a powerful dynamism with the dual credit platform (McDonald & Farrell, 2012). Local and national legislators are being informed the dual credit platform is a critical factor to increasing post-secondary presence and graduation (Trombley & Sallo, 2012). Trombley and Sallo (2012) acknowledged in the last decade the number of post-secondary learners who obtained post-secondary completion in four years of college has declined. Learners who enroll in corrective classes as freshmen and who are unsuccessful in those corrective post-secondary classes require a prolonged timeframe in college (Tinto, 2012).

Scholars have yet to label the single cause of this occurrence; however, detachment between K-12 educational programs and colleges bears most of the liability (Howell, 2011). University educational leaders accuse the K-12 program of not training learners for the educational challenges of post-secondary coursework (Deming & Figlio, 2016). McNair, Albertine, Cooper, McDonald, and Major (2016) declared local education agencies are combating these allegations with the argument of restricted assets and other trials plaguing school districts. Trials educators confront include overcapacity in classrooms, absence of parental cooperation, and continuous program variations (Deming & Figlio, 2016). The K-12 organizations have argued they are accomplishing their best while bearing in mind the conditions (Trombley & Sallo, 2012).

The advent of the Internet has also dramatically changed the landscape of higher education, creating the opportunity for online courses to increase accessibility (Hong & Choi, 2015). Typically, education is geography-based, with students attending schools in a system based on where they reside (Hong & Choi, 2015). School location issues have led to disparities in educational opportunities, resulting in open enrollment, which allows parents to select their children's schools (Hong & Choi, 2015). However, geography has, in some instances, limited students' post-secondary educational opportunities (Hong & Choi, 2015). Online course offerings are beginning to shift the geographic mindset of education to one of opportunity and learning (Hong & Choi, 2015).

As technology has advanced, expanded online course offerings now include entire degree programs and a variety of educational models (Hegyesi, Ősz, Kártyás, Némethy, & Gáti, 2015). One area in which the development of online courses has changed the field of education is the utilization of online courses for dual credit by high school

students (Hegyesi et al., 2015). This sector of dual enrollment has typically come about because higher education institutions partnering with secondary schools implement online courses, and students eligible for dual credit become eligible to take online courses (Hegyesi et al., 2015). Online courses have allowed secondary learners to register in post-secondary classes with greater ease due to increased scheduling flexibility (Hegyesi et al., 2015).

To regulate enrollment in college-credit courses by high school students, states have implemented policies providing a framework for dual credit opportunities (Taylor, Borden, & Park, 2015). These programs vary by state, but are meant to guide school districts to allow concurrent enrollment for secondary learners (Taylor et al., 2015). One of the most important components of these policies is the provision of partnering with post-secondary organizations (Stephenson, 2014). According to Stephenson (2014), cooperative relationships in educational settings generate continuous paths, raise admissions, diminish replication of classwork, and permit improved administration of assets. Policies implemented by state educational boards effectively facilitate collaboration for dual enrollment programs (Stephenson, 2014).

Missouri is one state implementing specific policies regarding dual credit to ensure those who participate in dual credit benefit and to provide a framework for schools to partner with institutes of higher learning (Zinth, 2014). Contained in Missouri Revised Statute RSMo 167.223.1 (2016) is the following:

> Section 167.223, RSMo (1990), public high schools, in cooperation with Missouri public community colleges and public or private four-year colleges and universities, may offer postsecondary course options to high school juniors and

> seniors. Section 167.223, RSMo, was amended in 1998 to expand eligibility for dual credit enrollment to high school freshmen and sophomores. (para. 3)

Eligibility for dual credit focuses on admissions criteria from the perspective of the post-secondary institution (Zinth, 2014). Students must meet admissions criteria to the college or university, which varies based on the institution, and have at least a 3.0 grade point average (GPA) (Coordinating Board for Higher Education [CBHE], 2015). To be eligible for dual credit, freshmen and sophomores must demonstrate "superior academic talents" (Missouri Department of Higher Education, 2012, para. 9). The Missouri Department of Higher Education (2012) indicated school districts with concurrent enrollment curriculum in place are generally in agreement with the state plan. Despite the comprehensive policy in place for Missouri's dual enrollment program, which includes provisions for evaluation and transferability of credits and evidence of its use (Missouri Department of Higher Education, 2012), Missouri educators need evidence of the programs' effectiveness for preparing students for college coursework.

Conceptual Framework

The conceptual context for this research was based on Berger and Melaney's (2003) study to examine transfer student adjustment by investigating student experiences at both ends of the institutional route. Berger and Melaney (2003) studied the involvement of post-secondary participants and asserted configurations of educational and societal participation change as participants transfer from a two-year college situation to a four-year post-secondary setting. The framework also incorporated the Input-Environment-Outcome (I-E-O) model developed by Astin and Antonio (2012), which creates a structure for learning calculation and assessment by incorporating learner

involvement, the educational atmosphere in which the participant learns, and student outcomes.

Astin's I-E-O model (see Figure 1) underscores the need to have an understanding of student qualities and characteristics upon entry into an educational institution, the nature of educational environments, and student qualities and characteristics upon exit of the institution in order to fully evaluate its effectiveness.

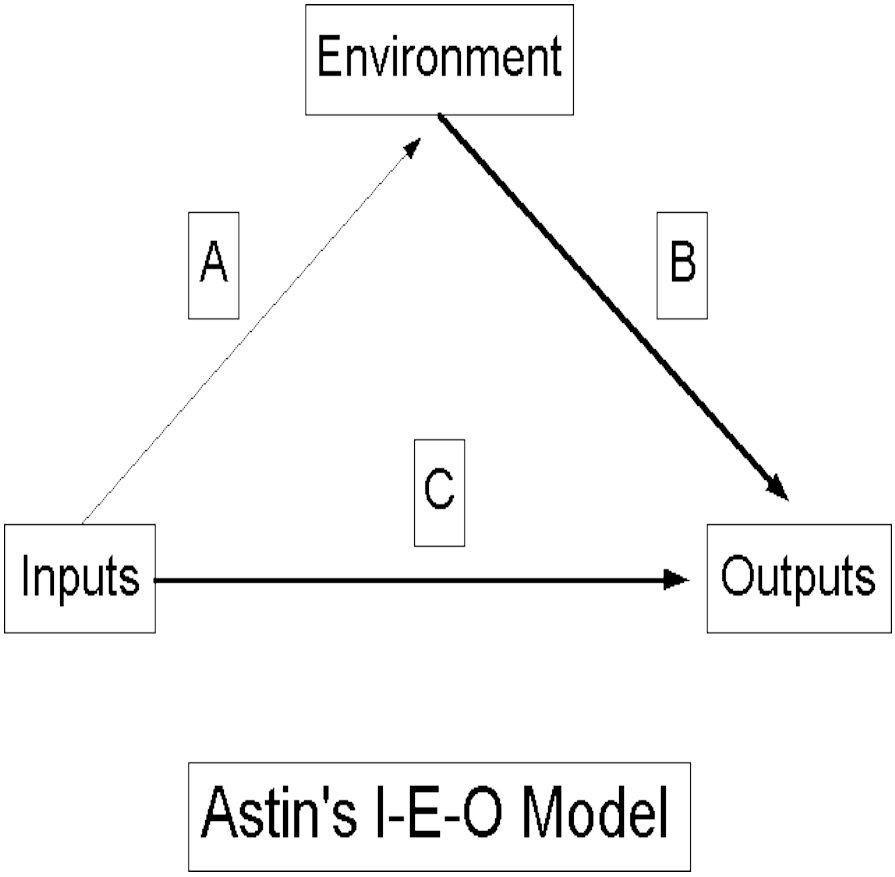

Figure 1. Astin's I-E-O model. Adapted from A. W. Astin & A. Antonio, *Assessment for Excellence: The Philosophy and Practice of Assessment and Evaluation in Higher Education*, 2012, p. 665. Copyright 2012 by Rowman & Littlefield.

The combination of these two frameworks can be adapted to allow for examination of the quantitative implications of dual credit course programs in Missouri's schools, as well as instructors' and counselors' perceptions of effectiveness and satisfaction with outcomes. Within the I-E-O framework (Astin & Antonio, 2012) and for the purposes of this research, the inputs (I) in the theoretical context are characterized as school geographic classification and school enrollment. The environment (E) incorporates online dual enrollment courses. The outcomes (O) include efficacy of the program based on students' academic performance, readiness for the college environment, and instructor and counselor perceptions of the effectiveness of the programs.

Statement of the Problem

While dual credit may perhaps be regarded as an important instrument to educational improvement in the United States, it does come with difficulties. Learner accessibility to dual credit courses and the value of dual credit coursework are strikingly different in most educational settings, affecting the merit of curriculum confronted by legislators (Taylor et al., 2015). According to Lichtenberger et al. (2014), the principles and guidelines of dual credit curricula contrast throughout the United States. Curricular criteria and strategies are unrelated to student suitability, class curriculum, and distribution to students (Arum & Roksa, 2011). As specified by Lee and Rawles (2010), all dual credit curricula ought to follow the criteria and rules for suitability, class curriculum, and distribution despite differences of demographics. Challengers of the curricula may have established their opinions grounded on the anomalies of the platforms occurring throughout the United States (Young, Slate, Moore, & Barnes, 2014).

Policymakers who argue against dual credit believe poorly subsidized schools cannot provide the educational challenge and application of post-secondary curricula to secondary school learners in a non-college setting (Brenneman et al., 2010). Other adversaries of the platform claim secondary school educators are incapable of teaching as university scholars, and learners are not really partaking in valid post-secondary encounters (Tinto, 2012). The National Center on Education and the Economy (2013) issued a report on college and work readiness and cited a two-year study which uncovered disturbingly low standards among dual credit college instructors.

There are local settings in which dual credit platforms are not reinforced, as well as others with increasingly low involvement among students (An, 2013). Dual credit involvement is extraordinary in regions of the state where dual credit is encouraged and established as of real advantage for all learners (Arum & Roksa, 2011). There are many pros and cons of dual credit in terms of educational reform in the United States (An, 2013). Policymakers are probing for inventive methods to entice more secondary students to post-secondary institutions and to aid in the learners' familiarity with the college setting (Deming & Figlio, 2016).

Holley (2016) asserted, with the two above-mentioned advantages to involvement, there ought to have been an outpouring in learner membership in dual credit courses across the United States. However, it seems dual credit platforms are not getting assistance from representatives and local schools in terms of promotion (Holley, 2016). There exists minimal investigation on dual credit and the advantages connected with dual credit involvement (Holley, 2016). Advocates have agreed legislators and the community do not possess the essential information to increase reinforcement and

resources for dual credit curriculum (Holley, 2016). Through years of investigation and thousands of findings relaing to educational improvement, information on dual credit is still limited in comparison to other educational programs (Howell, Kurlaender, & Grodsky, 2010).

Significance of the Study

According to Trombley and Sallo (2012), the dual credit concept has been proven increasingly effective in preparing students for college. The objective of the concurrent enrollment model is also to extend a college education to all learners, as dual credit connects to program education and policy (Edmunds et al., 2017). As identified by Tinto (2012), all secondary school graduates ought to be equipped for the switch to post-secondary avenues, despite location.

Legislators are considering more operative methods for dual credit curricula and other correspondingly created plans to be utilized for growing post-secondary enrollment and completion statistics (Karp, 2012). Dual credit courses for secondary school learners may be the searched-for influence on educational improvement in this nation, specifically for learners with restricted funds. Educational stakeholders might apply the conclusions of this investigation to reinforce their energies to inspire additional backing for involvement in dual credit courses as a crucial means for educational transformation. It is presumed most dual credit instructors and counselors are well-informed and qualified to understand what is and is not functional for students. Secondary school dual credit instructors and counselors can identify the competencies and deficits of learners and can convey useful understanding about the advantages of the curriculum.

Purpose of the Study

The purpose of this study was to examine successful teaching practices and program implementation for online dual credit coursework. By means of an investigation of such aspects as learner motivation, specific course tasks, participation, stages of involvement, and educators' opinions of dual credit program effectiveness as pertaining to post-secondary readiness, more effective concurrent enrollment programs can be designed to assist local education agencies in successfully implementing the dual credit model and learning environment. Dual credit instructors and counselors immersed in dual credit instruction and education will be able to utilize the study to augment their current courses.

Data were collected and organized based on significance to efficacy. This research is significant, because educators are uncertain regarding the effectiveness of dual credit for post-secondary readiness. A closer look at the benefits and requirements is becoming increasingly vital as dual credit curricula increase in attractiveness for learners (McDonald & Farrell, 2012). Both the local and national appeal of dual credit involvement has increased—explicitly with learners regarded as at-risk (McDonald & Farrell, 2012). Dual credit is a possibility for all students willing to participate in the rigor of college-level work; however, many professional educators question the curriculum's availability, coverage, and profit for all students (McDonald & Farrell, 2012).

High school and college registration is often unwelcoming, compelling educators and organizations to examine resolutions for problems in the educational setting (McDonald & Farrell, 2012). Ideal outcomes of dual credit involvement could

conceivably increase the number of learners who are well-equipped educationally and socially when enrolling in higher education institutions. Freshman post-secondary learners will be able to endure the educational challenges of college (McDonald & Farrell, 2012).

An additional advantage of dual credit involvement, acknowledged by Young et al. (2014), is a reduction in the time frame of completing a program, thus leading to a decrease in the price tag of a post-secondary degree. Akers and Chingos (2014) claimed student loan debt has amplified radically over recent years. According to Akers and Chingos (2014), student loan debt will sooner or later damage the nation's economy, since students find themselves irresponsibly borrowing money rather than preparing and saving for major purchases while taking advantage of investment opportunities and conserving. More organized post-secondary learners could equate to graduating more quickly, which might produce a decrease in student educational loan debt. Dual credit participation provides students with the essential skills for college readiness (Young et al., 2014). An increased number of students prepared for college will decrease the requirement for repetition of classes, eventually resulting in on-time program completion and potential early exit from post-secondary institutions (Young et al., 2014).

Research questions and hypotheses. The following research questions guided this investigation:

1. What difference, if any, is there between the opinions of dual credit instructors and counselors on the effectiveness of dual credit for post-secondary readiness based on gender and duration of teaching or counseling involvement?

$H1_1$: There is not a statistically significant difference between the opinions of dual credit instructors and counselors on the effectiveness of dual credit for college readiness based on gender.

$H1_2$: There is not a statistically significant difference between the opinions of dual credit instructors and counselors on the effectiveness of dual credit for college readiness based on duration of teaching or counseling involvement.

$H1_3$: There is not a statistically significant difference between the opinions of dual credit instructors and counselors on the effectiveness of dual credit for college readiness based on duration of teaching or counseling involvement and gender interaction.

2. What difference, if any, is there between the opinions of dual credit instructors and counselors concerning the learners' state of post-secondary readiness in multiple dual credit educational capacities?

$H2_0$: There is not a statistically significant difference between the opinions of dual credit instructors and counselors concerning the learners' state of post-secondary readiness in multiple dual credit educational capacities.

3. What difference, if any, is there between the opinions of dual credit instructors and counselors concerning how often particular educational tasks should be presented to increase learners' state of post-secondary readiness?

$H3_0$: There is no statistically significant difference between the opinions of dual credit instructors and counselors concerning how often particular educational tasks should be presented to increase learners' state of post-secondary readiness.

Definition of Key Terms

For the intentions of this research, the subsequent terms are explained:

At-risk student. An at-risk student is recognized as exhibiting one or more attributes thought to be connected with unenrolling from an educational program (Means, 2015).

College readiness. College readiness is the total understanding, expertise, and characteristics a student ought to hold to be equipped to be successful in post-secondary educational environments (Conley, McGaughy, Kirtner, van der Valk, & Martinez-Wenzl, 2010).

Dropout rate. Dropout rate is the portion of learners who leave an educational program at some stage within a determined cohort timeframe (Tinto, 2012).

Dual credit. Dual credit transpires when a high school learner is registered in a post-secondary level class for credit while still completing his or her high school diploma (Venezia & Jaeger, 2013).

Educational stakeholders. Educational stakeholders are individuals and groups who have an interest and concern in educational plans and procedures (e.g., families, learners, companies, and universities) (Educator Effectiveness, 2012).

Local education agency (LEA). Local education agency is a common term referring to a public elementary and secondary school district (United States Department of Education, 2016). For the functions of this study, the LEA refers mainly to the school district within the context of secondary school (United States Department of Education, 2016).

Online courses. Online courses consist of college-level academic courses completed primarily online or through a college or university's intranet (Yuan & Kim, 2014). These courses have minimal on-campus requirements, if any at all (Yuan & Kim, 2014).

Southwest Missouri. For the intention of this investigation, the southwest Missouri region was outlined corresponding to the margins labelled by the Southwest Regional Professional Development Center (Missouri Department of Elementary and Secondary Education [MODESE], 2014). The southwest Missouri region is the region occupying the lower and western portion of the state, accounting for the southwest part of Missouri (MODESE, 2014).

Limitations and Assumptions

The following limitations were identified:

Sample. A restriction of the research is the comparatively small sample size of public high schools in southwest Missouri. For this reason, conclusions as a result of this study cannot be comprehensive to the larger public. This investigation was limited to self-reported information and opinions of dual credit instructors and counselors on the effectiveness of dual credit courses for post-secondary achievement among dual credit students. As a result, the conclusions drawn as a result of the study are only applicable within the context of the Missouri educational system. However, the results can be applied to other states whose programs are similar to Missouri's, and the results do provide a framework for further research into the topic. Further, it is assumed the conclusions drawn will be primarily of interest to Missouri school districts to expand and improve dual enrollment programs and offerings.

Instrument. The instrument used to gather data was an online survey. Since the survey was completed online by high school dual credit instructors and counselors, the responses may reflect biases, preferences, or opinions rather than an objective assessment of the dual credit program. However, it was assumed dual credit instructors and counselors completed the survey honestly and with minimal bias. In addition, this limitation is mitigated through the use of quantitative data gathered through the survey, such as enrollment numbers and academic outcomes of the courses.

Summary

The current labor force requires a greater number of post-secondary educated individuals (Nilsson, 2017). More than half of the job growth in the United States in the next decade will require post-secondary education (Nilsson, 2017). Increasing the number of college-educated citizens benefits society and helps prepare the workforce to compete globally (Hazelkorn, 2015). College graduates are more likely to contribute to society, pay taxes, and vote in elections (Baum, Ma, & Payea, 2010). College graduates are less likely to require welfare, commit crimes, or be incarcerated (Baum et al., 2010).

Many high school graduates are not college-ready and require non-credit remediation courses in college (Crouse & Allen, 2014). Taking non-credit courses lengthens the time to earn a degree and often leaves students discouraged and prone to drop out of college before degree completion (An, 2015). Dual enrollment is a pathway noted to increase college readiness and college access for all students (Pretlow & Wathington, 2014).

Despite the comprehensive policy in place for Missouri's dual enrollment program, which includes provisions for evaluation and transferability of credits and

evidence of its use, Missouri educators must have evidence of the programs' effectiveness for adding to the knowledge and experience of high school students to prepare them for college coursework (Osher, Amos, & Gonsoulin, 2012). The study was guided by a combination of two frameworks adapted to examine the quantitative implications of dual credit course programs in Missouri's schools, as well as instructors' and counselors' opinions of their effectiveness and satisfaction with their outcomes.

In Chapter Two, a review of literature is presented. The main topics of discussion include the many facets of dual credit programs and career and vocational avenues associated with dual credit programs. Also included in the chapter are the implications of dual credit programs regarding policy, funding, and partnerships.

Chapter Two: Review of Literature

The researcher in this quantifiable investigation examined the opinions of dual credit instructors and counselors in relation to dual credit effectiveness for college readiness of secondary school students in southwest Missouri districts. Dual enrollment is an augmented educational curriculum for secondary school learners in the United States, often referred to as concurrent enrollment or dual credit (Arum & Roksa, 2011). In an attempt to increase understanding of the necessity of dual credit curricula and their usefulness, within this chapter is an examination of what dual credit is and the investigation used to cultivate the curricula. A review of relevant literature was used as an underpinning for this research study.

Specifically, southwest Missouri dual credit instructors' and counselors' opinions were investigated in relation to post-secondary readiness of dual credit students. This literature appraisal was intended to support the reader in comprehending the necessity for this investigation. Legislators question the legitimacy of dual credit curricula (Young et al., 2014). The policymakers who dispute ongoing and increasing costs of dual credit programs have implied there is little proof of dual credit programs' effect on overall college readiness (Young et al., 2014). The value of course sequences and ease of transference of dual credit courses have been under fire as well (Arum & Roksa, 2011).

History of Dual Credit Programs

Dual credit programs have not had a clearly defined beginning. Illinois's dual credit program history started in the early 1970s (Lichtenberger et al., 2014). Allen and Dadgar (2012) concluded dual credit program policy adoptions started in California in 1976 and increased as dual credit became popular. Unified Republican control of state

legislative bodies increased the likelihood of adopting a dual credit policy (Allen & Dadgar, 2012). Virginia has offered formal dual credit programs since 1988 with the emphasis of dual credit on the matriculation of students to college (Jones, 2014). The Texas Higher Education Coordinating Board indicated they have records back to 1999; however, some universities may have been accepting courses for college credit earlier than 1999 (Giani, Alexander, & Reyes, 2014).

In Florida, a goal of concurrent enrollment programs was enriched course opportunities and an accelerated mechanism for high school students to reduce the time necessary to obtain a baccalaureate degree (Lichtenberger et al., 2014). Academic rigor, a broad range of courses, an introduction to college expectations, a relevant curriculum, and cost reduction were all enhancements for students who took advantage of dual credit programs (Coffey, 2016).

Select states formed concurrent enrollment programs for improved connections among secondary and post-secondary organizations, enhancing regular school effectiveness, increasing demanding post-secondary preparatory program for all learners, increasing attainment of post-secondary students, and reducing remediation (An, 2015). Allen and Dadgar (2012) expanded on the benefits of dual credit; however, they believed the challenge of dual credit coursework and the decrease of culture shock are just as important or maybe more important than earning college credits, shortening the college time frame, and decreasing costs. Norris (2014) marked dual credit benefits as acceleration of progress, reduction in tuition costs, reduction of boredom, and facilitation of student recruitment.

In a dissimilar use of concurrent enrollment, Lake City Community College acknowledged the chore of delivering laborious and thought-provoking post-secondary classes in its concurrent education curriculum to substitute the honors curricula in the secondary school while reducing expenses (Taylor et al., 2015). In addition, concurrent enrollment alters the concentration on college from work-related training organizations and can offer a timely caution sign concerning learners' preparation for college (Becker, Hall, Levinger, Sims, & Whittington, 2014). Dual credit might enhance or improve students' prospects for college admission (Barnett & Kim, 2014).

Subedi and Powell (2016) acknowledged the proportion of learners who, after finalizing a concurrent enrollment class, were post-secondary efficient in reading comprehension. According to Subedi and Powell (2016), 88.5% of high school graduates in Texas were college-ready; 72.3% of Florida graduates were college-ready, 88.4% of Oregon graduates were college-ready; and 83.6% of Ohio graduates were college-ready. Additionally, students who successfully completed a dual credit course were college-ready in writing (90.1% in Texas, 70.8% in Florida, and 86.2% in Ohio) (Subedi & Powell, 2016). In math, college readiness was determined to be 81.1% for Texas students, 67.1% for Florida students, 76.4% for Oregon students, and 61.0% for Ohio students upon successful completion of a dual credit course (Subedi & Powell, 2016).

Another example of college readiness documented by Subedi and Powell (2016) was the presence of statistically significant positive relationships between attainment of post-secondary readiness in reading comprehension and writing with attained coursework (e.g., credit hours actually accepted by a college). Additionally, statistically significant positive relationships existed between concurrent enrollment coursework and post-

secondary attainment in math (Subedi & Powell, 2016). Godfrey, Matos-Elefonte, Ewing, and Patel (2014) provided evidence in their study that those students who were seniors and enrolled in dual credit courses, with a maximum of six credits per semester, demonstrated improved college readiness and more readily completed post-secondary programs in the prescribed time frame than did seniors not enrolled in concurrent enrollment classes.

In Michigan, lawmakers introduced legislation to expand students' choices (Cavanagh, 2011). If the proposals pass, students have more choices including easing dual credit course restrictions at public schools and allowing nonpublic school students to participate in concurrent enrollment classes (Cavanagh, 2011). As of June 2013, the proposal had not made any progress (Zinth, 2014). Policies in Illinois on dual credit acceptance depend on whether the university is private or public (Zinth, 2014). Public institutions use local policy (28.6%) and connections with community colleges/secondary schools (28.6%), whereas private institutions compare themselves to local organizations (33.3%) and consider requests from learners and families (33.3%) to make their decisions on dual credit program acceptance (Zinth, 2014).

Policy in Texas recently changed when the Texas Education Agency, in partnership with the Texas Higher Education Coordinating Board and associated with the American Institutes for Research and Gibson Consulting Group, Inc., managed an investigation of concurrent enrollment in Texas:

> As part of Texas' efforts to promote high school success and college readiness, legislation was passed in 2006 (HB1, §5.01,79th Texas Legislature, 3rd Called Session) that requires each local education agency (LEA) to implement a program

> under which students may earn the equivalent of at least 12 semester credit hours of college credit in high school. The result of that legislation, Texas Education Code (TEC) §28.009, was amended in 2007 to stipulate that the college credit may be earned through Advanced Placement (AP) courses, International Baccalaureate (IB) courses, local and statewide articulated courses, and courses for dual credit. (Dixon, 2017, p. 5)

An example of policy under which dual credit programs grew was in rural eastern Colorado at Morgan Community College, where interactive video was used to increase access to dual credit (Zinth, 2014). Unfortunately, the use of interactive video declined as expenses for concurrent enrollment classes were transferred from the state to high schools; therefore, some of the high schools suspended their dual credit programs due to lack of funds (Zinth, 2014). Until funds disappeared, the use of interactive video had increased the number of students taking dual credit courses (Zinth, 2014). In Colorado, of the 29 high schools in the dual credit program, nine of the 10 with the most participants had an enrollment of 40% of students eligible for dual credit (Zinth, 2014).

After the establishment of dual credit courses in various school districts, most high schools began offering dual credit courses (Rochford, O'Neill, Gelb, Ross, & Ughrin, 2014). Initially dual credit enrollment numbers were small; however, in recent years, dual credit enrollment numbers have increased (Lichtenberger et al., 2014). Enrollment in dual credit courses increased 41% from the 2011-2012 school year to the 2012-2013 school year with a total registration of 183 million participants in the U.S. (Dixon, 2017). For example, the number of Texas concurrent enrollees from fall 2007 to fall 2014 increased by 537% (Ganzert, 2014).

Although enrollments are increasing, rural schools tend to offer fewer dual credit courses and have lower student enrollments than urban schools, and females enroll more often than males in dual credit courses (Lochmiller, Sugimoto, Muller, Mosier, & Williamson, 2016). Contrarily, Pretlow and Wathington (2014) provided evidence rural high schools experience larger enrollments in dual credit than urban schools (Gagnon & Mattingly, 2016). This phenomenon was partially due to urban schools' use of AP programs while rural schools provide more dual credit classes (Gagnon & Mattingly, 2016). Moreover, white students enroll in dual credit in larger numbers than members of other ethnic groups (Gagnon & Mattingly, 2016).

Financial factors as well as other social factors contribute to student participation in dual credit in rural schools (Ferguson, 2014). Dual credit classes afford the opportunity for rural students to enroll in college classes at reduced costs, giving rural students the experience of college prior to attending as freshmen (Ferguson, 2014). Many states are experiencing dramatic growth in dual credit enrollment of both rural and urban students (Williams, 2015). One of the reasons for this development is an increase in legislative support through coordinating boards that define expectations, quality, and funding of dual credit classes (Hackmann, Bragg, & Malin, 2017).

Growth in dual credit programs leads to increased availability at additional locations (Pretlow & Wathington, 2014). National survey numbers in 2005 indicated 74% of concurrent enrollment courses occurred at a secondary school location, 23% of enrollments occurred on a college campus, and 4% of enrollments occurred through distance education (Vargas, 2014). The National Center for Education Statistics affirmed in 2005 that 71% of public high schools offered dual credit courses, whereas 67% of

public secondary schools offered AP courses (Vargas, 2014). Vargas (2014) acknowledged Illinois state survey results documenting enrollment during the 2001-2002 school year of 25,551 students in dual credit courses, which was an increase of about 100% from the previous year and 10 times the enrollment during the 1991-1992 school year. Vargas (2014) mentioned locating the dual credit program on the college campus opened substantial opportunities for dual credit students to enroll in a broader array of courses, including advanced educational technology and the use of more comprehensive facilities than those available at high schools.

In addition, locating dual credit classes on college campuses promotes positive interactions between high school and college students (Lile, Ottusch, Jones, & Richards, 2017). This increased diversity and interaction with older students helps younger students learn to take their academic endeavors more seriously (Lile et al., 2017). Course content areas for dual credit include social studies, English, math, and science, listed in descending order of demand, as opposed to AP that only offers classes in specific areas (Dixon, 2017). Additionally, at two high schools in Utah, the dual credit program grew to over 35 courses and increased the stimulus for students to keep learning in high school during senior year (Edmonds & Squires, 2016). When principals saw a need for a new course offering, they went to various colleges and universities and located a college or university that would offer the course (Edmonds & Squires, 2016). This diversity in courses helps high schools increase enrollment of dual credit students (Marken, Gray, & Lewis, 2013).

New initiatives in science, technology, engineering, and mathematics (STEM) have created special programs designed to increase student success and access to STEM

classes (Mattson, 2011). For example, Tennessee lawmakers, through funding from the Race to the Top initiative, developed dual credit classes designed for STEM fields in a virtual school through the Electronic Learning Center (Mattson, 2011). Georgia and Hawaii have STEM-related programs, and New York is expanding dual credit courses in math and science (Mattson, 2011**).**

A final example of the new use of dual credit is Greenwood High School. Greenwood is a laboratory school positioned on the campus of Missouri State University where many high school students are concurrently enrolled for classes (Missouri State University Greenwood Laboratory School, 2017). Most students graduate with a Greenwood transcript and a Missouri State University transcript (Missouri State University Greenwood Laboratory School, 2017). This university secondary school gives learners opportunities to attend high school while participating in college courses (Missouri State University Greenwood Laboratory School, 2017). Such opportunities provide students the ability to earn secondary school completion and a two-year degree simultaneously (Missouri State University Greenwood Laboratory School, 2017).

To improve the outcomes of dual credit classes and to eliminate the loss of scholarships for not having an associate's degree when entering a four-year college, Patrick County Public Schools now has the D-Squared Program that allows secondary learners to complete secondary school and an associate's program concurrently (Norris, 2014). In this D-Squared Program, 15.6% of the 2013 graduating class attained their associate's degrees, and all but one of the dual credit participants were accepted to their first college choice (Norris, 2014). Students in the D-Squared Program gave a 93% indication of a desire to attend college (Norris, 2014). The school district focused on

stimulating the entire student body to obtain college credits, and the graduating class of 2010 received 3,743 college credit hours with 95% of the students enrolled in dual credit classes (Norris, 2014).

Benefits of Dual Credit Programs

Research in dual enrollment focuses primarily on the benefits to learners in concurrent enrollment courses (Thacker, 2014). Advocates of dual enrollment, online or otherwise, tout the short- and long-term benefits to students' education (Thacker, 2014). According to Radunzel, Noble, and Wheeler (2014):

> Primary findings suggest, compared to students with no dual credit, students entering college with dual credit are generally: [m]ore likely to be successful in college, including completing a bachelor's degree in a more timely manner [and] [a]s likely to earn a grade of B or higher in subsequent courses taken on college. (p. 1)

In other words, when students take college-credit courses in high school, they are overall better-prepared for the challenges presented in college, resulting in better academic performance in college (Allen & Dadgar, 2012; Arnold, 2015). Many students face challenges when they go to college, because they are not academically prepared for the rigors of college education (Venezia & Hughes, 2013). Dual enrollment programs provide a safe and comfortable opportunity for students to see what college will be like for them, facilitating an easier and smoother transition (Venezia & Hughes, 2013).

In addition, students participating in dual enrollment programs not only do better academically, but have greater academic aspirations than their non-dual enrollment counterparts (Pyzdrowski, Butler, Walker, Pyzdrowski, & Mays, 2011). When students

participate in dual enrollment programs, they are able to see what they can accomplish and often find themselves more driven to continue challenging themselves academically once they leave high school and begin their college education (Pyzdrowski et al., 2011).

Another advantage of dual enrollment includes the social benefit to students (Hofmann, 2012). Specifically, a benefit of dual enrollment is the opportunity to experience the college environment while still in the protective atmosphere of secondary school (Franks, 2016). According to Hofmann (2012), "Dual enrollment embodies the college transition agenda from its unique position in the middle space−gap−between high school achievement and college readiness" (p. 3). In other words, dual enrollment can lessen the dramatic shift from secondary to post-secondary school by more adequately preparing students for what is to come when they reach the university level (Franks, 2016).

Effectiveness of Dual Credit Programs

University admission and graduation are strongly associated with dual credit and AP course completion, with students who successfully pass AP courses expected to acquire admission to traditional undergraduate institutions and dual credit learners on trajectory to pursue admission in technical programs and to be underrepresented at four-year colleges (Godfrey et al., 2014). Jaggars, Hodara, Cho, and Xu (2015) pronounced learners who productively finished concurrent enrollment classes were 16% more expected to pursue post-secondary entrance than were learners who chose not to attain concurrent enrollment status. Additionally, students increase their attainment of certificates or degrees in high school when successfully completing dual credit classes (Hughes et al., 2012).

Dual credit classes taken only at the high school did not result in the positive outcomes present when students completed the dual credit courses at a two-year college (Godfrey et al., 2014). Students in concurrent enrollment courses tended to graduate from secondary school and enroll in post-secondary programs (Godfrey et al., 2014). Lile et al. (2017) identified dual credit courses as effective for students only when they enrolled in the next course in a series and completed that subsequent course successfully. No difference was present between the GPAs of male and female dual credit students (Lile et al., 2017). Students who completed dual credit classes prior to college did significantly better than non-dual credit students in terms of GPA (Hughes et al., 2012; Young, Joyner, & Slate, 2013).

Correa and Kouzekanani (2011) outlined a statistically significant difference between students who participated in concurrent enrollment courses and learners who did not participate in concurrent enrollment courses, with students who enrolled in concurrent enrollment courses attaining higher GPAs. In addition, no difference in persistence between the two groups of students was documented (Correa & Kouzekanani, 2011). Ganzert (2014) indicated higher GPAs for learners who participated in concurrent enrollment classes than for learners who did not participate in concurrent enrollment classes.

Additionally, students returned questionnaires on which they indicated a belief of being better prepared by dual credit participation and completion (Ganzert, 2014). After reflecting on numerous studies, Ganzert (2014) speculated concurrent enrollment programs might well replace AP or honors curriculums in high school. Yet more evidence of the efficacy of dual credit programs was provided by Sullivan-Ham (2011),

who documented learners who previously participated in concurrent enrollment courses achieved greater GPAs in their initial semesters in post-secondary education in comparison to the initial-period GPAs of learners who did not participate in a concurrent enrollment program. Throughout the 1999-2000 academic period, the Running Start program's dual credit students earned an average GPA of 3.4 related to an average GPA of 3.1 for students who did not enroll in the Running Start program (Purnell, 2014).

Researchers in many states are examining the use of dual credit with respect to the effectiveness of dual credit courses (Purnell, 2014; Vargas, Roach, & David, 2014). For instance, according to Vargas, Roach, and David (2014), the Kentucky Council on Postsecondary Education indicated a modest positive effect at conclusion of sophomore college classes on student GPAs of one-third of a letter grade. Vargas et al. (2014) established learners who participated in concurrent enrollment classes experienced a high school GPA advantage and an American College Testing (ACT) composite score advantage over learners who never took concurrent enrollment classes. When these same students matriculated, their cumulative GPAs were 0.48 higher than the GPAs of students who matriculated but did not enroll in concurrent enrollment classes in secondary school (Vargas et al., 2014). Consequently, the students who had taken dual credit courses became full-time students quicker with an 836-day degree completion advantage (Vargas et al., 2014).

Challenges of Dual Credit Programs

Though dual enrollment is becoming much more prevalent in the United States, challenges continue to create barriers to successful program implementation, and there continue to be concerns and criticisms expressed by educators, learners, and families

regarding applicability of dual enrollment programs (Webb, 2014). One of the concerns of LEAs in regard to dual enrollment is the academic rigor of university-level classes for secondary learners (Webb, 2014). In other words, school districts want to be sure students who are taking university-level classes while still in secondary school are sufficiently challenged academically (Webb, 2014). According to Ferguson, Baker, and Burnett (2015), "Dual enrollment general education courses were at least as rigorous if not more rigorous than general education courses taught to standard students on the community college campus" (p. 89). This can be addressed through effective program development and careful coordination between the higher education institution and the secondary school district (Ferguson et al., 2015).

Along the same lines, Amey, Eddy, and Campbell (2010) explained faculty standards must be met to ensure students participating in dual enrollment are receiving the best experience possible. When courses are developed specifically for dual enrollment programs, the faculty hired for the courses may not meet criteria established by the higher education institutions (Amey et al., 2010). However, in order to adhere to the academic standards needed for the course to match college expectations, high school faculty instruction must also match college-level instruction (Amey et al., 2010).

Another challenge of dual enrollment programs is eligibility criteria. According to Hughes et al. (2012):

> While dual enrollment was previously an option for higher-achieving students who had taken all the advanced courses their high school had to offer, increasingly dual enrollment has come to be seen as a college transition strategy for a broader range of students. (p. 39)

That is, dual enrollment is beginning to be seen as a way to help better-prepare all students for the college experience rather than exclusively as a method for high school students to begin college education early (Hughes et al., 2012).

Another significant challenge is the lack of standardization of dual enrollment programs (Modarelli, 2014). This is due in part to the implementation of policies at the state or district level (Modarelli, 2014). The LEAs partner with higher education institutions and develop specific parameters for the partnership based on the criteria of the college or university and the district and state policies of the LEA (Modarelli, 2014). While there is a voluntary accreditation program for dual enrollment programs, there are no national standards used as a foundation for program development and monitoring (Modarelli, 2014).

Even within a single LEA, school districts partnering with multiple higher education institutions may have varying standards and expectations based on the course offerings and admission criteria of the higher education institutions (Modarelli, 2014). This can create confusion for students desiring to participate in dual enrollment and can perhaps even deter students from participating (Amey et al., 2010). The lack of standardization in dual enrollment programs can also lead to ineffective policies and lack of effective coordination in the programs (Amey et al., 2010). When coordinators are unable to work cohesively together, dual enrollment programs are much more likely to fail (Hughes et al., 2012).

Career and Vocational Dual Credit Avenues

Career technical education and vocational dual credit classes also function as a passageway to post-secondary education. Some researchers explicitly studied the profits

of technical dual credit curricula (Ganzert, 2014; Barnett & Kim, 2014). Technical and vocational classes appeal to lower and average academic performance learners who do not qualify for post-secondary eligibility for dual credit classes (Barnett & Kim, 2014). Barnett and Kim (2014) asserted learners who are self-doubting regarding their capabilities to accomplish post-secondary level coursework might choose technical dual credit programs.

Ganzert (2014) conducted a causal-comparative study in North Carolina to examine the effects of both traditional and vocational dual enrollment programs on persistence in college and first semester GPA. Inferential statistical methods were used to analyze a dataset of 15,527 high school graduates from 2003 through 2008 (Ganzert, 2014). Ganzert (2014) compared outcomes of students in traditional dual enrollment programs and students in vocational, technical, or medical dual enrollment programs. Ganzert (2014) concluded participation in dual enrollment programs, both traditional and technical, positively impacted persistence to graduation and higher GPAs in college. Dual enrollment students averaged a first semester GPA of 2.18 compared to an average GPA of 1.63 for non-dual enrollment students (Ganzert, 2014). Ganzert (2014) also noted technical and vocational dual enrollment courses exposed students to various trades and careers. In some cases, this encouraged student commitment to continue credit accumulation toward a degree or certificate (Ganzert, 2014).

Ganzert (2014) noted the value of technical dual enrollment courses in addition to more traditional general education courses. Not all students continue on to post-secondary education; some students lack the drive, motivation, or financing to continue on to college (Ganzert, 2014). Nevertheless, Ganzert (2014) noted students with some

college coursework are better prepared for the workforce than those with no college experience.

Dual Credit Influences on Remediation and College Readiness

According to Martin (2013), students are considered college-ready when they do not require remediation in college. Martin (2013) defined college readiness as earning a C or better in college-level courses. The Higher Education Research Institute reported 60% of first-year college students are not college-ready (Eagan et al., 2014). Consequently, many students require non-credit remedial or developmental courses before progressing to credit-bearing courses in college (An, 2015). Students must pay tuition for these remedial courses yet earn no credit (An, 2015). Enrolling in remedial courses lengthens the time it takes to earn a degree and often leaves students discouraged and more prone to drop out before degree completion (An, 2015). Increasing numbers of students dropping out of college before degree attainment is problematic, as employers will need three million more college-educated workers than will be available by 2018 (An, 2015).

A January 2013 report by Marken et al. for the National Center for Education Statistics indicated 19.9% of white students, 30.2% of black students, and 29% of Hispanic students reported taking remedial courses during the 2007-2008 academic year. These students were first-year college students enrolled in public institutions (Marken et al., 2013). Scott-Clayton and Rodriguez (2012) noted community colleges spend approximately $4 billion per year on remediation. It has been noted dual enrollment participation increases college readiness and reduces the need for remediation in college (An, 2013).

An (2015) elicited data through the Beginning Postsecondary Students Longitudinal Study and examined if dual enrollment participation influenced college readiness. An (2015) collected data on 14,090 college freshmen or first-semester students to examine the influence of dual enrollment participation and the need for remediation. Propensity score matching models were used to measure dual enrollment influence on college readiness and need for remediation (An, 2015). An (2015) acknowledged the possibility of hidden bias affecting the study; therefore, sensitivity analyses were conducted to ascertain the effect of hidden bias on study results. An (2015) found dual enrollment students were more college-ready and less likely to require remediation in college than non-dual enrollment students. Non-dual enrollment students were 13% more likely to require remedial coursework than dual enrollment students (An, 2015). An (2015) noted this is relevant since remediation is costly to the institution and the students, because students enrolled in remediation courses typically do not earn credit for those courses. Students may take longer to fulfill degree requirements and may become discouraged and drop out (An, 2015). In addition, students who drop out before degree completion may be unable to reap the full benefits of a college degree (An, 2015).

Similarly, Karp (2012) conducted semi-structured interviews with 26 first-time dual enrollment students in New York City. The dual enrollment courses were offered through two community colleges in New York City (Karp, 2012). Four of the students were white, while the remainder were students of color (Karp, 2012). Karp (2012) sought to determine perceptions of the role of a college student. A total of 76 interviews were conducted, and a case-construction method was used to analyze the data, which allowed the researcher to observe changes in perceptions over time (Karp, 2012). Karp

(2012) reported after participating in dual enrollment courses, students gained an understanding of what it is like to be college students.

This experience contributed to college readiness (Karp, 2012). Dual enrollment participation allowed the chance to "practice the role of college student" (Karp, 2012, p. 25). According to Karp (2012), of the 26 students interviewed, 17 reported dual enrollment increased their understanding of the role of college students. In the initial interviews, students had little knowledge of what it would be like to be a college student and little knowledge of the expectations in a college course (Karp, 2012). Over the course of the semester, these dual enrollment participants gained knowledge of college-level work and expectations (Karp, 2012).

According to Karp (2012), students learned what behaviors were necessary to succeed in college. Karp (2012) found dual enrollment is a way to prepare students to succeed in post-secondary education. Kanny (2015) also conducted semi-structured interviews with dual enrollment participants and sought to gain information on dual enrollment participation from the student perspective. Kanny (2015) conducted one-on-one interviews with five dual enrollment participants, four females and one male, from a Los Angeles charter school. The high school was in a low-income area, and 100% of the students were eligible for free and reduced lunch (Kanny, 2015). The school had a total of 520 students and a 90% Latino population (Kanny, 2015). Interviews were transcribed verbatim, analyzed, and coded (Kanny, 2015).

Three positive themes were identified including exposure to college-level work, ability to learn skills needed to succeed in college, and independence and freedom (Kanny, 2015). The interviewees reported positive perspectives related to experiencing

college-level work (Kanny, 2015). Students reported they felt prepared for the academic demands of college and reassured they could complete college work successfully (Kanny, 2015). One student who failed a dual enrollment course noted it was better to learn a lesson now rather than during the first year of college (Kanny, 2015).

In another study, Crouse and Allen (2014) sought to determine if dual enrollment students were better prepared than traditional students for later coursework in Iowa. This multi-year study included 186,823 students from 14 community colleges in Iowa (Crouse & Allen, 2014). The researchers compared outcomes of students who took a dual enrollment course and then went on to the next sequential course in the same content area when they enrolled in college to those of non-dual enrollment students who took the sequence of courses in college (Crouse & Allen, 2014).

Crouse and Allen (2014) reported using regression analysis to control for ACT scores, income, gender, and GPA. Dual enrollment students outperformed non-dual enrollment students in several courses including English, accounting, American history, economics, psychology, and biology (Crouse & Allen, 2014). The greatest difference was noted in English, while the differences in other courses were not considered "statistically significant" (Crouse & Allen, 2014, p. 506). For instance, the difference in an accounting course between the dual enrollment students and non-dual enrollment students was comparable to the difference between a B and B+ (Crouse & Allen, 2014). These findings offer support for dual enrollment programs being as effective as or more effective than traditional college courses in preparing students for future coursework (Crouse & Allen, 2014). Crouse and Allen (2014) further noted the non-minority participation rate was 45%, while the minority participation rate was approximately 23%.

Crouse and Allen (2014) recommended minority students be targeted for dual enrollment participation to avoid an educational disadvantage among minority students.

Student Support Services for Dual Credit

Offering dual enrollment may not be enough to ensure student success. Khazem and Khazem (2012) researched the role of advisement and support in successful dual enrollment programs. Five qualitative case studies were conducted in Michigan, California, Iowa, and Texas (Khazem & Khazem, 2012). Khazem and Khazem (2012) conducted over 100 interviews and made 61 classroom observations at various sites. Interviews were conducted with students, faculty, and staff (Khazem & Khazem, 2012).

According to the results from these case studies, Khazem and Khazem (2012) found it is not enough to offer credit-based transition programs like dual enrollment to low and mid-range students. Khazem and Khazem (2012) noted providing support and additional preparation for low and middle-achieving students is important. Credit-based transition programs "show promise" for low and middle-achieving students provided they receive the necessary assistance and developmental coursework (Khazem & Khazem, 2012, p. 861).

Low and mid-range students may require additional information, support, and counseling to fully understand the benefits and mechanics of dual enrollment (Khazem & Khazem, 2012). Therefore, under a social justice premise, providing additional support resources may be necessary and just to ensure low and mid-range students understand dual enrollment benefits (Khazem & Khazem, 2012). Students need to recognize the value of completing college coursework while in high school (Khazem & Khazem,

2012). Students may not fully grasp the benefits of dual credit courses, and support from counselors and advisors is critical (Khazem & Khazem, 2012).

The role of advisement and guidance counselors is worth noting. An (2013) reported low-socioeconomic students often lack parental input and knowledge regarding post-secondary education. An (2013) noted these parents, although committed to their child's academic success, lack experience and expertise with educational matters. Some parents are "intimidated and confused" by school officials and policies (An, 2013, p. 409). Therefore, parents rely on counselors and teachers to adequately inform and direct students (An, 2013). To promote social justice, additional efforts to guide low-socioeconomic parents and students may be necessary to ensure all students have access to dual enrollment benefits (An, 2013).

Epps, Epps, and Campbell (2015) researched the highlights and challenges of a dual enrollment program at Kennesaw State University in Georgia. This research included a quantitative analysis along with qualitative interviews (Epps et al., 2015). Although the focus of the study was on the dual enrollment program's impact on college, noteworthy information surfaced regarding the role of guidance counselors. Additional paperwork and counseling for dual enrollment students may prevent high school counselors from encouraging student participation (Epps et al., 2015). In a Georgia survey, 31% of high-performing students reported high school counselors discouraged participation in dual enrollment courses (Epps et al., 2015).

In these cases, students were encouraged to take AP courses rather than dual enrollment (Epps et al., 2015). Advanced placement courses do not serve mid-range students, and discouraging dual enrollment participation may limit the range of students

eligible to experience college-level work in high school (Epps et al., 2015). From a social justice standpoint, this practice may appear unjust, as many students could be denied the opportunity to experience college-level work and to earn college credits while in high school (Epps et al., 2015).

Although investigation on the efficacy of dual credit is somewhat incomplete, preliminary results indicate dual enrollment involvement can strengthen graduation rates and college admission while reducing expenses and time to achieve a college diploma (Cowan & Goldhaber, 2015). With additional challenging course tasks and class selections, dual credit can produce and intensify high school learners' attentiveness in the educational setting (Royster, Gross, & Hochbein, 2015). Exposing students to the college environment and expectations reveals to learners that they can be successful in a post-secondary courses and encourages them to pursue their educational goals (Royster et al., 2015). Once at the university level, students who participated in dual credit previously have an advantage on finishing their programs of study (An, 2015). Dual credit learners accomplish more in college than their peers who did not take part in dual credit; former dual enrollees require fewer remedial courses, have higher GPAs, and complete more courses (An, 2015).

Applications and Perceptions of Dual Credit Programs

Most states have adopted policies to regulate dual enrollment programs (Amey et al., 2010). The goal of the legislation is to provide a framework through which dual enrollment can occur for the benefit of the students in the state; however, this is not always effective (Amey et al., 2010). According to Amey et al. (2010), "Postsecondary institutions and high schools enter into dual-enrollment programs for well-intentioned

reasons. However, the literature suggests conflict sometimes develops from state policy or the relationship between partnering institutions" (p. 70). School districts and higher education institutions can develop effective partnerships when they coordinate goals to ensure they align, have flexibility to adapt to the needs of the students within the parameters of the partners, and when a liaison works actively to foster the positive relationship (Young et al., 2014). This suggests courses should not serve as a bridge between secondary school and post-secondary school, developed within a place "more than" high school but "less than" college, but should align with the college experience so when students become college students, they have authentic experiences from which to draw (Osher et al., 2012). The in-between experiences are more effectively aligned with AP courses rather than dual enrollment (Klopfenstein & Lively, 2012).

Since policies are developed at the state level, they often yield very different results when implemented. This can be illustrated in a comparison of Virginia's and Ohio's policies. According to Pretlow and Patteson (2015), "The most prominent difference is all dual enrollment in Virginia is offered through the 23 institutions the VCCS comprises, while any accredited Ohio postsecondary institutions, including for-profit institutions, can offer dual enrollment courses" (p. 22). While appearing to be a minor difference, it has significant implications. For example, in Virginia, routing all dual enrollment courses through the Virginia Community Colleges creates a level of credibility and accountability for the program (Rayborn, 2015). However, since any institution can offer dual enrollment in Ohio, students are more likely to experience significantly different levels of education and effectiveness of instruction (Ndiaye & Wolfe, 2016).

As dual enrollment programs have become more prevalent, different programs and implementation plans have been researched in order to create a framework for other LEAs to use in the development and implementation of their own programs. In the examination of an early program, Bailey, Jaggars, and Jenkins (2015) discussed the model used by Columbus State Community College. Their program creates specific requirements for enrollment, including what courses students can take (Bailey et al., 2015). This highly structured model shows the need for clear policies and cooperation between LEAs and higher education institutions in order for programs to be successful (Bailey et al., 2015).

Edmunds (2012) examined the use of an innovative model called "early college," which focuses specifically on preparing students for the college experience (p. 88). According to Edmunds (2012), "Early colleges represent an innovative approach to educating adolescents purposefully designed to support college readiness while eliminating the boundaries currently exist between high school and postsecondary education" (p. 88). This type of program is technically a dual enrollment program, since learners are concurrently secondary and post-secondary participants (Edmunds, 2012). Instead of focusing on college credit, these programs focus on college readiness (Edmunds, 2012). This shift in mentality can help circumvent some of the challenges faced by students in traditional dual enrollment programs (Edmunds, 2012).

Policymakers have emphasized the significance of the establishment of groups for learners and have endorsed the idea students should stay in the secondary school location to obtain satisfactory educational and community assistance (Cooper, 2016). University public schools are principally attentive to post-secondary readiness, while the secondary

school focuses on post-secondary shift (Cooper, 2016). In these courses, secondary school learners partake in post-secondary classes throughout the last half of secondary education (Cooper, 2016). For these advanced school programs, normally the secondary school is in adjacent affiliation with a nearby technical school (Cooper, 2016). Jobs for the Future has remained a solid initial sponsor of the beginning post-secondary model, divulging its assets to those of other organizations, the national administration, and state partners (Ndiaye & Wolfe, 2016). Additional cases comprise the Early College High School platform sponsored by numerous well-known organizations, including the Bill and Melinda Gates Foundation (Ndiaye & Wolfe, 2016).

Differences Between Dual Credit and Advanced Placement Courses

States are adopting programs to accelerate high school student success at both obtaining a secondary school degree and earning requirements for college courses, including AP, International Baccalaureate, Advance International Certificate of Education, Early College High School, and dual enrollment (Godfrey et al., 2014). The two major courses that accelerate high school students are dual credit and Advanced Placement (Klopfenstein & Lively, 2012). Dual credit was created to offer learners a chance to receive post-secondary credit, whereas AP was specifically designed for the following: (a) to sustain learner engagement; (b) to create a challenge for progressive learners who have expended their secondary schools' class listings; and (c) to offer a path for learners to finish secondary-level coursework before graduation (Klopfenstein & Lively, 2012).

An additional aspect of these programs is that neither dual credit nor AP are always available to students at each high school (Klopfenstein & Lively, 2012). Dual

credit offerings are more common when high schools are near community colleges or four-year colleges, whereas AP is offered in large, high-socioeconomic status institutions, which tend to be in outlying areas (Klopfenstein & Lively, 2012). The percentage of colleges that offered dual credit to secondary school learners in the nation in 2002 was 57% (Hughes et al., 2012). Dual credit enrollment increased as the student enrollment in high schools increased; that is, 36% of small-size high schools offered dual credit courses, compared to 74% of medium-size high schools, and 79% of large-size high schools (Hughes et al., 2012).

Another issue of importance related to dual credit programs involves teacher quality. Secondary school instructors who teach concurrent enrollment courses must have an advanced degree in the program of study they teach (Klopfenstein & Lively, 2012). Secondary school instructors who teach advanced placement courses are expected to have an undergraduate degree, a teaching credential for the subject they will be leading, and special preparation to instruct advanced placement classes (Klopfenstein & Lively, 2012).

The benefit of admission in concurrent enrollment classes is that college credit is received after passing the course with a grade of C or better (Klopfenstein & Lively, 2012). Taking an AP course by itself does not award college credit; the students must pass the AP test to receive credit (Klopfenstein & Lively, 2012). If students attain AP test scores required by the colleges to which the students intend to matriculate, only then is credit received (Klopfenstein & Lively, 2012). Dual credit courses can be any freshman course offered by the college, whereas AP courses are limited to certain subject areas (Klopfenstein & Lively, 2012).

Finally, dual credit classes meet at the college or at the secondary school, and advanced placement classes typically meet at the high school site (An & Taylor, 2015). Reporting on national numbers, An and Taylor (2015) described dual credit programs as having 1.2 million students enrolled and AP programs as having 1.8 million students enrolled. Dual credit and AP classes can co-exist at the same school, and the schools do not have to offer only one or the other (An & Taylor, 2015). For instance, in Geneseo, Illinois, the school district made a decision to give every learner the chance to receive post-secondary credits (Young et al., 2014). The school district initiative included several steps such as AP classes and dual credit, which resulted in increases in enrollment for AP from 150 to 214 and in dual credit from 36 to 91 in the small rural school district (Young et al., 2014).

With budget cuts in 2008 and 2009, funding became an area of concern for all programs (Young et al., 2014). Dual credit funding in Texas is as follows: 61% by the state, 18% by students and their families, 13% by institutions of higher learning, 6% by the local educational agencies, and 2% by the federal government (Young et al., 2014). Evidence for need of increased dual credit funding was demonstrated in a Texas study in which students successfully completed dual credit courses 99.9% of the time (Young et al., 2014). Funding for dual credit classes in Graham, Texas, is $38.00 less expensive than waiting and taking the class in college; however, if the students are on the free lunch program the dual credit class is free (Young et al., 2014). In another state, dual credit funding increased due to lower costs than other programs to award college credit (Young et al., 2014).

Williams (2015) indicated statistically noteworthy variances were not existent in freshman and sophomore GPAs between students who had taken AP or concurrent enrollment or both AP and concurrent enrollment and students who had taken neither prior to enrolling in a large urban research institution. In addition, Williams (2015) concluded students who enrolled in AP courses did not achieve higher GPAs than their classmates who chose not to enroll in AP courses. Additionally, experiences acquired in AP classes do not reliably predict first-semester college grades or retention when other characteristics such as student, school, and curricular events are controlled (Klopfenstein & Lively, 2012). Klopfenstein and Lively (2012) indicated state policies mandating AP classes and preferential treatment on college entrance might be ill-advised. Chargois and Hackett (2013) espoused an example of how dual credit participation might assist students in a subject area more effectively than AP.

Wood (2016) explained a quality concurrent enrollment program or dual credit program has the potential to expose more students to economics courses earlier and possibly increase interest in the subject matter for college-bound students because it produces college credit directly. Learners participating in concurrent enrollment economics courses performed better on the Test of Economic Literacy than learners who failed to take concurrent enrollment courses (Chargois & Hackett, 2013). Additionally, learners who registered in concurrent enrollment for credit performed as well or better on the Test of Economic Literacy than students who enrolled in AP classes or students who completed honors classes (Chargois & Hackett, 2013).

Online Learning

Another component of dual credit is online learning. Educators, students, and parents want to ensure students who enroll in college courses online are doing so to their own advantage; if the challenges outweigh the benefits of online courses, the time and energy saved from utilizing online learning environments do not make online classes worthwhile (Barrow, Brock, & Rouse, 2013). Additionally, students want to ensure their grades are at least equal to what they would be in a traditional learning environment (Barrow et al., 2013). While there are differences between seated and virtual course settings, the student outcomes between the two are negligible (Jaggars, 2013). This is particularly true when the online courses are for college credit; the purpose of dual enrollment is to provide students with an academic advantage when they graduate secondary school and begin post-secondary endeavors (Balfanz et al., 2014).

However, if learners fail in gaining advantage through dual enrollment, they may choose instead to participate in advanced placement courses at their high schools rather than taking college-credit courses in a higher education setting (Balfanz et al., 2014). Arnold (2015) examined the learning outcomes for high school students in various learning environments devoted to dual enrollment; however, online dual enrollment classes may not be the most effective learning environment for dual enrollment. While virtual courses may provide benefits to students due to schedule flexibility, the challenges of online courses can occur, and high school students may not be adequately equipped to overcome the challenges (Arnold, 2015).

One innovative form of online course is the vast open virtual option, which is a virtual class with infinite involvement numbers and open admission online (Seaton,

Bergner, Chuang, Mitros, & Pritchard, 2014). This type of course emphasizes student-led learning, and due to massive participation is a valuable method for collecting data about online courses (Terras & Ramsay, 2015). Researchers on vast open virtual options have revealed some of the challenges of online courses involve using time and resources responsibly (Seaton et al., 2014; Terras & Ramsay, 2015).

While time management is a challenge in and of itself for college-level students, it can be a more difficult challenge for high school students who are used to the highly-structured, teacher-led environment in high school (dela Pena-Bandalaria, 2013). Teachers create the foundation of learning in online courses, but the courses are predominantly student-led (dela Pena-Bandalaria, 2013). This can lead students to procrastinate and not utilize resources, such as reaching out to the instructor, in order to facilitate success (dela Pena-Bandalaria, 2013). To address some of these challenges, online courses can be structured to combat them; for example, an online course can utilize group work to increase student collaboration (Smith & Kellogg, 2015).

Some challenges in online courses come from the material being covered. While some college courses can be effectively taught by disseminating information in a lecture or discussion format, other courses are more effective when instructors can model or simulate the material being learned (Balci, Deater-Deckard, & Norton, 2013). However, it can be difficult to provide modeling and simulation, as well as hands-on experiences, in an online class setting (Balci et al., 2013). Higher education institutes generally present two options in response to this challenge: require a minimal amount of time on-campus for modeling and simulation or integrate a lab course component to the online course, which would also require time on-campus (Balci et al., 2013). While some online

courses instead use videos and video-conferencing to eliminate needed on-campus time, this may not be possible or practical for all course offerings (Balci et al., 2013). This challenge for dual enrollment programs limits students to what courses they can take if they cannot meet on-campus requirements (Balci et al., 2013).

Despite the challenges of online courses, there are benefits as well. The most obvious benefit, particularly for high school students, is schedule flexibility (Petrovíc, Tralić, & Pale, 2015). Students who are in dual enrollment programs can utilize online courses to expand the specific courses they can take, giving them a greater number of opportunities and experiences within the program (Petrovíc et al., 2015). They are not limited by the course catalog schedule (Petrovíc et al., 2015).

Another benefit of online courses, particularly within the context of dual enrollment programs, is the use of formative assessment and formative self-assessment as a tool in the course (Petrovíc et al., 2015). Formative self-assessment provides students in online courses the opportunity to self-evaluate their progress in the course and determine what, if anything, they need to change or what resources they need in order to be more effective (Petrovíc et al., 2015). This is beneficial for dual enrollment, because assessing progress and needs throughout the course allows instructors to modify the curriculum during the semester to better meet student needs (Petrovíc et al., 2015). In addition, assessment information can provide insight to LEAs and dual enrollment program coordinators and liaisons as to the effectiveness of the courses and students' use of them (Petrovíc et al., 2015).

Policy, Funding, and Partnership Implications

Many researchers in the area of dual credit have noted funding issues (Krueger, 2014; Struhl, 2013; Zinth, 2015). Dual enrollment funding varies across districts throughout the country (Krueger, 2014). States, colleges, high schools, and students may be burdened with covering tuition costs (Zinth, 2015). There may be additional costs, including employing a coordinator or liaison between the college and the high school (Zinth, 2015). In the Wozniak and Palmer (2013) Michigan study, subjects "rank[ed] 17 barriers to expansion of postsecondary options" and identified funding as the "most severe issue" (Wozniak & Palmer, 2013, p. 4). According to Wozniak and Palmer (2013), 83% of the survey respondents in the Michigan study noted funding to be a serious barrier to expanding dual enrollment programs.

According to Krueger (2014), funding deficits may result in additional fees for dual enrollment participants. Additional fee requirements influence further participation in dual enrollment courses, particularly for students who are unable to pay (Krueger, 2014). These fees may also contribute to unequal access to dual enrollment for these students compared to those in other districts where free college credits and no additional fees are an option (Krueger, 2014). Unequal access to dual enrollment based on funding issues is leaving low-income students at a disadvantage (Krueger, 2014). A policy regarding dual enrollment funding may address funding challenges throughout a state (Krueger, 2014).

These funding issues vary among participating colleges and high schools. In addition to funding challenges, other issues arise surrounding communication between credit-offering colleges and high schools. Although the number of students entering

college has been consistent over the past decade, the number of students earning a degree has not kept pace (Zinth, 2015). The National Center for Public Policy on Higher Education reported 60% of first-year college students are not college-ready (Zinth, 2015). These students require non-credit remedial courses before progressing to credit-bearing courses (Zinth, 2015). Taking non-credit courses lengthens the time it takes to earn a degree and often leaves students discouraged and more prone to drop out before degree completion (An, 2015).

To address issues related to college access, college readiness, and degree attainment, several initiatives and pathways have been implemented. The Obama Administration, in a report from the Executive Office of the White House, initiated the Expanding College Opportunity project to increase college opportunities for all students, particularly those from low-income households (Spelling, 2006). One major goal of the Expanding College Opportunity project included allocating resources to increase college readiness (Spelling, 2006).

Additionally, the 21st Century Commission of Future Community Colleges called for a 50% increase in community college completion rates by the year 2020 (Spelling, 2006). This call to increase led to United States Secretary of Education Margaret Spelling's command to increase community college completion rates (Spelling, 2006). The Every Student Succeeds Act, signed by President Barack Obama in December of 2015, supports dual enrollment as a college readiness strategy to better prepare high school students for college (Lowe, 2015). This act updated the No Child Left Behind Act and focuses on increasing graduation rates and college readiness, as well as closing the achievement gap for minorities and low-performing students (Lowe, 2015).

Programs that increase college enrollment, college readiness, and student success and persistence in college benefit students, employers, and society (Perna, 2015). Dual enrollment is one means to increase college readiness, college access, and persistence in college among participants (An, 2015). Forty-seven states have dual enrollment policies and legislation (Education Commission of the States [ECS], 2016).

Missouri has a statewide policy; however, several components are not defined (ECS, 2016). Regulations on whether students can take remedial coursework for dual credit are not included in the policy (ECS, 2016). The maximum allowed accumulated dual credits a student may earn is not defined in the policy (ECS, 2016). Lastly, Missouri state policy does not require students or parents to be notified of dual credit opportunities (ECS, 2016). The lack of a comprehensive statewide policy may lead to the absence of dual credit programs or to differences in dual enrollment programs and student participation in public schools in Missouri.

Howley, Howley, Howley, and Duncan (2013) concentrated further on the affiliations between colleges and high schools. Howley et al. (2013) piloted semi-structured interviews with professionals in a partnership of high school and college programs. Four visible topics were recognized, including “Border Crossers” and “Organizational Power Dynamics” (Howley et al., 2013, p. 87). Each of these topics included a notable association to overall “communication dynamics” and the significance of constructive interaction between the K-12 institution and university (Howley et al., 2013, p. 88). Exposed communication networks permit groups to allocate objectives, ideas, challenges, and other matters (Howley et al., 2013). Communication disparities

between the two institutions may influence class coursework and criteria amid organizational environments (Howley et al., 2013).

A few dual credit instructors inexperienced with grading processes, expectations, and university guidelines did not have assistance and leadership from university educators (Howley et al., 2013). This added to "power dynamics," as the university educators had better policy understanding and familiarity than the high school instructors (Howley et al., 2013, p. 94). According to Howley et al. (2013), high school instructors of dual credit classes profited from supplementary collaboration and acknowledged the value of a liaison to deal with problems and apprehensions. High school educators profited from encouragement and help from professors acquainted with the university's syllabi necessities and semester deadlines (Howley et al., 2013). This liaison enhanced the operation of the dual credit platform and the outlooks of the high school instructors concerning the program (Howley et al., 2013).

In a comparable qualitative investigation in Kentucky, Stephenson (2014) utilized Rapid Assessment Process, semi-structured interviews, and a virtual survey to study dual credit associations at Bluegrass Community and Technical College and West Kentucky Community and Technical College. The survey concentrated on administrative relationships and involved open and closed-ended questions and rating scales (Stephenson, 2014). Participants mentioned the significance of "open and honest" interaction and assistance between university and K-12 associations (Stephenson, 2014, p. 13). Exposed, well-defined interactive networks make available a method to seek assistance and deal with concerns (Stephenson, 2014).

When these administrative concerns and interaction holes occur, both the universities and the schools may stop playing a part in dual credit initiatives (Howley et al., 2013). This denies learners in these high schools the similar prospects as those offered in other schools (Howley et al., 2013). There are a variety of cooperative concerns that may influence the achievement of a dual credit relationship (Howley et al., 2013). Communication between both educational institutions is essential (Howley et al., 2013).

Summary

Gaps have been revealed in the current available literature on the topic of dual credit courses. A portion of the holes relate to time of the investigation, the trial size and setting, and the experience of the contributors. A majority of current investigation is centered on curriculum advantages to minority learners or at-risk learners and fails to offer a clear illustration of the overall profits of the curriculum plan. Advantages of dual credit courses are of benefit not only to a select group of students.

Addressed in the literature review was a history of dual credit starting with when dual credit was created, why dual credit was created, what policy changes occurred from the start to the present, status of student enrollment, and new initiatives that affect dual credit. In addition, compared in the review were dual credit offerings with other programs through which college credit is offered for high school students. Additionally, a review of dual credit standards for enrollment, standards of the program, and teacher qualifications was completed. Participation in dual credit programs was reviewed, as well as how to broaden participation, followed by quality of concurrent enrollment courses and the success of students who take concurrent enrollment courses.

Also reviewed were students' perceptions of the benefits of concurrent education courses. Finally discussed was the efficacy of concurrent enrollment programs with respect to improvements in student preparedness for college, increases in high school GPA, increases in college GPA, and increases in the number of dual credits completed. The literature reviewed in this study reflects the following: (a) strengths and weaknesses of dual credit programs, (b) issues related to maintaining quality of dual credit programs, (c) diversification of student enrollment, (d) level of rigor maintained, and (e) cost effectiveness compared to AP programs.

Additionally, in this review of the literature, the existence of gaps in research in the capacities of qualified investigations on concurrent enrollment, advanced placement, and various post-secondary credit curricula emerged. Cost-benefit analysis studies need to be conducted with respect to dual credit versus AP and other college credit programs. That is, the costs of college credit programs, both for students and for school districts, need to be contrasted.

Only limited research has been conducted regarding the effects of dual credit when students matriculate directly to a four-year college or university. Most of the studies available are from community colleges. In future research studies, dual credit courses, along with AP and IB programs, should be included for comparison. Additional investigation must be focused on the results of programs where students who are underachieving are tutored and then receive the opportunity to take dual credit programs.

Researchers have expounded on the effectiveness of this approach for students who do not believe they can do college-level work. Dual credit has the opportunity to close the gap between graduating high school and succeeding in college. Though dual

credit, in addition to other post-secondary credit curricula, is rather prevalent, its attractiveness is constructed on marginal practical examination. As such, it is essential investigators inspect these post-secondary credit programs and policymakers provide funding for such studies.

In the next chapter, the methodology of the study is explained. An overview of the problem and purpose is presented, the research questions and hypotheses are restated, and the research design is described. The specific aspects of the study are detailed, such as the population and sample, instrumentation, data collection process, and data analysis procedures.

Chapter Three: Methodology

In the field of education, research is often used to understand a situation in order to improve it, particularly for the benefit of the students who are impacted by it (Wellington, 2015). By conducting research, educators can have a better understanding of a situation, the challenges it presents, its benefits, and how to integrate the area of research into practice to further students' education. This chapter details the research methodology utilized in this investigation.

The intention of this chapter is to explain the investigative strategy, method, selection of participants, and selection of tool employed for this research. The purpose of the investigation was to determine and compare the opinions of dual credit instructors and counselors concerning the effectiveness of dual credit involvement on post-secondary readiness in southwest Missouri. A survey was used to elicit the opinions of southwest Missouri dual credit instructors and counselors concerning the effectiveness of dual credit involvement on learner achievement in post-secondary environments.

Quantitative methods were utilized for this research. Quantitative methodology is the most effectual means to gather numeric information on a populace to characterize the conclusions to a larger populace (Creswell, 2013). Such data have been confirmed valuable for legislators and interested parties of dual credit platforms (Young et al., 2014).

This chapter contains the processes and procedures implemented for this quantitative research. There are gaps in dual credit literature, particularly in Missouri, on preparedness of learners for college when completing secondary coursework. Key stakeholders frequently have difficulty understanding the concrete transformation dual

credit makes in successful learner outcomes because of gaps in the literature (Young et al., 2014). This study was intended to close gaps in the literature and to support educational leaders in identifying successful procedures to maintain, improve, and endorse the dual credit platform.

Problem and Purpose Overview

Insignificant investigation has been performed on instructors' and counselors' opinions of dual credit and the advances of the dual credit plan (Young et al., 2014). This study included examination of the opinions of dual credit instructors and counselors to conclude if there are noteworthy variances between their opinions of post-secondary readiness of dual credit learners in southwest Missouri.

Research questions and hypotheses. The following questions guided this research:

1. What difference, if any, is there between the opinions of dual credit instructors and counselors on the effectiveness of dual credit for post-secondary readiness based on gender and duration of teaching or counseling involvement?

$H1_1$: There is not a statistically significant difference between the opinions of dual credit instructors and counselors on the effectiveness of dual credit for college readiness based on gender.

$H1_2$: There is not a statistically significant difference between the opinions of dual credit instructors and counselors on the effectiveness of dual credit for college readiness based on duration of teaching or counseling involvement.

$H1_3$: There is not a statistically significant difference between the opinions of dual credit instructors and counselors on the effectiveness of dual credit for college

readiness based on duration of teaching or counseling involvement and gender interaction.

2. What difference, if any, is there between the opinions of dual credit instructors and counselors concerning the learners' state of post-secondary readiness in multiple dual credit educational capacities?

$H2_0$: There is not a statistically significant difference between the opinions of dual credit instructors and counselors concerning the learners' state of post-secondary readiness in multiple dual credit educational capacities.

3. What difference, if any, is there between the opinions of dual credit instructors and counselors concerning how often particular educational tasks should be presented to increase learners' state of post-secondary readiness?

$H3_0$: There is no statistically significant difference between the opinions of dual credit instructors and counselors concerning how often particular educational tasks should be presented to increase learners' state of post-secondary readiness.

Research Design

Quantitative investigation is most effectively used once the investigator has exposure to information to infer assumptions and form concepts from that information (Creswell, 2013). This methodology provided augmented understanding of dual credit participants' acquisition of post-secondary readiness upon conclusion of the dual credit curriculum in southwest Missouri districts. This research contributes to the importance of the platform for Missouri high school learners with appropriate skills for the educational rigor of post-secondary endeavors. A survey was modeled on a dual credit

instructor and high school counselor survey created by the National Association of Concurrent Education Programs (2016).

Population and Sample

For this investigation, the southwest Missouri region was determined corresponding to the boundaries labeled by the Southwest Regional Professional Development Center (MODESE, 2014). The southwest Missouri section contains the southern and west regions of the state, deriving the southwestern portion of Missouri (MODESE, 2014). The small and limited sample goal of 30 participants, consisting of dual credit instructors and counselors, may not generalize to the greater populace of dual credit instructors and counselors in the United States.

Prior to collecting data, permission was received from the Lindenwood University Institutional Review Board (IRB) (see Appendix A). This investigation included dual credit instructors and counselors within southwest Missouri districts. Requirements for a teacher in the secondary setting to be selected to teach dual credit courses are additional to those of regular classroom instructors in the school (Taylor et al., 2015). The instructor must also meet the requirements of the affiliate college for employing adjunct teachers (Taylor et al., 2015). These requirements comprise, but are not restricted to, a master's degree completion in the area of study and/or 18 graduate credits in the area of study (Taylor et al., 2015). The district counselors were chosen based on their previous and current involvement with secondary learners, in particular dual credit participants.

There were approximately 111 districts emailed to take part in the investigation. School districts in agreement to participate were asked to forward the survey to all dual credit instructors and counselors in the secondary setting. A letter to administrators (see

Appendix B) and the informed consent letter (see Appendix C) were also included in the email. In order to be eligible for participation, the LEA had to have a policy in place for dual credit and students currently participating in the dual credit program. Further, the dual credit program had to allow for the inclusion of online courses with at least one student enrolled in an online course.

Instrumentation

The instrument for this project was the *NACEP Concurrent Enrollment Instructor Survey Essential Questions and NACEP Guidance Counselor Survey Essential Questions* from the National Alliance of Concurrent Enrollment Partnerships (NACEP) (2016). This instrument (see Appendix D) was selected because the NACEP Essential Questions for Evaluation Surveys are mandatory to be used by all NACEP-accredited dual credit programs as well as all organizations pursuing NACEP certification (National Alliance of Concurrent Enrollment Partnerships [NACEP], 2016). The Essential Questions are utilized to accomplish curriculum assessment requirements (NACEP, 2016). The NACEP (2016) has established and confirmed these platform assessment survey items.

The survey implemented contains three demographic questions, 25 Likert-scaled inquiries, and one open-ended question. Cronbach's alpha reliability coefficient was used for finding internal reliability in the survey (Tavakol & Dennick, 2011). Three divisions of the survey produced consistency coefficients between 0.70 and 0.90. The numerous dual credit areas of the NACEP (2016) survey yielded a value of 0.86. The dual credit tasks segment of the survey's value was 0.73, and the advantages segment was 0.94.

Authorization to utilize and adjust the NACEP survey was acquired for use in this study (see Appendix E). Approval to modify the survey was granted and involved substituting the term *guidance counselor* for *counselor* and the term *concurrent enrollment instructor* for *dual credit instructor*. With approval, the aggregate sequence of items was condensed to 25 Likert-scaled items with the addition of three demographic items. Also with approval, items numbered 7 and 8 from the initial survey were removed, as those items did not apply to the research in this investigation.

Data Collection

Information gathered for this research was assembled from data yielded from the survey instrument. Dual credit instructors and counselors in southwest Missouri districts were invited to participate in this study. The Qualtrics database was used to deliver the survey to participants and to store information for analysis.

Once permission to begin the research study was obtained, the researcher contacted the superintendent of each school district. After obtaining approval from the district superintendent, an administrator from each district was contacted to determine through what means the investigator was to continue with the gathering of information and to forward the survey and study specifics to dual credit instructors and counselors within the district. The email notified the dual credit instructors and school counselors of the goals of the study, advantages, school association, and process for contacting the researcher. The email also contained the steps achieved to ensure identification and survey information remained confidential. In addition, specific details of the time requirement of approximately 10 minutes and the survey link for online access were divulged. The survey was made available to participants for three weeks in an attempt to

receive the maximum potential answer percentage for the maximum consistent data. Qualtrics was used to disseminate the information into Microsoft Excel where the data were further analyzed for the investigation.

Data Analysis

Along with demographic questions, the survey included 25 Likert scale items and one open-ended question. The survey responses were analyzed using descriptive statistics, such as mean and standard deviation. Opinions of college readiness of dual credit instructors and high school counselors in multiple areas were quantified using a five-point Likert scale in the first section of the survey. Participants were asked to rate course contents using ratings of *Far below average, Somewhat below average, Average, Somewhat above average,* or *Far above average.* The second section of the survey focused on assigned tasks for dual credit efficacy on college readiness. Participants were asked to rate course-assigned tasks using ratings of *Never, Once, Once during the course, Periodically,* or *Once a week or more.* The third section of the survey focused on perceptions of dual credit instructors and high school counselors of dual credit general efficacy outcomes on college readiness. Participants were asked to rate outcome effectiveness using a five-point Likert scale of *Strongly disagree, Disagree, Neither agree nor disagree, Agree,* or *Strongly agree.* The last item on the survey was open-ended for the respondents to make suggestions on how dual credit participation can increase college readiness.

An Analysis of Variance (ANOVA) test was used to compare the means based on gender and years of experience. According to the NACEP (2016), all statistical tests were evaluated at a two-tailed significance level of .05. The independent *t* test was

utilized to examine perceptions of the variables of the dual credit instructors and counselors.

Summary

This chapter included a description of the procedure for the present investigation on dual credit programs. This study included examination of the perceptions of dual credit instructors and counselors as related to dual credit effectiveness on post-secondary readiness of students in southwest Missouri districts. The contributors to this research and the procedure of choosing a research area were outlined in this chapter, in addition to the collection procedure and conditions for involvement.

An additional section of this chapter was instrumentation. The instrumentation portion defined the survey utilized for the study. The survey items were directed by the research questions. The data analysis portion defined how the investigator processed data gathered from the responses. The investigator guaranteed all contributors' identities were secure and there were minimum risks from the research. The data were described in summative means to diminish the risks of revealing personal identities of the participants.

Information gathered was managed in a confidential and appropriate way to guarantee confidentiality of all surveyed as well as the cooperating schools. No information pertaining to specific individuals, individual schools, or individual districts was collected in this research. All responses to the survey instrument were anonymous and kept confidential. Composed information was examined as summarized in this chapter. The procedures utilized for examination were clarified to substantiate the legitimacy, consistency, and credibility of the investigator and the information

concluded from this study. In the next chapter, an extensive analysis of the data is presented.

Chapter Four: Analysis of Data

The purpose of this study was to inspect the opinions of instructors and counselors concerning dual credit effectiveness on post-secondary readiness. Chapter Four includes displays of investigation outcomes from answers of instructors and counselors elicited via virtual quantitative instrumentation. The information were evaluated by means of an independent *t* test in addition to the two-way ANOVA with replication.

Instrumentation

The instrument utilized for this project was adapted from the *NACEP Concurrent Enrollment Instructor Survey Essential Questions and NACEP Guidance Counselor Survey Essential Questions* by the National Alliance of Concurrent Enrollment Partnerships (2016). This instrument (see Appendix A) was selected because the NACEP Essential Questions for Evaluation Surveys are to be used by all NACEP-accredited dual credit programs as well as all organizations pursuing NACEP certification (NACEP, 2016). The Essential Questions are utilized to accomplish curriculum assessment requirements (NACEP, 2016). The NACEP (2016) has established and confirmed these platform assessment survey items.

The survey implemented contained three demographic questions, 22 Likert-scaled inquiries, and one open-ended question. Cronbach's alpha reliability coefficient was used for determining internal reliability in the survey (Tavakol & Dennick, 2011). Three divisions of the survey produced consistency coefficients between 0.70 and 0.90. The numerous dual credit areas of the NACEP (2016) survey yielded a value of 0.86. The

dual credit tasks segment of the survey's value was 0.73, and the advantages segment was 0.94.

Data Analysis

Demographics. The demographic information gathered revealed 77 participants responded to the instrument. The respondents were comprised of 73% females and 26% males. Experience was dispersed between the two groupings of dual credit instructors and counselors. Dual credit instructors reporting 0-5 years of teaching expertise comprised 65%. The dual credit instructors reporting five or more years of teaching expertise comprised 35% of participants. Counselors reporting 0-5 years of counseling expertise equaled 36%, while counselors reporting five or more years of counseling expertise characterized the biggest grouping with a total equaling 68% (see Table 1).

Table 1

Participant Demographics

Variable	*f*	%
Gender		
Males	17	26
Females	48	73
Years of Expertise		
0-5	27	41.5
5 or more	27	58.4
Type of Expertise		
Dual credit instructor	40	61.5
High school counselor	25	38.4

Note. $n = 77$.

Reliability of the Instrument

According to Fraenkel, Wallen, and Hyun (2016), reliability of a survey instrument is dependability of the scores acquired. To establish the reliability of the instrument used by the participants, the Cronbach's Alpha test was administered to assess for internal consistency. The method of establishing uniformity within a survey shows the degree to which questions evaluate a similar opinion or view (Fraenkel et al., 2016). There must be an interrelatedness of questions, or the instrument cannot be considered reliable (Fraenkel et al., 2016). Adequate data rates of alpha range from 0.70 to 0.95 (Panayides, 2013).

Consistency breakdown within the survey included the reliability of the survey computed as $\alpha = .88$. The reliability of the survey on the opinions of instructors and counselors of dual credit course components was $\alpha = .95$. The reliability of the survey on the opinions concerning assigned tasks was $\alpha = .78$, whereas the reliability of the survey on the opinions of outcome success was $\alpha = .84$.

Survey Descriptive Statistics

In addition to items related to demographic data, the instrument incorporated 25 Likert- scale items. The instrument answers were examined by means of descriptive statistics, such as mean and standard deviation. Opinions of post-secondary readiness of instructors and counselors in course components were calculated via a four-point Likert scale on items 4-11. Values used to calculate the replies were as follows: 1 = *Far below average*, 2 = *Somewhat below average*, 3 = *Average*, 4 = *Somewhat above average*, and 5 = *Far above average* (see Table 2).

Survey question four. *Please rate how well you perceive Dual Credit students' levels of college readiness in communication skills.*

Seventy-seven participants responded, which equated to a response rate of 100%. Of this percentage, no participants reported levels of college readiness in communication skills as far below average. Ten percent of responders reported communication skills as somewhat low, 27% reported levels of college readiness in communication skills as average, and communication skills were reported as somewhat above average by 53% of participants. Finally, 7% reported levels of college readiness in communication skills as far above average.

Survey question five. *Please rate how well you perceive Dual Credit students' levels of college readiness in scientific inquiry*.

Seventy-seven participants responded, which equated to a response rate of 100%. Only one participant reported scientific inquiry levels of college readiness among dual credit learners as far below average, while 5% reported scientific inquiry levels of college readiness as somewhat low. Forty-two percent of responders reported scientific inquiry levels of college readiness as average, and 49% of instructors reported a somewhat above average level of scientific inquiry skills of college readiness. Lastly, 2% reported a far above average level of scientific inquiry.

Survey question six. *Please rate how well you perceive Dual Credit students' levels of college readiness in Mathematics*.

Seventy-seven participants responded, which equated to a response rate of 100%. Only one participant reported mathematics college readiness levels among dual credit learners as far below average, while 7% reported mathematics college readiness levels as

somewhat below average. Twenty-nine percent of participants reported college readiness levels in mathematics as average, and 45% of educators reported dual credit learners having somewhat above average skills in the area of math. Lastly, 16% reported dual credit learners as having a far above average level of college readiness in mathematics.

Survey question seven. *Please rate how well you perceive Dual Credit students' levels of college readiness in Written Expression.*

Seventy-seven participants responded, which equated to a response rate of 100%. Two responders reported written expression levels of college readiness among dual credit learners as far below average, while 10% reported written expression levels of college readiness as somewhat below average. Sixteen percent of educators reported written expression levels of college readiness as average, and 51% of participants reported dual credit learners having somewhat above average written expression levels of college readiness. Lastly, 21% reported far above average college readiness levels of written expression among dual credit learners.

Survey question eight. *Please rate how well you perceive Dual Credit students' levels of college readiness in Reading comprehension.*

Seventy-seven participants responded, which equated to a response rate of 100%. Of this percentage, no participants reported reading comprehension skills as far below average. Four percent reported reading comprehension as somewhat below average. Seventeen percent of educators reported reading comprehension as average, and 58% of those responding reported dual credit learners as having somewhat above average skills in reading. Lastly, 21% reported dual credit learners demonstrate a far above average reading comprehension level.

Survey question nine. *Please rate how well you perceive Dual Credit students' levels of college readiness in Critical thinking and problem solving*.

Seventy-seven participants responded, which equated to a response rate of 100%. No participants reported critical thinking and problem solving skills as far below average. Six percent reported critical thinking and problem solving as somewhat low. Thirty-one percent of educators reported critical thinking and problem solving as average among dual credit participants, and 49% of those responding reported dual credit participants as having somewhat above average levels. Lastly, 13% reported students have far above average critical thinking and problem-solving skills.

Survey question 10. *Please rate how well you perceive Dual Credit students' levels of college readiness in Persistence to completion*.

Seventy-seven participants responded, which equated to a response rate of 100%. Of this percentage, no participants reported persistence to completion qualities as far below average. Six percent reported persistence to completion as somewhat low. Eighteen percent of educators reported persistence to completion tendencies as average among dual credit participants, and 45% of those responding reported dual credit participants as having somewhat above average persistence levels. Lastly, 30% reported far above average persistence to completion qualities.

Survey question 11. *Please rate how well you perceive Dual Credit students' levels of college readiness in Investigative skills*.

Seventy-seven participants responded, which equated to a response rate of 100%. Two participants reported investigative skills among dual credit learners as far below average, and 6% reported somewhat below average investigative skills. Thirty-one

percent of participants reported investigative skills as average, and 45% of educators reported a somewhat above average level of investigative skills. Lastly, 14% reported dual credit learners exhibit far above average investigative skills.

Table 2

Survey Questions 4-11 Means and Standard Deviations

Item Number	Description	*M*	*SD*
4	Oral communication skills	3.6	.84
5	Scientific inquiry	3.48	.73
6	Mathematics	3.6	.84
7	Written expression	3.6	.91
8	Reading fluency	3.71	1.03
9	Abstract thinking and analysis	3.91	.74
10	Persistence to completion	3.9	.89
11	Investigative skills	3.6	.92

The second portion of the survey focused on assigned tasks for dual credit effectiveness for post-secondary readiness with items 12-19. There were four values used to measure the responses: 1 = *Never*, 2 = *Once during the course*, 3 = *Periodically*, and 4 = *Once a week or more* (see Table 3).

Survey question 12. *Please rate how often completing written projects of five or more pages should be assigned to Dual Credit students to augment students' levels of college readiness*.

Seventy-seven participants responded, which equated to a response rate of 100%. Two percent of responders reported written projects of five or more pages should never be assigned, while 32% reported they should be utilized once during the course. Sixty-two percent of educators reported written projects of five or more pages should be assigned periodically, and 2% responded these projects should be assigned once a week or more.

Survey question 13. *Please rate how often presenting oral content to class should be assigned to Dual Credit students to augment students' levels of college readiness*.

Seventy-seven participants responded, which equated to a response rate of 100%. None of the responders supported never assigning oral presentations. Twenty-nine percent chose assigning oral presentations once during the course. Sixty-eight percent of educators reported oral presentations are assigned periodically, and 4% of educators reported assignment of oral presentations once a week or more.

Survey question 14. *Please rate how often Discussions among classmates should be assigned to Dual Credit students to augment students' levels of college readiness*. Seventy-seven participants responded, which equated to a response rate of 100%. No one responded never assigning class discussions or only assigning them once during the course. Eighteen percent of educators assign discussions periodically, and 82% of participants assign class discussions once a week or more.

Survey question 15. *Please rate how often Memorization of content and data should be assigned to Dual Credit students to augment students' levels of college readiness.*

Seventy-seven participants responded, which equated to a response rate of 100%. Four percent of responders reported never assigning memorization activities, and 5% reported assigning them once during the course. Fifty-eight percent of educators reported memorization should be assigned periodically, and 32% reported assigning memorization tasks once a week or more.

Survey question 16. *Please rate how often Team projects requiring critical thinking should be assigned to Dual Credit students to augment students' levels of college readiness.*

Seventy-seven participants responded, which equated to a response rate of 100%. None of the educators chose never for assigning team projects requiring critical thinking, while 17% chose assigning them once during the course. Forty-five percent of educators reported the assignment of team projects periodically, and 38% assign team projects once a week or more.

Survey question 17. *Please rate how often Application of theory to real-life situations should be assigned to Dual Credit students to augment students' levels of college readiness.*

Seventy-seven participants responded, which equated to a response rate of 100%. Two educators chose never as a frequency for assigning application of theory to real-life situations, and only one participant reported assigning the task once during the course. Forty-five percent of educators reported periodically, and 50% of instructors reported

assigning application of theory to real-life situations once a week or more during a dual credit course.

Survey question 18. *Please rate how often technology incorporation should be assigned to Dual Credit students to augment students' levels of college readiness*.

Seventy-seven participants responded, which equated to a response rate of 100%. Only 6% reported never assigning technology-based tasks or only assigning them once during the course. Thirty-two percent reported assigning technological tasks periodically. Sixty-one percent of educators reported assigning technology once a week or more.

Survey question 19. *Please rate how often Investigative tasks of inquiry should be assigned to Dual Credit students to augment students' levels of college readiness*.

Seventy-seven participants responded, which equated to a response rate of 100%. No one responded with the choice of never when asked how often investigative tasks should be assigned. Five percent reported assigning investigative tasks once during the course. Forty-nine percent of educators reported periodically, and 45% of participants reported investigative tasks of inquiry should be assigned once a week or more.

Table 3

Survey Questions 12-19 Means and Standard Deviations

Item Number	Description	*M*	*SD*
13	Completing written projects (5 or more pages)	2.7	.56
14	Class presentations	2.7	.50
15	Class discussions participation	3.82	.39
16	Memorization of concepts, data, or processes	3.22	.67
17	Team projects requiring critical thinking	3.2	.67
18	Application of theory to real-life scenarios	3.46	.61
19	Technology-driven tasks	3.55	.66

The third section, items 20-25, concentrated on opinions of instructors and counselors of dual credit general outcome effectiveness on post-secondary readiness. There were five values used to quantify the responses: 1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Neither agree nor disagree*, 4 = *Agree,* and 5 = *Strongly agree*. The last question on the instrument was presented in an open-ended format allowing participants to construct recommendations on how dual credit involvement can enhance post-secondary readiness (see Table 4).

Survey question 20. *As a result of taking a Dual Credit course, students are exposed to more challenging content than average courses*.

Seventy-seven participants responded, which equated to a response rate of 100%. No responders reported they strongly disagree or disagree dual credit courses expose

students to more challenging content than average courses. Forty-five percent of educators reported neither agreeing nor disagreeing, and 42% of participants reported agreeing that as a result of taking a dual credit course, students are exposed to more challenging content than average courses. Lastly, 53% responded they strongly agree dual credit students are exposed to more challenging content than students in average courses.

Survey question 21. *As a result of taking a Dual Credit course, students raise the probability of seeking post-secondary education programs*.

Seventy-seven participants responded, which equated to a response rate of 100%. There were no responders who reported they strongly disagree or disagree students are more likely to seek college education as a result of taking a dual credit course. Thirty-four percent of educators reported they neither agreed nor disagreed, and 60% of educators reported strongly agreeing to an increase in probability students will pursue post-secondary coursework as a result of participating in a dual credit program.

Survey question 22. *As a result of taking a Dual Credit course, students are motivated to complete school*.

Seventy-seven participants responded, which equated to a response rate of 100%. There were no responders who reported they strongly disagree or disagree students are more motivated to complete high school as a result of taking a dual credit course. Eleven percent of respondents neither agreed nor disagreed, and 34% reported they agree as a result of dual credit, student motivation to complete high school increases. Lastly, 55% reported they strongly agree as a result of taking a dual credit course, students are more motivated to finish school.

Survey question 23. *As a result of taking a Dual Credit course, students develop practical expectations of post-secondary learning*.

Seventy-seven participants responded, which equated to a response rate of 100%. There were no responders who reported they strongly disagree students develop practical expectations of post-secondary learning as a result of taking a dual credit course. Four percent reported they disagree with dual credit's effect on student development of practical expectations of post-secondary curriculum. Nine percent of educators reported they neither agree nor disagree with an increase in appropriate expectations of post-secondary learning, and 52% reported they agree as a result of taking a dual credit course, students gain appropriate expectations of post-secondary learning. Lastly, 35% reported they strongly agree.

Survey question 24. *As a result of taking a Dual Credit course, students increase post-secondary program goals*.

Seventy-seven participants responded, which equated to a response rate of 100%. There were no responders who reported they strongly disagree or disagree students increase post-secondary goals as a result of taking a dual credit course. Seventeen percent of educators reported neither agreeing nor disagreeing, and 42% of instructors reported agreeing and strongly agreeing students' post-secondary goals increase as a result of taking a dual credit course.

Survey question 25. *As a result of taking a Dual Credit course, students increase overall college-readiness levels*.

Seventy-seven participants responded, which equated to a response rate of 100%. One participant responded strongly disagreeing overall college readiness levels increase

as a result of taking a dual credit course. Six percent reported disagreeing with the statement dual credit courses increase overall college-readiness levels. Seventeen percent of educators reported neither agreeing nor disagreeing, and 61% of participants responded they agree dual credit courses increase college readiness among student participants. Lastly, 14% reported strongly agreeing with an increase in overall college-readiness levels among dual credit students.

Table 4

Survey Questions 20-25 Means and Standard Deviations

Item Number	Description	*M*	*SD*
20	Research skills	3.4	.58
21	Participate in more rigorous learning than standard high school courses	4.48	.59
22	Increase their likelihood of pursuing post-secondary education	4.5	.59
23	Are motivated to stay in school	4.4	.70
24	Develop realistic expectations of post-secondary work	4.2	.74
25	Raise their post-secondary educational aspirations	4.18	.73

The maximum mean ($M = 4.50$, $SD = .59$) was on survey question 22, affirming the majority of participants reported learners taking dual credit coursework increase their likelihood of pursuing post-secondary education. The lowest means ($M = 2.70$,

SD = .56) and (*M* = 2.70, *SD* = .50) on questions 13 and 14 concerned the frequency of assigned tasks including written projects and oral presentations.

Research question one. Survey items 1-25 helped to identify opinions of teachers and counselors in relation to gender and duration of teaching or counseling expertise. The greatest rated mean score was 4.5 on item 22. The smallest recorded mean score was 4.18 on item 25 (see Tables 5 and 6).

Table 5

Instructor and Counselor Opinions Based on Fewer than Five Years Expertise

Item Number	Item Description	*M*	*SD*
	As a result of taking a Dual Credit course, students:		
21	Participate in more rigorous learning than standard high school courses	4.33	.62
22	Increase their likelihood of pursing post-secondary education	4.48	.58
23	Are motivated to stay in school	4.33	.62
24	Develop realistic expectations of post-secondary coursework	4.04	.65
25	Raise their post-secondary educational aspirations	4.0	.68

Note. *n* = 77.

Table 6

Instructor and Counselor Opinions Based on Five or More Years Expertise

Item Number	Survey Item	*M*	*SD*
	As a result of taking a Dual Credit course, students:		
21	Participate in more rigorous learning than standard high school courses	4.56	.58
22	Increase their likelihood of pursing post-secondary education	4.6	.57
23	Are motivated to stay in school	4.48	.74
24	Develop realistic expectations of post-secondary coursework	4.26	.80
25	Raise their post-secondary educational aspirations	4.38	.73

Research question two. Eight opinion items (questions 4-11) were utilized to focus on the instructors' and counselors' opinions of dual credit effectiveness for post-secondary readiness in specific dual credit course contexts. Respondents ranked their opinions of dual credit effectiveness highly. The greatest recorded mean score was 3.91 (question 10). The smallest reported mean score was 3.48 (question 5). Question 7 had the greatest standard deviation (*SD* = 1.03) (see Table 7).

Table 7

Instructor and Counselor Perceptions Based on Multiple Course Contexts

	Instructors			Counselors		
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*
Communication skills	40	3.5	.90	37	3.57	.77
Science	40	3.43	.71	37	3.51	.69
Math	40	3.55	.93	37	3.78	.82
Written expression	40	3.73	1.11	37	3.81	.84
Reading competency	40	3.88	.85	37	4.05	.57
Analytical thinking and problem solving	40	3.63	.87	37	3.76	.68
Persistence to completion	40	3.95	.96	37	4.03	.76
Investigation skills	40	3.6	.98	37	3.65	.82

Note. $n = 77$.

A paired-samples *t* test was conducted to compare the dual credit instructors' and counselors' opinions of dual credit effectiveness for post-secondary readiness overall outcomes. There was no significant difference between the scores for dual credit instructors ($M = 3.67$, $SD = .92$) and counselors ($M = 3.78$, $SD = .73$); $t(16) = -1.31$, $p < .05$. These results suggest there is no significant difference between dual credit instructors' and counselors' opinions of dual credit effectiveness for post-secondary readiness in regard to overall outcome success. Specifically, the results suggest both dual credit instructors and high school counselors rated their perceptions of dual credit efficacy highly in overall efficiency outcomes.

Research question three. Eight instrument questions (questions 12-19) were utilized in order to define dual credit instructors' and counselors' opinions of dual credit effectiveness for post-secondary readiness with frequency of assigned tasks. Respondents assessed their opinions of dual credit highly. The greatest reported mean score was 3.82 (question 15). The smallest reported mean score was 2.69 (question 13). The highest standard deviation (*SD* = .67) was reported on both survey item 16 and survey item 17 (see Table 8).

Table 8

Instructor and Counselor Opinions of Frequency of Tasks

Item Number	Survey Item	*M*	*SD*
	Please rate how frequently tasks should be given to Dual Credit learners to enhance learners' levels of post-secondary readiness:		
13	Writing research papers (5 or more pages)	2.69	.557
14	Making oral presentations	2.76	.49
15	Participate in class discussions	3.82	.39
16	Memorize facts, ideas, or methods	3.22	.67
17	Work as a team, research, and apply analytical reasoning	3.2	.67
18	Application of theory to real-life scenarios	3.46	.61
19	Integrate technology into assignments	3.55	.66
20	Research skills	3.4	.58

Note. $n = 77$.

Statistical Analysis

Research question one. Gender might contribute to dual credit instructors' and counselors' perceptions of the effectiveness of dual credit for college readiness, but that effect might differ across respondents with various years of experience. A two-way analysis of variance (ANOVA) with replication confirmed the differences between instructors' and counselors' opinions of the effectiveness of dual credit for respondents whose years of experience differed between 0-5 years or five years or more among respondents who classified themselves as either male or female. Respondents with five or more years of experience showed a significantly higher level of positive perception of the efficacy of dual credit on college readiness (F (1) = .176, p = .675, $\eta 2$ = .00005) than those with 0-5 years of experience (see Table 9). Male and female respondents did not show significantly different perceptions on the efficacy of dual credit on college readiness (F (23) = .76, p = 1.44, $\eta 2$ = .510). The interaction of gender and years of experience was not significant (F (23) = .401, p = .995, $\eta 2$ = .002). Most respondents reported relatively high levels of satisfaction with perceptions of dual credit students' levels of college readiness in multiple areas on this five-point scale (see Table 9).

Table 9

Instructor and Counselor Means and Standard Deviations Explained by Efficacy Outcomes

	Instructors		Counselors	
Item Variables	*M*	*SD*	*M*	*SD*
More rigorous courses	3.55	.52	3.53	.54
Likelihood of going to college	3.43	.51	3.48	.56
Motivated to stay in school	3.55	.87	3.68	.85
Realistic expectations of post-secondary	3.73	.72	3.75	.71
Raise post-secondary aspirations	3.88	.73	3.98	.78

Note. $n = 77$.

A two-way ANOVA with replication was utilized to test the three hypotheses. The mean of the dual credit instructors with 0-5 years of expertise was $M = 3.37$, $SD = .22$. The average of counselors reporting five or more years expertise was $M = 3.39$, $SD = .43$ (see Table 10). Findings indicated no substantial variance between instructors and school counselors regarding dual credit effectiveness on post-secondary readiness in regard to years of expertise.

Consequently, the outcomes of this research question indicated the null hypotheses were not rejected. No substantial difference was found between the individuals with 0-5 years expertise and five or more years of expertise, $F(3, 34) = 1.61$, $p > .05$, $\eta 2 = .124$. There was no significant difference between males and females. The foremost outcome gender disclosed was insignificant, $F(1, 34) = 1.42$, p

> .05, η^2 = .040. No significant effect was found between gender and years of expertise interaction, $F(3, 34) = 1.24$, $p > .05$, η^2 = .099.

Research question two. Independent sample *t* test administration allowed the investigator to analyze the null hypothesis in an effort to conclude any statistically significant variance between instructors' and counselors' opinions regarding dual credit effectiveness on post-secondary readiness in relation to identified dual credit course concepts. Summarization of subscales to a single variable diminished Type I error. Total average with instructors was $M = 3.27$, $SD = .80$. Overall average of the high school counselors was $M = 3.15$, $SD = .67$. No statistical substantial variance was found ($t(40) = 2.41$, $p < .05$) regarding instructors' and counselors' opinions of dual credit effectiveness for post-secondary readiness in specific dual credit course concepts (see Table 10). Consequently, the null hypothesis for research question two was not rejected. It is presumed all respondents truthfully conveyed their opinions on the survey.

Table 10

Instructor and Counselor Means and Standard Deviations Explained by Course Concepts

	Instructors		Counselors	
Item Variables	*M*	*SD*	*M*	*SD*
Oral communication skills	3.55	.52	3.53	.54
Science	3.43	.51	3.48	.46
Mathematics	3.55	.87	3.68	.85
Written expression	3.73	.73	3.75	.71
Reading ability	3.88	.73	3.98	.79
Analytical/Problem solving	3.63	.45	3.7	.47
Persistence to completion	3.6	.66	3.95	.61
Research skills	3.75	.91	3.60	.96

Note. $n = 77$.

Research question three. The independent *t* test was utilized to examine the null hypothesis to decide whether there was a statistical substantial variance between instructors' and counselors' opinions regarding dual credit effectiveness in relation to post-secondary readiness comparative to frequency of assigned tasks. The greatest average of the instructors was $M = 3.85$, $SD = .361$ in the active discussions area. The greatest average of the counselors also was in the topic of active discussions ($M = 3.78$, $SD = .417$). Written projects generated the smallest average among instructors ($M = 2.55$, $SD = .620$) and counselors ($M = 2.65$, $SD = .538$) (see Table 11). The outcomes disclosed no significant statistical variance between the opinions of instructors and

counselors in relation to the frequency of specific tasks assigned to learners, $t(40) = -.137$, $p > .05$. As a result, the null hypothesis for research question three was not rejected (see Table 11).

Table 11

Instructor and Counselor Opinions Centered on Specific Assigned Tasks

Opinions and Roles	*n*	*M*	*SD*
Please rate how often the following should be presented to learners to enhance learners' stage of post-secondary readiness?			
Writing research papers (5 or more pages)			
Instructor	40	2.55	.620
Counselor	37	2.65	.538
Making oral presentations			
Instructor	40	2.73	.506
Counselor	37	2.78	.540
Participate in class discussions			
Instructor	40	3.85	.361
Counselor	37	3.78	.417
Memorize facts, ideas, or methods			
Instructor	40	3.30	.480
Counselor	37	3.08	.759
Work as a team, research, and apply critical thinking			
Instructor	40	3.25	.742
Counselor	37	3.16	.688
Apply theories to real or new situations			
Instructor	40	3.43	.675
Counselor	37	3.46	.650
Integrate technology into assignments			
Instructor	40	3.55	.677
Counselor	37	3.49	.731
Research skills			
Instructor	40	3.43	.636
Counselor	37	3.38	.545

Note. $n = 77$.

Open-ended question. In the last portion, respondents were asked to include recommendations for enhancement of dual credit course effectiveness on post-secondary readiness. The investigator sought to acquire additional understanding regarding the respondents' judgments of the dual credit model and its outlook in the secondary school setting. Ten suggestions were provided by participants as follows:

1. I do believe that dual credit classes can help students see themselves as college students, and the fact that they have to pay for the courses gives them a greater understanding of the reality of college.

2. While it is important that high school students learn the requirements of digital learning, an online classroom is the least supportive learning environment imaginable while still technically qualifying as a classroom. Dual-credit classes that are solely taught by online instructors throw high school students into the deep end of the pool, so to speak, regarding issues of self-discipline, use of resources, and academic honesty. In the classroom setting, part of a dual credit instructor's role is teaching the expectations of higher education coursework as well as how to meet its challenges. I fear that students are merely expected to meet the challenges in an online course and given little support or instruction in how to accomplish such a task.

3. I feel as though I have to develop basic skills with students as it relates to writing and research. It is possible this is due to initiatives like project-based learning or teaching to the middle where dual credit students really are not pushed until they are separated from their peers. It takes me a full year before students have that foundation to be truly prepared for college-level courses. Instead of two years with that foundation, I usually only get one.

4. Principals and the colleges must observe and evaluate the teacher and course to see if it is rigorous enough.

5. Regarding the survey, I had difficulty answering the "how often should _____ be assigned" questions. For example, I recognize that there are group projects in college, so working as a team would be a good idea for preparation for that. However, I don't have students do that in my dual credit course. So in general I would answer "3," but for my class it is "1." Similar situation for incorporating technology.

6. Common courses across the state so that all Dual Credit is accepted.

7. I do not teach dual credit nor do I teach college so I cannot respond to questions concerning the correlation between students who take DC [dual credit] and related expectations and performance.

8. I believe that, in some districts, especially small rural schools, college readiness impact can be significantly impacted by letting a high school teacher be the instructor. At least in our district, I feel that our students are not getting as much benefits out of the dual credit classes that our district teachers teach versus online dual credit classes where the teacher is employed through the college. However, I will also say that I believe that high school students get the most benefits from courses taught in person versus online, when there is a quality teacher teaching the course.

9. I wish more schools would pay for dual credit classes so more students could take the classes. We have some really bright students who should be taking dual credit classes and want to take them, but their parents cannot pay for them.

10. Additional funding and resources need to be available for enhancement opportunities for these classes.

Summary

In this chapter, statistical and descriptive data were depicted regarding instructors' and counselors' opinions of dual credit effectiveness of readiness for post-secondary environments. Seventy-seven teachers and counselors from districts in southwest Missouri contributed to the investigation. As a group, the instructors and counselors identified dual credit as successful for post-secondary readiness. An independent sample *t* test was utilized to verify the hypotheses.

All null hypotheses were not rejected due to a lack of statisically significant variance between the instructors and counselors in regard to years of expertise and incidence of learning tasks, as well as the opinions of effeciveness on post-secondary readiness relative to specific course concepts. Information collected from the open-ended question revealed both suggestions for improving dual credit models, perceived benefits of dual credit coursework, and discussions on policy. Course concepts and specific tasks subscales were abbreviated to one variable to decrease Type I error.

In Chapter Five, the findings from the current study are presented. Conclusions and implications for practice are detailed. Recommendations for future research are offered.

Chapter Five: Findings and Conclusions

Within this chapter are the summation of conclusions, limits of the research, and suggestions for additional investigation. This research was pursued to answer three research questions regarding the opinions of instructors and counselors in southwest Missouri districts. In addition, the investigator endeavored to determine any significant differences between the opinions of instructors and counselors relating to gender and years of instructional and counseling experience.

Findings

The findings from this research supported results of the additional investigations referred to in Chapter Two. Franks (2016) established inclusive dual credit involvement as advantageous for several learners upon entrance to the post-secondary education setting. Further investigations were proven similar in comparison to this study's conclusions but are restricted in terms of significance to this research. Several investigations have lacked quantification, and researchers did not address the opinions of instructors and counselors. Based on the findings from this study, the opinion of dual credit instructors and counselors reveal dual credit as an operative platform to condition learners for the educational challenges of post-secondary environments.

Data were gathered from instructors and counselors in participating districts with dual credit programs to examine the effectiveness of dual credit for post-secondary readiness in southwest Missouri. In accordance with this investigation, dual credit has a statistically noteworthy effect on learners' post-secondary readiness by

graduation. Dual credit students were observed to be more equipped for post-secondary settings by instructors and counselors.

Statistical analysis peformed on research question one. Twenty-five opinion items were answered and analyzed to conclude the instructors' and counselors' opinions of dual credit effectiveness on post-secondary readiness in southwest Missouri in relation to years of expertise. A majority of counselors, those with 0-5 years and with five or more years of expertise, viewed dual credit involvement as a successful means for post-secondary readiness.

Analysis of data in relation to research question two. The data indicated no statistically significant variance between the opinions of instructors and counselors in relation to expertise and gender. Eight opinion questions dealt with instructors' and counselors' opinions of dual credit effectiveness for post-secondary readiness in general course concept areas. The bulk of the questions reinforced this hypothesis. A majority of instructors and counselors answered positively to every item concerning learners' stages of post-secondary readiness in several course concepts as a dual credit involvement effect.

Analysis of data in relation to research question three. Eight instrument items were used to designate dual credit instructors' and counselors' opinions of dual credit effectiveness on post-secondary readiness in relation to tasks assigned in dual credit courses. The opinions of instructors and counselors were comparable based on the responses to the instrument. No statistically significant variances between dual credit instructors' and high school counselors' opinions of dual credit effectiveness on post-secondary readiness concerning assigned tasks were found. Largely, the

participants reported agreement regarding dual credit effectiveness for post-secondary readiness.

A literature review revealed variances of opinions and disagreement of interested parties in relation to dual credit. Hughes et al. (2012) determined disparities might be the consequence of numerous designs and objectives of dual credit programs across the United States. Still, dual credit instructors and high school counselors who responded as part of this study agreed dual credit positively affects post-secondary readiness. This study paralleled Tinto's theory of student performance when associated with a directive (Tinto, 2012). Dual credit presents learners with the abilities and responsibilities of post-secondary style exposure while remaining in high school, therefore optimizing functioning while in the post-secondary environment (Tinto, 2012).

Conclusions

Dual credit is an advantageous concept when attaining post-secondary readiness in southwest Missouri based on the opinions of dual credit instructors and counselors. Opinions of dual credit instructors and counselors were optimistic and positive regarding dual credit support in southwest Missouri. If confirmation of dual credit effectiveness is revealed to key stakeholders, then this information might bring about additional financial resources. Augmented financing for dual credit may equate to more students completing post-secondary requirements while still in high school. When additional students complete post-secondary requirements during secondary school, more people complete college with lower student loan debt in a fraction of the time.

No substantial variances were established between the opinions of instructors and counselors regarding dual credit effectiveness for post-secondary readiness in regard to years of expertise or gender. In addition, no significant difference was found between the opinions of instructors and counselors on various dual credit course concepts. Largely, the opinions of instructors and counselors were in agreement. No substantial variances of opinion were revealed between the instructors and counselors.

The responses of instructors and counselors in the first multiple-response portion of the instrument concerning several dual credit areas exposed a recurrent theme. Student excellence is a product of involvement in dual credit courses and results in post-secondary readiness (Franks, 2016). Barnett and Kim (2014) stated curricula offering dual credit are created as a means of providing a service for both college and high school participants. The perception dual credit participants are prepared for post-secondary learning in several constructs as a consequence of dual credit involvement yielded an 80% positive response rate.

In the second portion of the questionaire, the answers provided by participants revealed instructors' and counselors' opinions did not vary concerning assigned tasks for post-secondary readiness. No repeated topics were indicated by answers to the second portion of the questionaire.

The last Likert-scale portion of the questionaire revealed more than 92% of instructors and counselors were in support of and advocated the dual credit concept. According to Karp (2012), the results of dual credit have been valuable to learners through improved admissions to technical schools and colleges. Dual credit

involvement offers learners an applicable familiarity with college, thus preparing them to encounter the difficulties of higher education (Franklin, 2010).

Implications for Practice

Accelerated learning programs such as dual credit expose secondary learners to post-secondary academics and the opportutnity to earn university requirements (An, 2013). Involvement in post-secondary cousework multiplies the likelihood learners will apply to and prosper in college (An, 2013). Originally established for advanced learners, fast-tracked education curricula have been observed as an approach to foster post-secondary readiness (An, 2013).

Instructors and counselors recognize dual credit as a successful means for learners to become ready for post-secondary environments at the time of graduation from secondary school. Dual credit ought to be a choice for all secondary school learners progressing to higher education or joining the labor force (Conley et al., 2010).

This research closes a gap in literature on dual credit in southwest Missouri. Particularly, there is no research on dual credit centered on the opinions of instructors and counselors working with dual credit students in southwest Missouri. The opinions of the instructors and counselors are extremely valued as a result of dealings with learners as they start and finish the dual credit curriculum. The instructors utilize assessments and other tasks to evaluate growth among the dual credit students. Counselors utilize knowledge of standardized assessment scores to follow learners' development as they enroll in more dual credit coursework.

This research paralleled several other investigations that established explanations to advocate dual credit throughout the United States. According to Karp

(2012), learners' outlooks and opinions of post-secondary attainment regularly altered after the first experience with a dual credit course. This investigation revealed the opinions of instructors and counselors were similar to the conclusions of Karp (2012) grounded on replies to questionnaire items. There were questions on the instrument relating to learners' stages of self-confidence and persistance while completing dual credit coursework.

In a study conducted by Karp (2012), 65% of high school students affirmed their opinions of the responsibility of post-secondary education during their beginning year in post-secondary coursework. Karp (2012) asserted dual credit curriculum in Ohio is an appreciated advantage to the enrollment progression for universities in Ohio. Dual credit participants in Ohio are more equipped for post-secondary coursework and achieve at a higher level in post-secondary environments than non-dual credit students (Karp, 2012).

Recommendations for Future Research

Additional research is needed to explore possible relationships between dual enrollment participation and various program components such as tuition responsibility, recruitment efforts, time of day courses are offered, types of courses offered, eligibility requirements, and the number of courses offered. Dual credit curricula may benefit from a statewide dual enrollment program evaluation including a comprehensive needs assessment of dual enrollment programs throughout the state.

The survey in this research was used to gather information on public high schools in southwest Missouri. In order to get a comprehensive evaluation of all dual enrollment programs in the state, further research should include data from private and charter high

schools. Furthermore, this survey focused on dual credit programs from the perspectives of dual credit instructors and counselors. Future research should include gathering data from colleges and universities to examine challenges, issues, and best practices from the perspective of college dual credit program administrators. Due to the majority, 65%, of participants dual credit experience ranging in the 0-5 years category, research concerning the opinions of relatively new educators in the dual credit realm in relation to their own personal dual credit environments would be valuable.

Further research is needed to collect information from the perspectives of students and families who participated and those who did not participate in dual enrollment programs while in high school. This investigator elicited the opinions of instructors and counselors on dual credit effectiveness for post-secondary readiness in southwest Missouri. This study could be replicated by investigators in other states. More research needs to be focused on the effects of programs where students who are underachieving are tutored and then receive the opportunity to take dual credit courses. Researchers have expounded on the effectiveness of this approach for students who do not believe they can do college-level work. Dual credit may provide the opportunity to close the gap between graduating college and succeeding in college.

Using Astin's I-E-O model, relationships between the input (I) variables of gender, career involvement, Tech Prep involvement, and high school course selection; environmental (E) variables of academic, career and technical education (CTE), and total dual credit; and output (O) variables of college readiness and total credit hours could be evaluated. Astin's I-E-O model conceptualizes learners immersed in their own education as a significant element of their predisposition to remain admitted

(Terenzini & Reason, 2014). Astin (1984) presented the following five claims concerning student participation, all of which easily could be applied to research pertaining to dual credit effectiveness on college readiness:

1. Participation involves the investment of energy (psychological and physical).
2. Students expend unpredictable quantities of energy in the responsibilities fronting them.
3. Participation has qualitative and quantitative structures.
4. The amount of knowledge is proportionate to the value and capacity of participation.
5. The educational efficacy of a program or procedure is contingent on its ability to motivate participation.

As Terenzini and Reason (2014) specified, Astin emphasized attention on the commitment of the student and on the capability of the educational environment to transform commitment into valued outcomes. In so doing, Astin spearheaded the research of other theorists who have sought, in a more explicit fashion, to speak to the concerns of perseverance and remediation or lack of completion (Terenzini & Reason, 2014).

Other recommendations for future research include the following:

1. Prospective studies following a dual credit group after post-secondary graduation could possibly validate the foundation of this investigation. This type of research could provide legislators with solutions to disparities between high school and college education.

2. An additional arena to consider includes the connection of dual credit to post-secondary graduation statistics. What is the graduation rate within four years, three years, or less for students who participated in dual credit?

3. In addition, the retention statistics of learners participating in dual credit coursework need to be associated to students not taking dual credit coursework. Although dual credit, alongside additional concurrent enrollment programs, is extremely widespread, its reputation is grounded on marginal empirical studies with regard to effectiveness.

Summary

This chapter included a review and examination of the study's results. No significant variances were discovered between the opinions of dual credit instructors and counselors on dual credit effectiveness in southwest Missouri. No variances were found in regard to gender or years of expertise between the instructors and counselors. This investigation was restricted to dual credit instructors and counselors in school districts in southwest Missouri. This research was comparable to other research on dual credit throughout the nation. Endorsements for further investigation were proposed to carry on and develop this study.

Dual enrollment programs offer a pathway to postsecondary education, increase college readiness among participants, and also increase persistence in college (An, 2015; Ganzert, 2014; Pretlow & Wathington, 2014). Mid-range students, high-performing students, and students from various socioeconomic levels benefit from dual enrollment participation (Pretlow & Wathington, 2014). A broader range of students participated in

dual enrollment courses when efforts to expand dual enrollment to underserved students were initiated (Barnett & Kim, 2014).

Career and technical dual enrollment courses provide college access to many students who may otherwise be unlikely to attend college (Allen & Dadgar, 2012; An, 2013). This increase in college access may help narrow the gap between high and low socioeconomic groups (An, 2013). As a result of the astounding discrepancy in the educational skills of secondary school learners, several fail educationally when they pursue coursework in college (An, 2015). It is apparent high school students require a curriculum that incorporates educational rigor. Dual credit instructors and administrators can take action based on the results of this research.

Appendix A

Institutional Review Board Approval

LINDENWOOD

LINDENWOOD UNIVERSITY ST. CHARLES, MISSOURI

DATE:	November 22, 2016
TO:	Natalie Cook, Ed.S.
FROM:	Lindenwood University Institutional Review Board
STUDY TITLE:	[984766-1] High School Dual Credit Instructor and Counselor Perceptions of the Efficacy of Dual Credit Courses on College Readiness in Southwest Missouri
IRB REFERENCE #:	
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
DECISION DATE:	November 22, 2016
REVIEW CATEGORY:	Exemption category # *1*

Thank you for your submission of New Project materials for this research study. Lindenwood University Institutional Review Board has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will put a copy of this correspondence on file in our office.

If you have any questions, please send them to IRB@lindenwood.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Lindenwood University Institutional Review Board's records.

Appendix B

Permission Letter

August 14, 2016

Dear School Administrator,

I am a doctoral candidate at Lindenwood University. I am examining the perceptions of dual credit instructors and high school counselors on dual credit course efficacy in relation to college readiness. This study will include investigation of gaps in literature regarding dual credit programs in southwest Missouri, as well as an examination of the perceptions of participants to compare and determine whether there are significant differences between the perceptions of dual credit instructors and high school counselors in regard to college readiness among dual credit students.

I have attached a consent form for your permission to survey dual credit instructors and high school counselors in your school district. Upon receiving your signature providing permission, I will then provide participants with a link by email to complete the short survey. All information received from the survey will remain confidential. Names will not be used in this dissertation nor will references be made to any individual in a way that may identify such person.

This study may be presented at scientific meetings or published for educational or scientific purposes. If you would like information regarding the findings, you may email me at [redacted].

Thank you for considering allowing your staff to participate in this research.

Sincerely,

Natalie Cook

Appendix C

Informed Consent

LINDENWOOD

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

Dual Credit Instructor and Counselor Opinions Concerning the Effectiveness of Dual Credit Programs on Post-Secondary Readiness in Southwest Missouri

Principal Investigator Natalie Cook
Telephone: [redacted] E-mail: [redacted]

Participant_____Contact info _____

1. You are invited to participate in a research study conducted by Natalie Cook under the guidance of Dr. Sherry DeVore. The purpose of this research is to determine whether or not dual credit instructors and counselors have similar perceptions of the efficacy of dual credit courses on college readiness.
2. Your participation will involve answering questions regarding your perceptions of how well your dual credit students' experiences in dual credit courses prepare them for college success. You will access survey questions via an online survey link that will be provided to you by the researcher.
3. The amount of time involved in your participation will be approximately 10-15 minutes for the survey. This research will occur at 70 different research sites.
4. There are no anticipated risks associated with this research.

5. There are no direct benefits for you participating in this study. However, your participation will contribute to knowledge about the effectiveness of dual credit programs on college readiness.
6. Your participation is voluntary, and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.
7. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication or presentation that may result from this study, and the information collected will remain in the possession of the investigator in a safe location.
8. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Natalie Cook, at [redacted], or the Supervising Faculty, Dr. Sherry DeVore, at 417-881-0009. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost, at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

_____	_____
Participant's Signature Date	Participant's Printed Name
_____	_____
Signature of Principal Investigator Date	Investigator's Printed Name

Appendix D

NACEP Dual Credit Instructor and Counselor Likert-Scaled Survey Essential Questions

This survey is adapted with permission from the National Association of Concurrent Education Programs.

* Required

Please answer the following questions carefully in regard to Dual Credit efficacy on college readiness. Please read all of the question provided and answer each one.

1. **1. Please indicate your years of experience in teaching as a Dual Credit instructor.** *
   Mark only one oval.
   - ◯ 0-5 years
   - ◯ 5 or more years

2. **2. Please indicate your years of experience as a High School Counselor.** *
   Mark only one oval.
   - ◯ 0-5 years
   - ◯ 5 or more years

3. **3. Gender** *
   Mark only one oval.
   - ◯ Male
   - ◯ Female

4. **Please rate how well you perceive Dual credit students' levels of college readiness in each of the following areas. Select one circle in each row.** *
   Mark only one oval per row.

	Not Well	Somewhat	Well	Very Well
Oral communication skills	◯	◯	◯	◯
Science	◯	◯	◯	◯
Math	◯	◯	◯	◯
Writing skills	◯	◯	◯	◯
Reading comprehension	◯	◯	◯	◯
Critical thinking and problem solving	◯	◯	◯	◯
Motivation to work hard	◯	◯	◯	◯
Research skills	◯	◯	◯	◯
Overall readiness for college level work	◯	◯	◯	◯

5. **Please rate how often the following should be assigned to Dual credit students to augment students' levels of college readiness?** *

Mark only one oval per row.

	Never	Once during course	Periodically	Once a week or more
Writing research papers (5 or more pages)				
Making oral presentations				
Participate in class discussions				
Memorize facts, ideas, or methods				
Work as a team, research, and apply critical thinking				
Apply theories to real or new situations				
Integrate technology into assignments				
Research skills				
Overall readiness for college level work				

6. **As a result of taking a Dual credit course, students:** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Participate in more rigorous learning than standard high school courses					
Increase their likelihood of pursuing postsecondary education.					
Are motivated to stay in school					
Develop realistic expectations of postsecondary coursework.					
Raise their postsecondary educational aspirations					

Thank you for taking the time to complete this survey.

7. **If you have any suggestions for improvement or other information regarding Dual Credit efficacy on college readiness that you would like to share, please to so in the space provided.**

_____

_____

_____

Appendix E

Permission to Adapt NACEP Survey

Fw: Survey

Cook, Natalie

Fri 9/30/2016 10:08 AM

From: Jennie Patteson <jpatteson@nacep.org>
Sent: Tuesday, August 16, 2016 11:27 AM
To: Cook, Natalie
Cc: Concurrent Enrollment
Subject: Survey

Hi Natalie,

We are fine with you using our survey and modifying it as long as you make sure to attribute NACEP.

Please let me know if you have any other questions.

Best,

Jennie

Jennie Patteson, Director of Accreditation and Member Services
National Alliance of Concurrent Enrollment Partnerships (NACEP)
Advancing quality college courses in high school

PO Box 578, Chapel Hill, NC 27514 (919) 593-5205 | (877) 572-8693 [fax]
http://www.nacep.org

References

Akers, B., & Chingos, M. M. (2014). *Is a student loan crisis on the horizon?* Washington, DC: Brown Center on Education Policy at Brookings. Retrieved from https://www.brookings.edu/wp-content/uploads/2016/06/Is-a-Student-Loan-Crisis-on-the-Horizon.pdf

Alfeld, C., & Bhattacharya, S. (2012). Mature programs of study: A structure for the transition to college and career? *International Journal of Educational Reform, 21*(2), 119-137.

Allen, D., & Dadgar, M. (2012). Does dual enrollment increase students' success in college? Evidence from a quasi-experimental analysis of dual enrollment in New York City. *New Directions for Higher Education, 2012*(158), 11-19. doi:10.1002/he.20010

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: American Psychological Association.

Amey, M. J., Eddy, P. L., & Campbell, T. G. (2010). Crossing boundaries creating community college partnerships to promote educational transitions. *Community College Review, 37*(4), 333-347.

An, B. P. (2013). The impact of dual enrollment on college degree attainment: Do low-SES students benefit? *Educational Evaluation and Policy Analysis, 35*(1), 57-75.

An, B. P. (2015). The role of academic motivation and engagement on the relationship between dual enrollment and academic performance. *The Journal of Higher Education, 86*(1), 98-126.

An, B. P., & Taylor, J. L. (2015). Are dual enrollment students college ready? Evidence from the Wabash National Study of Liberal Arts Education. *Education Policy Analysis Archives/Archivos Analíticos de Políticas Educativas, 23*(58). Retrieved from http://epaa.asu.edu/ojs/article/view/1781/1624

Arnold, B. K. (2015). *A comparative study of dual enrollment student achievement in various learning environments and non-dual enrollment student achievement* (Doctoral dissertation). Retrieved from http://Dualcredit.etsu.edu/etd/2487

Arum, R., & Roksa, J. (2011). *Academically adrift: Limited learning on college campuses*. Chicago, IL: University of Chicago Press.

Association of American Colleges and Universities. (2011). *The quality imperative: Match ambitious goals for college attainment with an ambitious vision for learning.* Washington, DC: Author.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, *25*(4), 297-308.

Astin, A., & Antonio, A. (2012). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education.* New York, NY: Roman and Littlefield Publishers, Inc.

Bailey, T. R., Jaggars, S. S., & Jenkins, D. (2015). *Redesigning America's community colleges*. Cambridge, MA: Harvard University Press.

Balci, O., Deater-Deckard, K., & Norton, A. (2013). Challenges in teaching modeling and simulation online. *Proceedings of the 2013 Winter Simulation Conference, Washington, DC,* 3568-3575. doi:10.1109/WSC.2013.6721718

Balfanz, R., Bridgeland, J. M., Fox, J. H., DePaoli, J. L., Ingram, E. S., & Maushard, M.

(2014). *Building a grad nation: Progress and challenge in ending the high school dropout epidemic: Annual update 2014.* Washington, DC: Civic Enterprises.

Barnett, E., & Kim, J. (2014). *Expanding access to dual enrollment and college: A case study of Memphis City Schools*. Chapel Hill, NC: National Alliance of Concurrent Enrollment Partnerships.

Barrow, L., Brock, T., & Rouse, C. E. (2013). Postsecondary education in the United States: Introducing the issue. *The Future of Children, 23*(1), 3-16.

Baum, S., Ma, J., & Payea, K. (2010). *Education pays 2010.* New York, NY: The College Board.

Becker, J., Hall, L. S., Levinger, B., Sims, A., & Whittington, A. (2014). *Student success and college readiness: Translating predictive analytics into action* (SDP Fellowship capstone report, Harvard University). Retrieved from https://sdp.cepr.harvard.edu/files/cepr-sdp/files/sdp-fellowship-capstone-student-success-college-readiness.pdf

Berger, J. B., & Melaney, G. D. (2003). Assessing the transition of transfer students from community colleges to a university. *NASPA Journal, 40*(4), 1-23.

Brenneman, M. W., Callan, P. M., Ewell, P. T., Finney, J. E., Jones, D. P., & Zis, S. (2010). *Good policy, good practice II: Improving outcomes and productivity in higher education: A guide for policymakers.* San Jose, CA: National Center for Public Policy and Higher Education.

Cavanagh, S. (2011). Public school choice pushed in Michigan. *Education Week, 31*(4), 1-25.

Chargois, T., & Hackett, E. (2013). Advanced "dualing": The battle between advanced placement and dual enrollment courses for student participation and college success. In R. McBride & M. Searson (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 300-302). Chesapeake, VA: Association for the Advancement of Computing in Education.

Coffey, L. D. (2016). *Dual credit, an option to bridging the gap between secondary and postsecondary education* (Doctoral dissertation, Southwest Baptist University).

Conley, D. T., McGaughy, C. L., Kirtner, J., van der Valk, A., & Martinez-Wenzl, M. T. (2010, April-May). *College readiness practices at 38 high schools and the development of the College Career Ready School Diagnostic Tool* (Online submission). Paper presented at the Annual Meeting of the American Educational Research Association, Denver, CO.

Cooper, K. R. (2016). *Collaborative partnerships and best practices for leading early college high schools: A collective case study analysis of the experiences and perceptions of community college presidents and early college high school principals* (Doctoral dissertation, Texas Tech University).

Coordinating Board for Higher Education (CBHE). (2015). *Policy on dual credit delivery.* Jefferson City, MO: Coordinating Board for Higher Education. Retrieved from https://dhe.mo.gov/policies/documents/CBHEPolicyon DualCreditJune2016.pdf

Correa, J., & Kouzekanani, K. (2011). Impact of participation in dual enrollment on persistence and academic achievement at a community college. *Proceedings of*

the Annual Convention of the American Educational Research Association, New Orleans, LA.

Cowan, J., & Goldhaber, D. (2015). How much of a "running start" do dual enrollment programs provide students? *The Review of Higher Education, 38*(3), 425-460.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage Publications.

Crouse, J. D., & Allen, J. (2014). College course grades for dual enrollment students. *Community College Journal of Research and Practice, 38*(6), 494-511.

dela Pena-Bandalaria, M. (2013). Collaboration in online courses: Drawing insights from the learners for effective course design. *Proceedings of the IEEE 63rd Annual Conference International Council for Educational Media, Singapore,* 1-6. doi:10.1109/CICEM.2013.6820159

Deming, D. J., & Figlio, D. (2016). Accountability in U.S. education: Applying lessons from K-12 experience to higher education. *The Journal of Economic Perspectives*, *30*(3), 33-55.

Dixon, D. B. (2017). *Differences in student success as a function of dual credit enrollment for Texas community college students: A multiyear investigation* (Doctoral dissertation, Sam Houston State University).

Eagan, K., Stolzenberg, E. B., Ramirez, J. J., Aragon, M. C., Suchard, M. R., & Hurtado, S. (2014). *The American freshman: National norms fall 2014.* Los Angeles, CA: Higher Education Research Institute, UCLA.

Early College High School Initiative. (2010). Early college high school initiative partner organizations and sponsors. Retrieved from http://earlycolleges.org.html

Edmonds, G. S., & Squires, T. M. (2016). *Bridging the high school-college gap: The role of concurrent enrollment programs.* Syracuse, NY: Syracuse University Press.

Edmunds, J. A. (2012). Early colleges: A new model of schooling focusing on college readiness. *New Directions for Higher Education, 2012*(158), 81-89. doi:10.1002/he.20017

Edmunds, J. A., Unlu, F., Glennie, E., Bernstein, L., Fesler, L., Furey, J., & Arshavsky, N. (2017). Smoothing the transition to postsecondary education: The impact of the early college model. *Journal of Research on Educational Effectiveness, 10*(2), 297-325.

Education Commission of the States. (2016). Dual enrollment: All state profiles. Retrieved from http://ecs.force.com/mbdata/mbprofallRT?Rep=DE15A

Educator Effectiveness. (2012). Resolution for educator effectiveness and resolution for innovation schools. Retrieved from www.nea.org/assets/docs/Resolutions_2017_NEA_Handbook.pdf

Edwards, L., & Hughes, K. L. (2011). *Different approaches to dual enrollment: Understanding program features and their implications*. San Francisco, CA: James Irvine Foundation.

Epps, K. K., Epps, A. L., & Campbell, J. E. (2015). A framework for identifying factors to consider when implementing an academic program at a satellite campus. *Academy of Educational Leadership Journal, 19*(2), 51.

Ferguson, C., Baker, P., & Burnett, D. (2015). Faculty members' perceptions of rigor in dual enrollment, accelerated programs, and standard community college courses. *New Directions for Community Colleges, 2015*(169), 83-91. doi:10.1002/cc.20135

Ferguson, P. A. (2014). *The efficacy of dual enrollment programs influencing the post-secondary motivations and commitments of rural secondary school students* (Doctoral dissertation, University of South Carolina-Columbia).

Flores, A. L. (2014). *Dual enrollment programs: A comparative study of high school students' college academic achievement at different settings* (Doctoral dissertation, Texas A&M University-Corpus Christi).

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2016). *How to design and evaluate research in education*. (9th ed.). New York: McGraw-Hill Humanities/Social Sciences/Languages.

Franklin, B. (2010). *Curriculum, community, and urban school reform*. New York, NY: Springer.

Franks, S. S. (2016). *Dual enrollment efficacy on college readiness as perceived by high school dual enrollment teachers and counselors in south Alabama* (Doctoral dissertation, University of Southern Mississippi).

Gagnon, D. J., & Mattingly, M. J. (2016). Advanced placement and rural schools: Access, success, and exploring alternatives. *Journal of Advanced Academics, 27*(4), 266-284.

Ganzert, B. (2014). Dual enrollment credit and college readiness. *Community College Journal of Research and Practice*, *38*(9), 783-793.

Gehrig, J. (2010). Dual-enrollment programs spreading. *Education Week, 20*(32), 17-18.

Giani, M. (2014). Exploring variation in the impact of dual-credit coursework on postsecondary outcomes: A quasi-experimental analysis of Texas students. *The High School Journal, 2014*(97), 200-218.

Giani, M., Alexander, C., & Reyes, P. (2014). Exploring variation in the impact of dual-credit coursework on postsecondary outcomes: A quasi-experimental analysis of Texas students. *The High School Journal*, *97*(4), 200-218.

Godfrey, K., Matos-Elefonte, H., Ewing, M., & Patel, P. (2014). *College completion: Comparing AP®, dual-enrolled, and nonadvanced students* (Research report 2014-3). New York, NY: College Board.

Hackmann, D. G., Bragg, D. D., & Malin, J. R. (2017). College and career readiness and the Every Student Succeeds Act. *Educational Administration Quarterly*. Retrieved from http://journals.sagepub.com/doi/10.1177/0013161X17714845

Hazelkorn, E. (2015). *Rankings and the reshaping of higher education: The battle for world-class excellence*. New York, NY: Springer.

Hegyesi, F., Ősz, R., Kártyás, G., Némethy, K., & Gáti, J. (2015). Strategies in higher education. *Proceedings of the IEEE 13th International Symposium on Applied Machine Intelligence and Informatics, Slovakia,* 161-164. doi:10.1109/SAMI.2015.7061868

Hofmann, E. (2012). Why dual enrollment? *New Directions for Higher Education, 2012*(158), 1-8. doi:10.1002/he.20009

Holley, T. M. (2016). *An analysis of dual credit articulation to degree plans in a Texas public institution of higher education* (Doctoral dissertation, Tarleton State University).

Hong, S., & Choi, W. (2015). A longitudinal analysis of the effects of open enrollment on equity an academic achievement: Evidence from Minneapolis, Minnesota.

Children and Youth Services Review, *49*, 62-70. doi:10.1016/j.childyouth.2015.01.002

Howell, J. S. (2011). What influences students' need for remediation in college?: Evidence from California. *The Journal of Higher Education*, *82*(3), 292-318.

Howell, J. S., Kurlaender, M., & Grodsky, E. (2010). Postsecondary preparation and remediation: Examining the effect of the Early Assessment Program at California State University. *Journal of Policy Analysis and Management*, *29*(4), 726-748.

Howley, A., Howley, M. D., Howley, C. B., & Duncan, T. (2013). Early college and dual enrollment challenges: Inroads and impediments to access. *Journal of Advanced Academics, 24*(2), 77-107.

Hughes, K. L., Rodriguez, O., Edwards, L., & Belfield, C. (2012). *Broadening the benefits of dual enrollment: Reaching underachieving and underrepresented students with career-focused programs*. San Francisco, CA: James Irvine Foundation.

Jaggars, S. S. (2013). The impact of online learning on students' course outcomes: Evidence from a large community and technical college system. *Economics of Education Review, 37,* 46-57. doi:10.1016/j.econedurev.2013.08.001

Jaggars, S. S., Hodara, M., Cho, S. W., & Xu, D. (2015). Three accelerated developmental education programs: Features, student outcomes, and implications. *Community College Review*, *43*(1), 3-26.

Jones, S. J. (2014). Student participation in dual enrollment and college success. *Community College Journal of Research and Practice*, *38*(1), 24-37.

Kanny, M. A. (2015). Dual enrollment participation from the student perspective. *New*

Directions for Community Colleges, 169, 59-70.

Karp, M. M. (2012). "I don't know I've never been to college!" Dual enrollment as a college readiness strategy. *New Directions for Higher Education, 2012*(158), 21-28.

Khazem, J. H., & Khazem, H. A. (2012). Dual enrollment: A way forward. *International Journal of Education Research, 7*(2), 135-150.

Klopfenstein, K., & Lively, K. (2012). Dual enrollment in the broader context of college-level high school programs. *New Directions for Higher Education, 2012*(158), 59-68. doi:10.1002/he.20015

Krueger, C. (2014). *Affordability and student success: Recapping 2014 higher education legislative activity in the West* (Policy Insights). Boulder, CO: Western Interstate Commission for Higher Education.

Lee, J. M., & Rawles, A. (2010). *The college completion agenda: 2010 progress report*. New York, NY: College Board. Retrieved from http://professionals.collegeboard.com/gateway

Lichtenberger, E., Witt, M. A., Blankenberger, B., & Franklin, D. (2014). Dual credit/dual enrollment and data driven policy implementation. *Community College Journal of Research and Practice*, *38*(11), 959-979.

Lile, J. R., Ottusch, T. M., Jones, T., & Richards, L. N. (2017). Understanding college-student roles: Perspectives of participants in a high school/community college dual-enrollment program. *Community College Journal of Research and Practice*. Retrieved from http://www.tandfonline.com/doi/full/10.1080/10668926.2016.1264899

Lochmiller, C. R., Sugimoto, T. J., Muller, P. A., Mosier, G. G., & Williamson, S. E. (2016). *Dual enrollment courses in Kentucky: High school students' participation and completion rates* (REL 2016-137). Washington, DC: Regional Educational Laboratory Appalachia.

Lowe, A. I. (2015). New federal education law encourages growth in dual and concurrent enrollment program. Retrieved from http://www.nacep.org/essa-encourages-dual-and-concurrent-enrollment/

Marken, S., Gray, L., & Lewis, L. (2013). *Dual enrollment programs and courses for high school students at postsecondary institutions: 2010-11* (First Look, NCES 2013-002). Washington, DC: National Center for Education Statistics.

Martin, T. C. (2013). Cognitive and noncognitive college readiness of participants in three concurrent-enrollment programs. *Community College Journal of Research and Practice, 37*, 704-718.

Mattson, B. (2011). *Summary of funded Race to the Top applications: Science, technology, engineering, and mathematics activities in eleven states and the District of Columbia*. Portsmouth, NH: Center on Instruction.

McDonald, D., & Farrell, T. (2012). Out of the mouths of babes: Early college high school students' transformational learning experiences. *Journal of Advanced Academics, 23*(3), 217-248.

McNair, T. B., Albertine, S., Cooper, M. A., McDonald, N., & Major, Jr., T. (2016). *Becoming a student-ready college: A new culture of leadership for student success*. Hoboken, NJ: John Wiley & Sons.

Means, L. G. (2015). *The essence of alternative education: A phenomenological study of the lived experiences of at-risk secondary alternative school students* (Doctoral dissertation, University of South Carolina).

Missouri Department of Elementary and Secondary Education. (2014). Regional professional development. Retrieved from http://dese.mo.gov/educator-quality/educator-development/regional-professional-development-centers

Missouri Department of Higher Education. (2012). *2011 dual credit survey summary report*. Jefferson City, MO: Missouri Department of Higher Education.

Missouri Revised Statute RSMo 2016, 167.223.1 A.L. (2016). Retrieved from http://www.moga.mo.gov/mostatutes/stathtml/16700002231.HTML

Missouri State University Greenwood Laboratory School. (2017). *Parent/student handbook.* Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=0ahUKEwjYm6bE0_3UAhXMyoMKHQhMAikQFgg5MAM&url=https%3A%2F%2Feducation.missouristate.edu%2Fassets%2Fgreenwood%2FGLSparentstudenthandbook2016-17.pdf&usg=AFQjCNFK6hozSdq9PXinIRXBAQ6oXlikPg&cad=rja

Modarelli, B. J. (2014). *Intensive dual enrollment: Early credits or empty promises* (Doctoral dissertation). Retrieved from http://scholarcommons.sc.edu/etd/3027

National Alliance of Concurrent Enrollment Partnerships (NACEP). (2016). NACEP's history. Retrieved from http://www.nacep.org/about-nacep/history/

National Association of Concurrent Education Programs. (2016). Accreditation resources and application forms. Retrieved from http://www.nacep.org/accreditation/forms-resources/

National Center on Education and the Economy. (2013). *High schools fail to teach what graduates need to succeed in community colleges, instead teaching what they don't need*. Washington, DC: National Center on Education and the Economy.

Ndiaye, M., & Wolfe, R. E. (2016). Early college can boost college success rates for low-income, first-generation students. *Phi Delta Kappan, 97*(5), 32-37.

Nilsson, S. (2017). Employability, employment and the establishment of higher education graduates in the labor market. In M. Tomlinson & L. Holmes (Eds.), *Graduate employability in context* (pp. 65-85). London, UK: Palgrave Macmillan UK.

Norris, S. T. (2014). *High school students' attitudes toward enrollment in advanced placement and dual enrollment programs* (Doctoral dissertation, Walden University).

Osher, D., Amos, L. B., & Gonsoulin, S. (2012). *Successfully transitioning youth who are delinquent between institutions and alternative and community schools*. Washington, DC: American Institutes for Research.

Panayides, P. (2013). Coefficient alpha: Interpret with caution. *Europe's Journal of Psychology*, *9*(4), 687-696.

Perna, L. W. (2015). *Improving college access and completion for low-income and first-generation students: The role of college access and success programs* (Testimony provided to the Subcommittee on Higher Education and Workforce Training Committee on Education and the Workforce). Retrieved from http://repository.upenn.edu/gse_pubs/301/

Petrovíc, J., Tralić, D., & Pale, P. (2015). Learning benefits of online formative self-

assessment. *Proceedings of the 57th International Symposium ELMAR-2015, Croatia*, 243-246. doi:10.1109/ELMAR.2015.7334538

Pretlow, J., & Patteson, J. (2015). Operating dual enrollment in different policy environments: An examination of two states. *New Directions for Community Colleges, 2015*(169), 21-29. doi:10.1002/cc.20129

Pretlow, J., & Wathington, H. D. (2014). Expanding dual enrollment: Increasing postsecondary access for all? *Community College Review*, *42*(1), 41-54.

Purnell, R. (2014). *A guide to launching and expanding dual enrollment programs for historically underserved students in California.* Berkeley, CA: Research and Planning Group for California Community Colleges. Retrieved from http://rpgroup.org/sites/default/files/DualEnrollmentGuideJune2014.pdf

Pyzdrowski, L. J., Butler, M. B., Walker, V. L., Pyzdrowski, A. S., & Mays, M. E. (2011). Exploring the feasibility of dual-credit mathematics courses in high school via a web-enhanced, blended model. *The Journal of General Education, 60*(1), 43-60.

Radunzel, J., Noble, J., & Wheeler, S. (2014). *Dual-credit/dual-enrollment coursework and long-term college success in Texas.* Iowa City, IA: ACT Research & Policy. Retrieved from https://www.act.org/research/policymakers/pdf/DualCreditTexasReport.pdf

Rayborn, I. J. (2015). *Exploring factors that influence GED students to complete and matriculate to career and technical education certificate programs in community colleges* (Doctoral dissertation, National-Louis University).

Rochford, J. A., O'Neill, A., Gelb, A., Ross, K. J., & Ughrin, T. (2014). *Expanding*

college opportunity: An annual report on dual credit and other post secondary opportunities for Stark County High School students. Canton, OH: Stark Education Partnership.

Royster, P., Gross, J., & Hochbein, C. (2015). Timing is everything: Getting students back on track to college readiness in high school. *The High School Journal, 98*(3), 208-225.

Scott-Clayton, J., & Rodríguez, O. (2012). *Development discouragement, or diversion? New evidence on the effects of college remediation* (NBER Working Paper No. 18328). Cambridge, MA: National Bureau of Economic Research.

Seaton, D. T., Bergner, Y., Chuang, I., Mitros, P., & Pritchard, D. E. (2014). Who does what in a massive open online course? *Communications of the ACM, 57*(4), 58-65. doi:10.1145/2500876

Smith, M. A., & Kellogg, D. L. (2015). Required collaborative work in online courses: A predictive modeling approach. *Decision Sciences Journal of Innovative Education, 13*(4), 563-581. doi:10.1111/dsji.12078

Spelling, M. (2006). A test of leadership: Charting the future of U.S. higher education. Retrieved from https://www2.ed.gov/about/bdscomm/list/hiedfuture/reports/finalreport.pdf

Stephenson, L. G. (2014). College to high school: Kentucky's dual enrollment alternative. *New Directions for Community Colleges, 2014*(165), 7-16. doi:10.1002/cc.20086

Struhl, B. (2013). *Rewarding dual enrollment in performance-based funding formulas:*

How states can create incentives for college to high school partnerships. Boston, MA: Jobs for the Future.

Subedi, B. R., & Powell, R. (2016). Factors influencing college readiness: A multilevel study to measure school effects. *International Journal of Learning, Teaching and Educational Research, 15*(11), 71-86.

Sullivan-Ham, K. (2011). *Impact of participation in a dual enrollment program on first semester GPA* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses. (UMI No. 3423977)

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2,* 53-55. Retrieved from http://doi.org/10.5116/ijme.4dfb.8dfd

Taylor, J. L., Borden, V. H. M., & Park, E. (2015). State dual credit policy: A national perspective. *New Directions for Community Colleges, 2015*(169), 9-19. doi:10.1002/cc.20128

Terenzini, P. T., & Reason, R. D. (2014). Rethinking between-college effects on student learning: A new model to guide assessment and quality assurance. In *Measuring quality of undergraduate education in Japan* (pp. 59-73). Singapore: Springer Singapore.

Terras, M. M., & Ramsay, J. (2015). Massive open online courses (MOOCs): Insights and challenges from a psychological perspective. *British Journal of Educational Technology, 46*(3), 472-487. doi:10.1111/bjet.12274

Thacker, K. O. (2014). *Graduation rates: A comparison of college graduation success rates of dual enrollment versus non-dual enrollment students at the community*

college (Doctoral dissertation). Retrieved from http://scholar.utc.edu/cgi/viewcontent.cgi?article=1100&context=theses

Tinto, V. (2012). *Completing college: Rethinking institutional action*. Chicago, IL: University of Chicago Press.

Trombley, W. H., & Sallo, T. (2012). *American higher education: Journalistic and policy perspectives from "National CrossTalk."* San Jose, CA: National Center for Public Policy and Higher Education.

United States Department of Education. (2016). Race to the Top district competition draft: Definitions. Retrieved from http://www.ed.gov/race-top/district-competition/definitions

Vargas, J. (2014). *Sharing responsibility for college success: A model partnership moves students to diplomas and degrees.* Boston, MA: Jobs for the Future.

Vargas, J. G., Roach, R., & David, K. M. (2014). Successful concurrent programs: An EXCELerate program in Oklahoma. *Community College Journal of Research and Practice, 38*(2-3), 166-173.

Venezia, A., & Hughes, K. L. (2013). Acceleration strategies in the new developmental education landscape. *New Directions for Community Colleges, 2013*(164), 37-45. doi:10.1002/cc.20079

Venezia, A., & Jaeger, L. (2013). Transitions from high school to college. *The Future of Children, 23*(1). Retrieved from http://search.proquest.com/docview/1519298014?accountid=12104

Webb, M. (2014). *Early college expansion: Propelling students to postsecondary success, at a school near you.* Boston, MA: Jobs for the Future.

Wellington, J. (2015). *Educational research: Contemporary issues and practical approaches*. London, UK: Bloomsbury Publishing.

Williams, J. F. (2015). *Early college academic performance: Studying the effects of earning college credits from Advanced Placement and dual enrollment* (Doctoral dissertation, Temple University).

Wood, G. A. (2016). *Illinois stakeholders' perceptions of Advanced Placement® and dual credit courses* (Doctoral dissertation, Illinois State University).

Wozniak, C., & Palmer, L. B. (2013). Stakeholder perceptions of barriers and solutions to significant expansion of postsecondary enrollment options for high school students. *International Journal of Education Policy & Leadership, 8*(2), 1-17.

Young, R. D., Joyner, S. A., & Slate, J. R. (2013). Grade point average differences between dual and nondual credit college students. *Urban Studies Research*. Retrieved from https://www.hindawi.com/journals/usr/2013/638417/

Young, R., Slate, J. R., Moore, G. W., & Barnes, W. (2014). Dual credit and non-dual credit college students: Differences in GPAs after the second semester. *Journal of Education and Human Development, 3*(2), 203-230.

Yuan, J., & Kim, C. (2014). Guidelines for facilitating the development of learning communities in online courses. *Journal of Computer Assisted Learning, 30*(3), 220-232.

Zinth, J. D. (2014). *Increasing student access and success in dual enrollment programs: 13 model state-level policy components.* Denver, CO: Education Commission of the States.

Zinth, J. (2015). *State approaches to funding dual enrollment* (ECS Education Policy Analysis). Denver, CO: Education Commission of the States.

Vita

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