Dual Credit as a Key to Preparation:

Exploring Dual Credit as a College Readiness Strategy

Dissertation

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Abstract

Dual credit is a rapidly-expanding coursework option for high school students that provides a means to early college credit and is also touted as a strategy to increase postsecondary readiness. However, existing studies that tie dual credit to college preparation rely upon indicators such as enrollment, achievement, and completion of degrees; they stop short of a full evaluation of readiness by not including the variety of competencies that are necessary for college success. This dissertation presents three studies that seek to explore links between dual credit participation and an established framework for college readiness. The first is a quantitative analysis of grades in college courses after prerequisites were obtained through dual credit or other methods. The second is a qualitative examination of the lived experience of dual credit instructors who work within the high school campus. The final article is a mixed methods case study that explores an innovative dual credit program designed to facilitate an associate degree while students attend a comprehensive high school. Through the three studies, I tie dual credit participation to numerous college readiness proficiencies, and I discuss possible areas of improvement for the consideration of practitioners and areas suggestions for the future work of researchers.

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"What you get by achieving your goals is not as important as what you become by achieving your goals." This quote by Zig Ziglar resounds with me as my doctoral journey ends. I have learned a great deal about myself, my limits, and my potential. However, the accomplishment would not be possible without important people that invested in me.

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Chapter 1: Overview of Dual Credit as a Key to Preparation:

Exploring Dual Credit as a College Readiness Strategy

High school graduation is an exciting time of celebrating student achievement. Society

historically viewed this capstone event as the educational end-point for many students who

would then go on to succeed in the workforce rather than continue education in college (Conley,

2013; Karp, 2015). However, the reality of the changing global economy means that a high

school diploma alone no longer assures financial or career success, and the need for

postsecondary education is critical (Carnevale & Rose, 2015; Malin, Bragg, & Hackmann,

2017). Education systems increasingly employ strategies that link K-12 schools to postsecondary

institutions for student success, including the acquisition of credit at both institutions, often

referred to as *dual credit* (Karp, 2015; Malin et al., 2017; Tobolowsky & Allen, 2016). The

purpose of this dissertation chapter is to provide context for three studies that explored dual

credit as a college readiness strategy. I will first establish the demand for and current definition

of college readiness, and I will then define dual credit and describe subsequent college outcomes.

I will end the chapter by discussing the importance of additional research and outlining my three

studies, which are collectively aimed at better understanding the use of dual credit as a college

readiness strategy.

The Evolution of College Readiness in the United States

K-12 school systems are highly motivated to promote postsecondary readiness because

accountability systems and public expectations demand it (Darling-Hammond, Wilhoit, &

Pittenger, 2014; Malin et al., 2017). However, the meaning of the phrase "college readiness" has

changed over time and with market conditions (Baldwin, Alfred, & Sydow, 2017). An

understanding of how the current demand and definitions progressed will provide context for

future work.

National Demand for College Readiness

Political and societal pressures for cost-effective increases to college enrollment date

back to the 1950s and 1960s, when the U.S. focused on global competitiveness in scientific and

technological innovation (Baldwin et al., 2017; Tomlinson & Walberg, 1986). In response,

enrollment rates increased significantly for three decades, but the completion rate did not keep

up (Adelman, 1999). Large failure rates from an apparent lack of student preparation for the

academic rigor and discipline required in college contributed to the gap between enrollment and

completion rates (Page & Scott-Clayton, 2016; Tomlinson & Walberg, 1986). By 2007, the

United States lagged in relative ratios of bachelor- and graduate-degreed citizens compared to

other nations in the worldwide economy (Carnevale & Rose, 2015).

When the Great Recession rocked the U.S. in 2008, both two- and four-year college

degree completion rates took a remarkable dip (Shapiro et al., 2017). President Obama's

administration publicly crystallized a growing sentiment that widespread completion of degrees,

not simply college enrollment, would pull the country back to its economic feet; and so, *the*

completion agenda was born: a principal focus on educational outcomes of degrees and

certifications (Baldwin et al., 2017; McPhail, 2011). The president challenged the country to

have the highest proportion of college-degreed citizens in the world by the year 2020 (The White

House, Office of the Press Secretary, 2009). Soon after, the U.S. Department of Education

published the *College Completion Toolkit* (U.S. Department of Education, 2011), which clearly

defined the goal of higher education to be degree attainment, and included recommendations for

high schools to contribute to the completion equation. Public and private dollars poured into new

initiatives and research, and policymakers expanded efforts to increase the college preparation of

high school students (McClarty, Mattern, & Gaertner, 2017a; Obama, 2008, 2009; Texas

Education Agency & Shapely Research Associates, 2011). The message was clear: More high

school graduates needed to be postsecondary-ready, and they needed to complete degrees.

The completion agenda has since become pervasive; the push for college readiness and

degree completion drives current educational culture (Baldwin et al., 2017). Although critics

maintain that a singular focus on degrees and certificates will cheapen educational experiences

(Humphreys, 2012; Rhoades, 2012), public policy continues to concentrate on postsecondary

credentials (Baldwin et al., 2017; Malin et al., 2017). For example, the passage of the Every

Student Succeeds Act (ESSA) in 2015 expanded high school accountability measures to include

not only rigorous academic achievement, but also measurable demonstration of student *college

readiness*: the ability to succeed in a credit-bearing, non-remedial college course (Conley, 2008,

2013; Malin et al., 2017). Even those who acknowledge that some students will not choose to

attend college argue in favor of keeping the door of opportunity open by sufficiently preparing

all secondary students for postsecondary success (McClarty et al., 2017a). Such expectations

have led to coordinated efforts between K-12 and higher education entities to implement

programs and strategies that prepare students for success (Conley, 2013; Malin et al., 2017).

In Texas, for example, education entities cooperate towards the statewide "60x30" goal:

that 60% of the state population between the ages of 25-34 will hold a postsecondary credential

by the year 2030 (Texas Higher Education Coordinating Board, 2018). Leaders attribute the 41%

increase in credentials following the first year of the 60x30 initiative to the collaboration of K-12

and higher education leadership together (Texas Higher Education Coordinating Board, 2018).

The link between high school preparation and college was cited as one strategy of continued

focus (Texas Higher Education Coordinating Board, 2018). Texas is just one of many states with

policy emphasis on college readiness (Southern Regional Education Board, 2016), and as states shift priorities to align with ESSA (Malin et al., 2017), additional statutory changes are likely. With the clear charge to high schools of producing college-ready students, researchers and practitioners continually work to define the elements of college readiness.

Definitions of College Readiness

Most traditional college readiness definitions rest squarely upon evidence of content-specific preparation of students in math, reading, and writing (Adelman, 1999, 2006; Barnett et al., 2012; McClarty et al., 2017a). One method of gaining such evidence is through assessment programs; states utilize standardized tests for both measurement of and accountability for college readiness (Camara, 2013; Darling-Hammond et al., 2014; Malin et al., 2017). Practitioners and researchers use defined scores on such assessments to signal academic aptitude for credit-bearing college work (Camara, 2013; Conley, 2013; McClarty et al., 2017a). Another method of gaining evidence of academic readiness is through curricular accomplishment in high school. Advanced course-taking and grade point averages (GPAs) indicate not only a student's willingness to accept the challenge of academic rigor, but also the ability to complete challenging coursework successfully (Adelman, 1999, 2006; Long, Conger, & Iatarola, 2012). Adelman (2006) epitomized the perspective of academic achievement as the chief driver of college readiness when he asserted "the principal story line leading to degrees is that of content" (p. xviii).

However, in more recent years, researchers and practitioners have included additional variables in the college readiness equation. Indications emerged that rigorous coursework positively impacted students independent of the content area (Long et al., 2012), and additional factors beyond academic alignment were important to college success (Barnett et al., 2012). Researchers began examining non-academic factors that contribute to success (Conley, 2013;

Nagaoka et al., 2013). For example, student ownership in the process of learning results in

persistence and self-direction that is especially critical for students who lack some academic

skills (Conley & French, 2014). And in order to remain successful in college, students must also

have the ability to interact with a variety of people, self-manage, and self-advocate within the

university system (Conley, 2008, 2013). Multiple practitioners, researchers, and institutions have

since devised postsecondary readiness models that incorporate competencies beyond academic

achievement (Conley, 2013, 2018; Nagaoka et al., 2013; National Research Council, 2012).

Theoretical Framework

One of the most widely-used college readiness models was constructed by David T.

Conley (2013) after his work as a K-12 education practitioner and policy advisor. His model

incorporates 42 skills grouped into four areas, called "keys" (Conley, 2013, p. 54). The

framework is used widely and is currently incorporated into partnerships with the College Board,

Texas Education Agency, and other state and local educational agencies (Conley, 2013; Inflexion,

2018). Conley asserts that the skills in his model are attainable by students with explicit

instruction and support, and they ensure that students are "ready, not just eligible, to enter

postsecondary education" (Conley, 2018, p. 32).

Although initially written as a model exclusively for college readiness, the current

revision of his model also includes related skills for success in future careers: *four keys to college

and career readiness* (Conley, 2013). Areas of proficiency include "key cognitive strategies"

that involve interdisciplinary deep thinking, "key content knowledge" regarding essential

discipline-specific demands, "key learning skills and techniques" acquired as a result of a high

degree of student ownership, and "key transition knowledge and skills" related to successful

operation in college institutional settings (Conley, 2018, pp. 53-54). Details of the four keys are

included in Figure 1. These four keys combine to promote a far-reaching definition of readiness that encompasses a student's ability to learn and achieve in a variety of possible future postsecondary settings (Conley, 2013).

Key Cognitive Strategies	Key Content Knowledge	Key Learning Skills and Techniques	Key Transition Knowledge and Skills
Problem formulation • Hypothesize • Strategize Research • Identify • Collect Interpretation • Analyze • Evaluate Communication • Organize • Construct Precision and accuracy • Monitor • Confirm	Structure of knowledge • Key terms and terminology • Factual information • Linking ideas • Organizing concepts Technical knowledge and skills • Challenge level • Value • Attribution • Effort	Ownership of learning • Goal setting • Persistence • Self-awareness • Motivation • Help seeking • Progress monitoring • Self-efficacy Learning techniques • Time management • Study skills • Test-taking skills • Note-taking skills • Memorization/recall • Strategic reading • Collaborative learning • Technology	Contextual • Aspirations • Norms/culture Procedural • Institution choice • Admission process Financial • Tuition • Financial aid Cultural • Postsecondary norms Personal • Self-advocacy in an institutional context

Figure 1. Conley's (2013) four keys to college and career readiness. Each key area contains discrete, teachable skills that promote student postsecondary success. From *Getting Ready for College, Careers, and the Common Core: What Every Educator Needs to Know* (p. 54), by D. T. Conley, 2013, San Francisco, CA: John Wiley & Sons. Copyright [2014] by CCR Consulting Group. Reprinted with permission.

Schools employ a multitude of strategies to promote college readiness because of the widespread realization of the complexity of the task and the variety of possible metrics (Conley, 2018; Malin et al., 2017; McClarty, Mattern, & Gaertner, 2017b). While emphasis on academic rigor and exposure to college expectations are each necessary components of effective secondary programs (Barnett et al., 2012; Malin et al., 2017), this chapter will focus on one particular strategy that combines college content with postsecondary norms.

Dual Credit and College Readiness

Definition and Growth of Dual Credit

One popular college-readiness strategy employed by high schools is to provide students the opportunity to take college courses while in high school, which is often referred to as *dual credit, dual enrollment, or concurrent enrollment* (Malin et al., 2017; Tobolowsky & Allen, 2016). Though every state in the nation has long-permitted high school students to take college courses (Bragg, Kim, & Rubin, 2005), policymakers have not established a standardized definition for the practice. Settings utilized for college credit-bearing high school courses vary widely: instruction may be delivered within a comprehensive high school, a specialized high school, a two-year college campus, a four-year college campus, or online (D'Amico, Morgan, Robertson, & Rivers, 2013; Fischetti, MacKain, & Smith, 2011; Ozmun, 2013; Taylor, 2015; Tobolowsky & Allen, 2016). In some states, the use of one term versus another may be indicative of the instructional setting or the institution(s) that transcribe credit (Lichtenberger, Witt, Blankenberger, & Franklin, 2014). Multiple terms are sometimes utilized even within the same state's educational statute (Dual credit requirements, 2015). This variety of settings and terminologies presents a challenge to researchers since one descriptor is not necessarily attached to a particular program design (Miller et al., 2017). For the purposes of this chapter, I will use the term "dual credit" to refer to a course that is credited on both a high school and college transcript regardless of the instructional setting.

In its early years, dual credit coursework was typically reserved for only the most advanced or gifted high school students (Howley, Howley, Howley, & Duncan, 2013). But because dual credit is a widely perceived means to improve postsecondary readiness for all students, not just those taking advanced courses, availability over the past decade has increased

substantially for students of wide-ranging abilities (Howley et al., 2013; Miller et al., 2017).

Participation numbers nearly doubled to 1.2 million students in less than a decade (Kleiner &

Lewis, 2005; Thomas, Marken, Gray, & Lewis, 2013), and at least 82% of U.S. high schools

report student enrollment in college courses (Marken, Gray, & Lewis, 2013). In the state of Texas

alone from 2000 - 2015, the numbers of dual credit students skyrocketed by 650% and grew to

comprise 10% of the total public higher education enrollment (Texas Higher Education

Coordinating Board, 2016). Continued growth in dual credit participation is anticipated in light

of the explicit financial and accountability provisions in the 2015 ESSA (Malin et al., 2017).

Although participation is growing rapidly, academic research regarding student results following

dual credit coursework is still emerging.

College Outcomes Following Dual Credit

Studies regarding the effects of dual credit on later college success have shown promising

but complicated results. Students that participate in dual credit coursework demonstrate an

increased likelihood of enrollment in college following high school graduation (Allen & Dadgar,

2012; Lichtenberger et al., 2014; Taylor, 2015). Student retention and degree completion have

also shown positive correlation with dual credit participation in multiple studies and settings

(Allen & Dadgar, 2012; D'Amico et al., 2013; Taylor, 2015). Dual credit students tend to have

higher college academic performance, especially in the first term of college, and they need less

remedial coursework (An, 2012; Young, Jr., Joyner, & Slate, 2013). In fact, the college GPAs of

juniors at one early college high school were comparable to those of college freshmen enrolled at

the same institution (Fischetti et al., 2011). These examples point to promising results for dual

credit students.

However, the large-scale application of findings is complex, and limitations are

substantial. Large data sets available for statistical analysis generally do not differentiate between various instructional settings, course types, or numbers of courses taken; these programmatic aspects may have significant impact on the observed outcomes (Allen & Dadgar, 2012; An, 2012; Lichtenberger et al., 2014; Taylor, 2015). Covariant school factors such as institutional partnership plans, orientation courses, and student workshops can be as critical of a factor in student outcomes as the coursework itself (Allen & Dadgar, 2012). For example, early college high schools and highly-structured dual credit programs frequently include heavy advising components, scheduling supports, and limited extracurricular and elective opportunities (Fischetti et al., 2011). This "strong and at times intense academic focus" (Fischetti et al., 2011, p. 61) is not necessarily representative of a typical high school dual credit experience. Institutional setting may also impact results. For example, D'Amico et al. (2013) acknowledged that the increased degree completion rates he observed may not be generalizable to all settings because he only examined technical dual credits transferred to a technical two-year college. Student-level factors also present complications to data analysis. Because students self-select into dual credit programs, it is difficult to determine whether increased college completion rates are due to dual credit coursework participation or pre-existing student factors (Taylor, 2015). Sometimes positive student outcomes are not long-lived; although Young et al. (2013) observed a positive effect of dual credit on college GPA in the first term of college, but not in analysis of the two-year cumulative GPA. The findings above illustrate the complexity of understanding how interrelating factors contribute to the effects of dual credit on college success- and have generated debate regarding effects on college readiness.

Controversy Surrounding Dual Credit as a College Readiness Indicator

Although dual credit has made its way into national policy as an indicator of college

readiness (Malin et al., 2017), not everyone agrees with the practice. Some attribute success following dual credit coursework to selection bias inherent in samples of participating students: Because dual credit students must meet state and local eligibility criteria, they are generally high-achievers (An, 2013; Pretlow & Wathington, 2013; Thomas et al., 2013). Furthermore, students self-select into dual credit (Brophy & Johnson, 2007; Taylor, 2015), leading some to question whether observations of success are attributable to the program at all (An, 2013; Taylor, 2015). According to that argument, dual credit does not contribute to college readiness because students are essentially college-ready before they begin the course. However, one analysis of data with students matched for achievement still indicated positive effects of dual credit on college enrollment (Lichtenberger et al., 2014). Highly-motivated dual credit participants also reported increased academic self-efficacy following course completion (Ozmun, 2013). Therefore, even though pre-existing student factors are important considerations, dual credit participation appears to positively influence at least some areas of college readiness.

One likely factor in the postsecondary benefit of dual credit is the academically demanding nature of dual credit courses, because a demanding high school curriculum contributes to future college success (Adelman, 1999; Long et al., 2012). However, high school dual credit programs frequently involve additional non-academic school-level components such as advising, tutoring, or specialized cohort scheduling (Fischetti et al., 2011; Howley et al., 2013; Karp, 2015). These factors likely impact students' college readiness in important ways and may have just as much, if not more, to do with dual credit student outcomes than the challenging content of the courses (Howley et al., 2013; Karp, 2015). If that is the case, then perhaps the non-academic school-level supports are the true college readiness strategies, and not the dual credit course itself.

An additional debate about dual credit as a college readiness strategy centers around the idea of *credentialism*: the superficial use of educational awards for employment or societal advantages rather than as indicators of true achievement or accomplishment (Baker, 2011; Howley et al., 2013; Zusman, 2017). Those who maintain that a singular high-stakes goal of completion leads to a reduction in deep learning and true student achievement often link dual credit to the completion agenda at the expense of learning (Humphreys, 2012; Rhoades, 2012). Critics including Tinberg and Nadeau (2011) maintain that while dual credit programs "have been shown to have a positive effect on the persistence of some students and on their decision to continue onto college, such programs have not been proven to enhance student learning" (p. 706). Both practitioners and researchers have expressed the concern that dual credit courses may be significantly less rigorous than traditional college courses (Ferguson, Baker, & Burnett, 2015; Miller et al., 2018, 2017). Because research regarding the college success following dual credit commonly fails to distinguish between subject areas of courses (An, 2012), curricular analyses are virtually impossible. Therefore, critics maintain that while dual credit aligns to the completion agenda, it does not necessarily promote postsecondary readiness. For the reasons described above, additional studies of dual credit as a college readiness strategy are warranted.

Dissertation Studies Relating Dual Credit to College Readiness

Despite the doubts cast on the contributions of dual credit towards postsecondary readiness, participation continues to grow (Malin et al., 2017). Additional research should address information gaps resulting from limitations of existing studies. Therefore, I will describe three completed studies that focused on various aspects of dual credit in light of college readiness.

Central Problem

Most existing dual credit research is focused on holistic college outcomes, not necessarily readiness. The evidence supporting postsecondary benefits of dual credit leaves partial or unclear conclusions in large part due to the variety of influences involved with high school students' pre-college experiences (Lile, Ottusch, Jones, & Richards, 2017; Miller et al., 2017). Advantages conveyed through participation are often dismissed as an artifact of selection bias, or the process is relegated to an example of credentialism with no value in deep learning and preparation (Humphreys, 2012; Miller et al., 2017; Rhoades, 2012). To date, few studies have attempted to examine dual credit against a known and respected college readiness framework such as Conley's (2013) four keys model. Attempts to connect dual credit to readiness have focused on increased eligibility for postsecondary work, not necessarily success in college that results from personal competencies. This lack of connection is problematic given the rapid expansion of dual credit programs (Lile et al., 2017; Miller et al., 2017), and the increasing use of public funds for dual credit expansion (Malin et al., 2017). Proper stewardship of resources warrants a deliberate examination for known readiness influences.

Central Purpose

The purpose of this dissertation is to connect dual credit participation to college readiness proficiencies. The articles build upon existing work in the field and explicitly evaluate links between dual credit participation and postsecondary preparedness using Conley's (2013) four keys as a conceptual frame. Statistical, phenomenological, and case study methods were utilized in three studies. By viewing dual credit through the lens of college readiness competencies, new insight could inform dual credit practitioners and policymakers.

Quantitative Analysis of Content-Specific Success Following Dual Credit

The first of three articles to explore college readiness within dual credit utilized statistical analysis of college student achievement data. This study is unique because it focused on academic achievement within content-specific course sequences, and compared the results for dual credit students to those of students with similar high-achieving backgrounds. Results could provide context for future studies related to advising practices.

Background. Today's high schools offer multiple routes to early college credit, including exam-based and course-based methods (Tobolowsky & Allen, 2016). Since the 1950s, the Advanced Placement (AP) program has linked high-achievers to college credit (Tai, 2008; Warne, 2017). Students take AP exams following a high school course with a College Board-approved syllabus, and they can be awarded college credit dependent upon the exam score and college policies (College Board, 2014). Participation in both dual credit and AP has dramatically increased with at least 59% of the nation's high schools offering both options (College Board, 2011; Thomas, Marken, Gray, & Lewis, 2013). A major criticism of existing dual credit research involves possible selection bias favoring high-achievers (An, 2013; Taylor, 2015). Because they are also high-achievers, AP students serve as a logical high-achieving, non-dual credit group to compare to dual credit students.

Despite research on each program separately (An, 2012; Warne, 2017), little academic work has directly compared student outcomes between AP and dual credit (Eimers & Mullen, 2003). The few existing comparative studies focused on measures including college achievement and time to degree completion (Eimers & Mullen, 2003; Murphy & Dodd, 2009). Existing comparisons have not explored learning within a content pathway (Wyatt, Patterson, & Di Giacomo, 2015).

Connection to theoretical framework. Student learning of prerequisite skills, not simply the acquisition of credit, is vitally important to future success in a more advanced course within the same discipline. According to the key content knowledge component of Conley's (2013) four keys to college readiness, high school students are prepared for later college success when they learn subject-specific terminology, conventions, broad concepts, and communication norms. For many students, the dual credit courses or AP exams taken in high school fulfill a prerequisite requirement for more advanced college coursework within the same academic area, making the acquisition of key content knowledge vital to success.

Purpose and design. This study explored the achievement in college *follow-on courses*: courses taken after the completion of a required prerequisite course (Miller et al., 2017). I chose the prerequisite content area of English because the introductory Rhetoric and Composition course (ENGL 1301) is the most widely-utilized dual credit option in the state of Texas (Miller et al., 2017), and is also tied to the most commonly-taken AP exam (College Board, 2017). Therefore, I was able to obtain a substantial sample size of students for a variety of follow courses. In addition, the content of ENGL 1301 includes competencies that are considered critical for general college readiness: organizational, mechanical, and stylistic skills for written composition (Conley, 2013; Texas Higher Education Coordinating Board, 2017). By also obtaining data for students who took prerequisite courses on the university campus, both sets of high achievers were viewed within the larger context of the institution.

Research questions were: 1.) Does follow-on course achievement differ according to the method used for prerequisite credit, be it dual credit, AP, or at the university? 2.) Does follow-on course achievement for students with similar achievement histories differ according to the method used for prerequisite credit, be it dual credit, AP, or at the university? I examined the

achievement in follow-on courses for different prerequisite groups based upon the assumption that differences in academic preparation could manifest in grades in the more advanced course of a sequence. Because overall student performance can also vary, I believed that controlling for general academic achievement would allow any differences in follow-on courses to be more attributable to prerequisite learning.

Method. A large Research I institution in Texas was the research site for the study. Selection of follow courses for inclusion in the study involved an examination of prerequisite requirements stated in the institution's catalog and the Lower-Division Academic Course Guide Manual (ACGM) published regularly by The Texas Higher Education Coordinating Board (Texas Higher Education Coordinating Board, 2017). The ACGM contains course descriptions, prerequisites, and learning outcomes for all courses approved for transfer between public higher education in Texas (Texas Higher Education Coordinating Board, 2017); therefore, using the guide to define follow courses authenticates the curricular connections within a sequence, and allows more generalization of my findings to other state institutions.

I obtained deidentified student data including individuals' course grades in specified follow courses, information about how the ENGL 1301 prerequisite was fulfilled, and individuals' total cumulative college GPA prior to the follow course. I obtained formal confirmation from the UTA Office of Research Administration that secondary analysis of the existing data was not subject to Institutional Review Board (IRB) approval. Analyses using Welch ANOVA and post-hoc regression examined the significance of differences, if any, between follow course grades for AP students and dual credit students compared with students who took the prerequisite on the college campus. I also analyzed the groups for differences that persisted when overall college GPA was held constant so that any differences could be more attributed to

the credit type rather than differences in student characteristics between samples. Although this data set allowed me to account for multiple student-level factors, limitations do exist. Differences in grading practices by instructors, unknown actual scores on prerequisite course credit, and the inclusion of data from only one university are all influences that limit the application of findings across contexts.

Significance. By examining achievement in follow-on courses for both dual credit and AP student samples, I accounted for possible selection bias in existing dual credit studies because AP and dual credit student groups both contain high-achievers (Taylor, 2015; Warne, 2017). This study was reviewed and presented as a work-in-progress at the Southwest Educational Research Association (SERA) annual convention in February, 2018. The information learned through this study is important to inform future studies in additional content areas such as mathematics, and in research regarding student advising when both AP and dual credit options are both available to high schoolers.

Qualitative Analysis of Dual Credit Teacher Perspectives on College Readiness

The second of three articles to explore aspects of college readiness connected to dual credit is a qualitative study that explored dual credit teacher perspectives. Although research points to discrete elements that contribute to college readiness (Conley, 2008, 2018; Nagaoka et al., 2013; National Research Council, 2012), practitioners must be able to implement such strategies to affect student outcomes (Conley, 2013; Darling-Hammond et al., 2014; Snyder & Bristol, 2015). This study examined the lived experiences of teachers who navigate both high school and college environments.

Background. Student outcomes after participation in dual credit are generally positive: college academic achievement is higher, persistence in college is increased, and time to degree is

reduced (Allen & Dadgar, 2012; An, 2012, 2013; D'Amico et al., 2013; Taylor, 2015; Young, Slate, Moore, & Barnes, 2013). But despite its growing popularity, the reasons for and mechanisms of dual credit benefits are not understood (Lile et al., 2017; Miller et al., 2017). Most existing studies are quantitative in nature and focus solely on holistic college outcomes (Allen & Dadgar, 2012; An, 2012, 2013; D'Amico et al., 2013; Taylor, 2015; Young et al., 2013). Such study designs are unable to account for the wide variety of instructional and program factors that may be the cause(s) of success (Lile et al., 2017).

Dual credit courses are often taught by *embedded* instructors: high school teachers who are simultaneously employed as college adjunct faculty (Charlier & Duggan, 2009; Howley et al., 2013; Tobolowsky & Allen, 2016). This unique employment arrangement results in professional development, communication, and support needs that are distinctly different than a traditional teaching or faculty role (Charlier & Duggan, 2009; Howley et al., 2013). Although they tend to be experienced with the high school setting, teachers sometimes lack clarity regarding the goals for dual credit as a whole (Charlier & Duggan, 2009). Personal beliefs and attitudes also affect levels of teacher engagement with dual credit programs (Howley et al., 2013). Studies involving dual credit teachers are scarce, so little is known regarding their perspectives and approaches to promote college readiness.

Connection to theoretical framework. Conley (2013) described classrooms that promote college readiness as those with rich learning experiences requiring teacher content expertise, a variety of instructional methods, deliberate planning for student ownership of learning, and a culture of high expectation for deep thought and evaluation. Such experiences are not possible without skilled instructors who are able and committed to design and facilitate

appropriate student experiences (Conley, 2013; Darling-Hammond et al., 2014; Snyder &

Bristol, 2015). Classroom-level factors are critical to student success.

       If teachers do not have the knowledge and capacity to build appropriate college-ready

strategies into classrooms, then a dual credit classroom experience can be misaligned with

intentions of the school district and college (Charlier & Duggan, 2009; Darling-Hammond et al.,

2014; Snyder & Bristol, 2015). Even when teachers do have an understanding of college

readiness, the professional demands of high school and college employers can shape the actual

implementation of desired practices (Howley et al., 2013). Because they are directly involved at

the intersection of high school and college, embedded dual credit teachers' experiences hold

important clues to better understand program design elements that influence students.

       Purpose and design. The purpose of this study was to describe the lived experiences of

embedded dual credit teachers, and to explore the meaning they ascribe to their role. Because

Conley's (2013) four keys model outlines a variety of skills, it served as an ideal guide for

shaping an interview protocol designed to elicit teacher responses regarding student college

readiness. Research questions were: 1.) What is the experience of embedded dual credit teachers

when navigating the professional expectations of employment at both high school and college?

2.) What meaning do embedded dual credit teachers ascribe to student college-readiness, and

their role as an instructor in promoting college-readiness? 3.) What noteworthy opportunities and

obstacles do teachers perceive in dual credit program design and implementation?

       These guiding questions shaped data collection and analysis to explore a variety of

school- and classroom-level influences. Because embedded instructors are responsible for

requirements from two institutions, competing interests were also discussed to determine

influences on their instructional or procedural decisions (Howley et al., 2013), and consequently

student preparation for college. Additionally, the teachers discussed the meaning they ascribed to college-readiness and their role in college preparation. Because embedded instructors directly interact with students and faculty from both secondary and postsecondary institutions, they provided new insight regarding dual credit programs.

Methods. I utilized a phenomenological qualitative approach to focus on the unique perspective of embedded dual credit teachers. After approval of materials by the IRB, I worked with a regional community college in Texas to recruit nine veteran, embedded dual credit teachers from four different high schools that partner with the college. They each participated in in-depth individual semi-structured interviews.

During analysis of interview transcripts, I initially considered each statement made by teachers with equal weight in the process of *horizonalization* (Moustakas, 1994), and then listed the *meaning units* (Moustakas, 1994) informed by significant statements. I analyzed a second time with *a priori* (Creswell & Poth, 2017) coding focused on competencies described in Conley's (2013) four keys. I also contacted teachers a second time for clarification as needed. Once meaning units were organized into themes, I utilized *member checking* (Creswell & Poth, 2017) by sending all participants a copy of my findings for review and feedback.

This study was delivered as a full paper presentation at the annual SERA conference in February 2019. I have identified the *Community College Journal of Research and Practice* as a preferred option for future journal publication of the work. Student participation in embedded dual credit is anticipated to continue rising (Malin et al., 2017), therefore an awareness and examination of the viewpoints of teachers is critical.

Mixed Methods Case Study of a Dual Credit Program

The final article in this dissertation is a case study of an innovative dual credit program

involving a partnership between a high school, a community college, and a university that leads to associate degree attainment. The study explored the effectiveness of the unique application process as well as the perceived success of multiple school-level supports. Through the use of multiple methods, I tied the results to elements of college readiness.

Background and significance. Dual credit programs are a way to integrate the educational experience of students as they transition between secondary and postsecondary systems (Karp, 2015). Partnerships between high schools and institutions of higher education shape policy and practices that can impact classrooms in very real ways (Howley et al., 2013; Karp, 2015). Therefore, some believe that participation in such partnerships can increase the readiness of students to succeed in college (Karp, 2015; Malin et al., 2017; McDonald & Farrell, 2012). One dual credit setting designed to increase postsecondary access and completion for underrepresented student groups is the *early college high school* (ECHS) model (Haxton et al., 2016).

An ECHS requires a specific type of partnership between a high school and a college that allows students to earn an associate degree or two years of college (Texas Education Agency, 2018). As part of the model, students receive extensive social and academic support (McDonald & Farrell, 2012; Texas Education Agency, 2018). The most recent national data reports on degree attainment estimate that 30% of ECHS students earn an associate degree or other postsecondary certificate along with high school graduation (Haxton et al., 2016; Webb & Gerwin, 2014). Despite success for a number of students, a major criticism of ECHSs is the lack of a traditional high school experience because of the absence of typical clubs, organizations, extracurricular activities, and social events (Fischetti et al., 2011; McDonald & Farrell, 2012). For some students, extracurricular and co-curricular activities contribute to persistence with academics as

well as leadership and social development (Camara, 2013; Wolniak, Wells, Engberg, & Manly, 2015). When school districts utilize an ECHS as the main source of advanced coursework, students could be forced to choose between academic and non-academic accomplishments.

This study explored an innovative program that combines the opportunities of a traditional high school experience with many benefits of an ECHS. Through a three-way partnership between a K-12 school district, a community college, and a large research university, students within the local high school can gain sufficient dual credit hours to obtain an associate degree (Jones, 2018). Candidates participate in a unique application and selection process during eighth grade (Red Oak ISD, 2017a) and begin dual credit coursework in the ninth grade (Red Oak ISD, 2017b). The school provides supports such as cohort scheduling and specialized advising (Jones, 2018). In the first graduating cohort, 17 students completed an associate degree, which constituted 77% of the cohort that began the program in the ninth grade (Jones, 2018). The four-year university partner worked with students to ensure that, if they attended that university, course options utilized for associate degree completion would transfer seamlessly for the student's chosen major of study (Jones, 2018; Red Oak ISD, 2017b).

Because this program offers benefits of both a traditional high school and ECHS, and because of the high rate of degree attainment, a study of its various components was warranted to provide insight to practices that positively influence college readiness. Perhaps beneficial practices could be replicated elsewhere or applied to the general population of the high school.

Connection to theoretical framework. Many aspects of Conley's (2013) four keys were present, although they were not named as such in the program design. Key learning skills and techniques as well as key institutional knowledge were most discussed. Conley's (2013) keys framed the interview protocols; this allowed for confirmation of the implementation of the keys

and also led participants to describe their views of college readiness.

Purpose and design. The purpose of this study was to explore an innovative dual credit program that led to an associate degree within a comprehensive high school. Research questions were: 1.) What elements of the program are viewed by alumni and faculty as most helpful to promote college readiness and success, and why? 2.) How effectively does the program selection process identify college-ready students who later succeed in dual credit courses and degree completion? 3.) What obstacles and opportunities within the program do alumni and faculty perceive?

Evaluation of the middle school selection process as an identifier of college success potential proved useful for recommendations for refinement of the program. The perspectives of alumni and faculty regarding the program components provided new insights about high school actions that made differences in the college readiness of students. Not only does such information guide program refinement, but also adds to the research field related to student preparation for postsecondary endeavors. By utilizing case study methodology to address the "how" and "why" questions (Yin, 2017) for program outcomes, this study provides direction to future larger-scale research.

Method. To thoroughly investigate the various aspects of the program and its participants, I undertook an intrinsic case study (Creswell & Poth, 2017) with a mixed-method design (Yin, 2017). The site of the study was the comprehensive high school in Red Oak, TX, where I also work as a central administrator. Data-sharing agreements with The University of Texas at Arlington (UTA) and the Red Oak Independent School District (ROISD) were enacted so that private student information from ROISD was protected appropriately as I functioned in a research role with UTA. An additional collaborator from the ROISD Curriculum Department,

Lindsay Cadenhead, assisted in data collection and analysis, and is listed as a co-author on the completed paper. Because I have professional obligations for the program design and implementation, I was deliberate to bracket my experiences (Creswell & Poth, 2017) and rely upon the perspectives expressed by study participants rather than my own inferences (Yin, 2017). Through carefully designing the interview protocol to contain neutral wording, my prolonged engagement with the site (Creswell & Poth, 2017), participant review (Yin, 2017), peer debriefing (Creswell & Poth, 2017), and triangulation with multiple data sources (Yin, 2017), I ensured the validity and reliability of the study's findings.

In the quantitative analysis, we explored the middle school student application components and later success in associate degree attainment. Independent variables included scores assigned to the application portfolio, student grades, and numbers of advanced courses taken. The dependent variable was the completion of an associate degree. Although only one cohort of 22 students have completed high school to date, an additional four cohorts are currently enrolled, so data was available for 104 program participants. Descriptive statistics explored student participation in extracurricular activities, college credits taken, and demographic disparities.

For the qualitative investigation, we individually interviewed current and former faculty members involved in the design, implementation, and operation of the program. The faculty interview protocol included questions about their perceptions of program elements that contribute most to participants' college readiness, and the obstacles and opportunities they perceive within the program design. We also interviewed a voluntary sample of program graduates from the class of 2018. The alumni interview protocol included questions about experiences that they believe contributed to college success, as well as perceived obstacles or

ineffective components in the program design. For both interview protocols, Conley's (2013) four keys model provided structure for questions and probes.

Program descriptions and quantitative elements contained in this study have been previously presented at practitioner conferences and public meetings. The complete study was presented at the Conference for the Advancement of Research in Education in February 2019, which included a review for publication to the *Journal of Behavioral and Social Sciences*. By examining the elements of an innovative program that shows promising early results, I aimed to contribute to future work regarding the promotion of college readiness through high school program design. In addition, this study sought to further explore dual credit as a college readiness strategy by investigating the many school-level factors that coexist with completion of college coursework. Such information may also inform practitioners about effective dual credit student support options within a comprehensive high school.

Dissertation Summary

Through this chapter, I introduced three completed studies focused on dual credit and college readiness. Because college readiness is an essential accountability measure for high schools (Malin et al., 2017), and because the completion agenda drives the priorities of higher education (Baldwin et al., 2017), these studies are timely in significance and potential impact. Dual credit is utilized widely as a strategy to promote college readiness (Howley et al., 2013; Malin et al., 2017; Miller et al., 2017). However, the limitations of existing studies cast doubt upon its effectiveness as a stand-alone strategy. Selection bias favoring high-achievers (An, 2013; Taylor, 2015), mismatched content areas within datasets (An, 2012; Miller et al., 2017), and covariant school supports (Fischetti et al., 2011; Howley et al., 2013; Karp, 2015) cause

critics to question whether dual credit participation is truly effective in promoting college readiness.

Through the three studies outlined above, I explored links between dual credit and an established college readiness framework, the four keys to college readiness (Conley, 2008). Figure 2 depicts the relationship between each study and the four keys model.
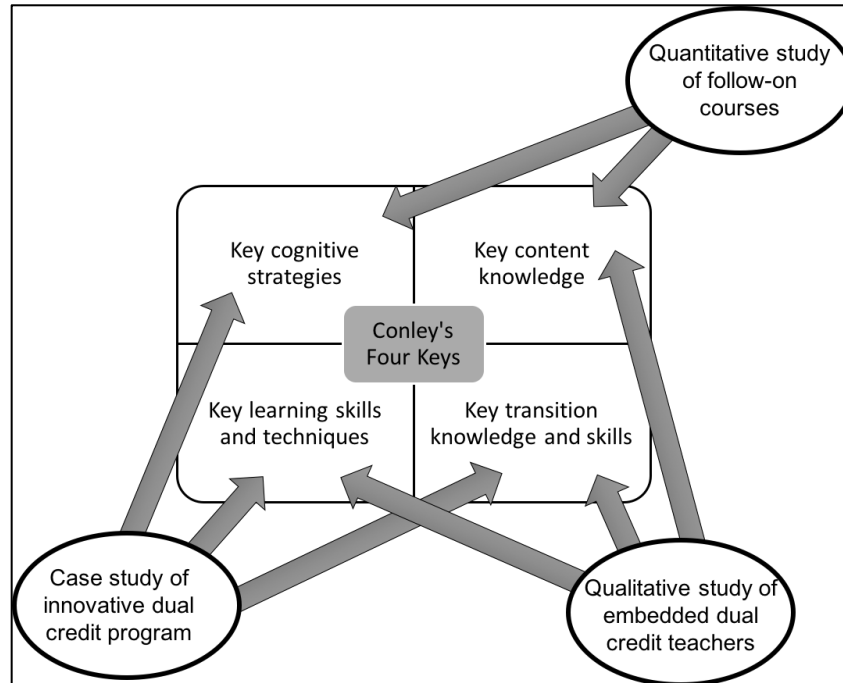
Figure 2. Relationships of dual credit studies to Conley's (2013) four keys readiness model. Each study relates dual credit participation to applicable sections of the model.

My goal was to tie research outcomes to the framework in a conceptual manner, not necessarily to explore each competency within the four key areas. The findings of the quantitative study provide insight to the effectiveness of dual credit in imparting key content skills that are required in later college coursework. The phenomenological study explores the extent to which embedded dual credit teachers plan for and teach the competencies from key cognitive strategies, key learning skills, and key institutional knowledge. The case study provides insight to areas from all four keys, but especially key learning skills and key institutional knowledge. Each study will

follow in chapters of the dissertation: the quantitative analysis of prerequisite method, then the

qualitative study of dual credit teachers, then the exploration of the CHAP through the case

study.

Central Significance

In summary, this chapter provides background information and a connecting framework

description for three studies relating dual credit to college readiness. Because participation in

dual credit has rapidly grown and is anticipated to continue growing (Malin et al., 2017; Miller et

al., 2017; Thomas et al., 2013), an understanding of its connection to postsecondary preparation

is timely and desirable. Through these studies, I contributed to the existing literature regarding

dual credit as a college readiness strategy.

Chapter 2: A Fork in the Road:

Content Success after Advanced Placement, Dual Credit, or Traditional College Prerequisites

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A Fork in the Road: Content Success after Advanced Placement, Dual Credit, or Traditional College

Prerequisites

To remain a key player in the global economy, our nation must continue to produce a future workforce that meets marketplace demand. The desire for college-educated labor continues to increase worldwide, but the relative supply of U.S. citizens with bachelor and graduate degrees is shrinking (Carnevale & Rose, 2015). The message is clear: more high school graduates need to be postsecondary-ready, and they need to complete degrees.

The practice of facilitating college credit in high school is viewed as a postsecondary readiness booster (Texas Education Agency & Shapely Research Associates, 2011). Today's high schools offer opportunities for credit that are generally either exam-based or course-based (Tobolowsky & Allen, 2016). Advanced Placement (AP) exams through the College Board are taken at the conclusion of a course with a pre-approved syllabus, and students can be awarded college credit dependent upon the exam score and college policies (College Board, 2014). The course-based option, commonly referred to as *dual credit* (DC), requires that high school students successfully complete an actual college course as high schooler for transcripted credit (Tobolowsky & Allen, 2016). Policymakers have encouraged participation in both AP and DC programs by committing public dollars to keep costs to families considerably lower than traditional college coursework (Godfrey, Wyatt, & Beard, 2016; Howley, Howley, Howley, & Duncan, 2013; Hunt, 2007; Pretlow & Wathington, 2013). Both options have experienced dramatic increases, with numbers nearly doubling in less than a decade (College Board, 2003, 2011; Kleiner & Lewis, 2005; Thomas, Marken, Gray, & Lewis, 2013).

At least 59% of U.S. high schools have both AP and DC options available to students (Thomas et al., 2013). However, despite research on the benefits of each program separately,

little scholarly work has been done to directly compare student outcomes between the two

(Godfrey, Matos-Elefonte, Ewing, & Patel, 2014; Wyatt, Patterson, & Di Giacomo, 2015). The

few comparative studies that exist have not considered successful learning within a college

content pathway (Wyatt et al., 2015). Yet for many students, the DC courses or AP exams taken

in high school will fulfill a prerequisite requirement for more advanced coursework in the same

academic area. Student learning, not simply acquisition of credit, is vitally important to future

success in a college course within the same academic discipline.

The purpose of this study is to determine how prerequisite credit by AP or DC is

associated with course achievement within the same academic content area. This approach

addresses an existing gap in the literature by focusing upon evidence of student learning within a

curricular pathway rather than focusing solely on general college success measures. I will

analyze course grades from *follow-on* college courses, which Miller (2017) defines as "courses

that require taking an introductory college course as a prerequisite" (p. 54). The prerequisite and

follow-on are within one academic content and allow comparison of achievement patterns

between student groups that earned the prerequisite credit through AP or DC in high school. The

research questions I will address are:

1. Does follow-on course achievement differ according to the method used for

   prerequisite credit, be it dual credit, AP, or at the university?

2. Does follow-on course achievement for students with similar achievement histories

   differ according to the method used for prerequisite credit, be it dual credit, AP, or at

   the university?

Insights from this study may be valuable to inform student decisions regarding program

participation when both AP and DC options in the same content area are available.

Summary of Existing Research

I will provide context for this study in the following sections that summarize credit by AP exam, credit through DC coursework, and then existing work to compare the two options. I will also discuss the framework utilized to frame the results.

Overview of credit by AP exam

The origin of the AP program stemmed from concerns with the global positioning of the U.S. as the early years of the Cold War warranted an increase in highly-educated scientific and political leaders (Schneider, 2009). With the first exams for credit administered in 1954, it is the oldest method of accelerated college credit for secondary students. AP was intended to be a program reserved for small numbers of gifted and talented students from elite schools who would fast-track through college and into graduate school or the workforce (Schneider, 2009). Yet by the turn of the century, AP coursework and exams were available to 60% of the nation's high schools (College Board, 2000). Participation in the program has been historically, and to some degree currently, viewed as a signal of college-readiness and a means to gain a competitive edge in college admissions (Schneider, 2009).

AP exams are scored through a structured process facilitated by the College Board that includes both college and high school faculty members (College Board, 2014). Students are assigned a score on a scale of 1 to 5, with a score of 3 considered as "qualified" for college credit consideration (Lichten, 2000). However, colleges and universities have their own policies for determining what AP score may be accepted for credit, and some require scores of 4 or 5; policies vary by institution, subject area of the exam, state mandates, and other factors (Lichten, 2000; Sadler & Tai, 2007; Schneider, 2009). A student is therefore not guaranteed college credit at his/her choice of institution even when an AP exam score is successful in the eyes of the

College Board.

Existing research indicates that AP exam success is associated with increased college entrance scores (McKillip & Rawls, 2013; Warne, Larsen, Anderson, & Odasso, 2015), college GPA (Eimers & Mullen, 2003; Hargrove, Godin, & Dodd, 2008; Murphy & Dodd, 2009), persistence in college (Eimers & Mullen, 2003), and reduced time to degree completion (Hargrove et al., 2008; Speroni, 2011). However, these measures of success are confounded by many student-level variables, and the beneficial effects for AP participants compared to non-participants appear diminished when demographics and other achievement indicators are matched (Page & Scott-Clayton, 2016; Schneider, 2009; Warne et al., 2015). When covariates such as race, class, and high school achievement are not controlled, the beneficial effects of AP participation are likely to be exaggerated and overstated (Warne et al., 2015).

The AP program has been assumed to be beneficial by nature, and to promote accelerated learning for participants (Tai, 2008). However, research on program outcomes by non-College Board researchers has been non-existent until the 21st century (Warne, 2017). Lichten (2000) was the first independent researcher to subject the program to true empirical analysis, and he pronounced scathing assertions regarding the misalignment of AP exam expectations and those of colleges. Tai (2008) maintains that although the AP program is beneficial as a means to accelerate the acquisition of college credits, it remains at its heart a testing program with no guarantee of depth in content knowledge mastery. Researchers from the College Board concede that rigor in an AP course "may vary according to teacher expectations and expertise, or the course subject matter" (McKillip & Rawls, 2013), even though the syllabus is authorized by the College Board. Students who "test out" of introductory-level college courses may run the risk of missing important content that is not included in high school AP coursework (Lichten, 2000;

Sadler & Tai, 2007). Future study is needed to better understand the long-term learning

implications for AP students' subsequent courses of study.

Overview of Dual Credit

Though every state in the nation permits high school students to take college courses

(Bragg, Kim, & Rubin, 2005), a standardized definition for the practice has yet to be established.

Labels including *dual credit*, *dual enrollment*, and *concurrent enrollment* are all utilized

(Tobolowsky & Allen, 2016). Sometimes a particular term has significance related to the

instructional setting or grade transcription methods, but in many cases the terms may be used

interchangeably (Dual credit requirements, 2015; Lichtenberger, Witt, Blankenberger, &

Franklin, 2014). For the purposes of this paper, college courses taken by high school students are

considered DC regardless of the particular setting.

Evaluation of the benefits of DC on later college success shows promising results, but it

is complicated by the variety of settings and arrangements that may be included in a program.

Instructional delivery could be by college faculty or high school teachers working with college

faculty (Howley et al., 2013; Tobolowsky & Allen, 2016). Instructional settings may include the

high school campus, the college campus, online courses, or a combination of settings

(Tobolowsky & Allen, 2016). School and program factors may also vary widely; students may be

part of an *early college high school* with highly structured supports and immersive college

preparatory environments, or they may take courses *a la carte* within a comprehensive high

school according to interest or schedule availability (Allen & Dadgar, 2012; Fischetti, MacKain,

& Smith, 2011). Such variety makes analysis of program benefits difficult to generalize and

challenging to interpret, because each factor could arguably impact student outcomes.

In its early years, DC was reserved for advanced or gifted students, but with rising

demand for rigor in high school curriculum and college attainment, the option became available

to students of wide-ranging abilities (Howley et al., 2013), and is utilized in at least 82% of U.S.

high schools (Marken, Gray, & Lewis, 2013). DC programs involve complex partnerships

between school districts and institutions of higher education that can sometimes be costly in both

human and fiscal resources (Howley et al., 2013; Hunt, 2007). However, the collaboration

between organizations may benefit students by causing a more seamless set of expectations,

standards, and policies as they move through the education continuum (Karp, 2015).

DC participation points to likely postsecondary benefits. When compared to non-DC

peers, participants are more likely to enroll in college (Allen & Dadgar, 2012; Lichtenberger et

al., 2014; Speroni, 2011; Taylor, 2015), persist towards degree completion (Allen & Dadgar,

2012; D'Amico, Morgan, Robertson, & Rivers, 2013; Taylor, 2015), and demonstrate higher

college academic performance (An, 2012; Fischetti et al., 2011; Young, Slate, Moore, & Barnes,

2013). However, because students must meet eligibility criteria and then usually self-select into

DC, pre-existing student factors could artificially inflate the findings regarding future college

success (Ozmun, 2013; Taylor, 2015).

Largely absent from current research is an exploration of whether DC students go on to

experience college success within the content area for which they earned the credit in high

school. Although An (2012) found that DC students were less likely to enroll in remedial college

coursework, the data available for analysis did not distinguish between content areas. Critics

including Tinberg and Nadeau (2011) maintain that while DC programs "have been shown to

have a positive effect on the persistence of some students and on their decision to continue onto

college, such programs have not been proven to enhance student learning" (p. 706).

Postsecondary faculty sometimes argue that high school students are too young to demonstrate

the maturity or sophistication necessary to truly grasp the level of content in college coursework (Ferguson, Baker, & Burnett, 2015). If they are correct, then DC students are accruing credits without learning. Accumulation of a large number of dual credits may indeed be detrimental to college success if it causes a student to enter college in advanced-level courses for which the student is not adequately prepared (Tobolowsky & Ozuna Allen, 2016). Additionally, Tinberg and Nadeau (2013) expressed that students could experience future college course difficulties if a DC course replaced a high school course that contained necessary prerequisite skills. Recently, Miller et al. (2017) compared follow-on course achievement for students who earned the prerequisite through DC versus later on the college campus. They found that DC students did perform better, but they acknowledged that the results could be attributed to selection bias or differences in instruction (Miller et al., 2017). Furthermore, AP students were not considered in the analysis.

Comparisons of AP and DC

Although evaluation of AP and DC benefits are each emerging areas of research, both methods continue to grow in popularity with students. All 50 states have policies to support utilization of both programs (Bragg et al., 2005; College Board, 2014). From 2003 to 2011, the number of high school program students completing DC coursework increased from 680,000 to over 1.2 million (Kleiner & Lewis, 2005; Thomas et al., 2013), and the number of students taking AP exams increased from approximately 1 million to over 1.9 million students (College Board, 2003, 2011). Numbers continue to rise as policymakers over multiple administrations commit funding and incentive structures to both programs in efforts to strengthen postsecondary readiness (Obama, 2009; Texas Education Agency & Shapely Research Associates, 2011; U.S. Department of Education, 2016; U.S. Department of Education, Office of the Secretary, 2005).

Families seeking affordable ways to mitigate the rise in college costs (Page & Scott-Clayton, 2016) are likely to continue to capitalize upon the lower-cost option of college credit in high school. Highly-motivated students looking to maximize college attractiveness take advantage of not only the opportunity for credit, but also the prestige of courses on the transcript and the frequent GPA weighting applied to advanced courses (Klopfenstein & Lively, 2015).

Both AP and DC options are available simultaneously for many students (Thomas et al., 2013). But the small body of research directly comparing the two programs points to mixed results. For example, Eimers and Mullen (2003) found that AP students had a significantly higher college GPA than DC students, and Wyatt et al. (2015) from College Board found that college persistence and first-year grades were higher for students who passed AP exams. But other College Board research by Murphy and Dodd (2009) found that differences in college achievement were "relatively muted" when the compared courses were in the same subject area(s) and students were matched for standardized test scores (p. 9). In addition to mismatched content areas, studies have not accounted for variance in factors such as DC course grades, AP exam scores, and the variety in location and nature of DC programs (Eimers & Mullen, 2003; Speroni, 2011; Wyatt et al., 2015). How are students and families to be informed when making decisions? Does the method of credit make a difference for future success? This study seeks to fill an existing gap in the literature by determining whether prerequisite credit by AP or DC is associated with different achievement in follow-on college courses.

Theoretical Framework

Although college credit obtained in high school is associated with multiple positive postsecondary outcomes, this study aims to determine whether a student's method of early college credit acquisition leads to evidence of actual learning within a discipline. In David T.

Conley's (2013) college readiness framework, *four keys to college and career readiness*, cognitive and content knowledge are considered vital areas of competency for future postsecondary success. If indeed AP and DC promote college readiness, students must learn to think in sophisticated ways while working with foundational academic content (Conley, 2013). A lack of proficiency in such prerequisite skills could be detrimental to success within an academic pathway. To determine this, I will examine the academic achievement in follow-on courses that depend upon learning from prerequisite course credits.

Method

In the following sections I will describe the rationale and process used to select prerequisites and follow-on courses. I will also describe the study site and limitations. Finally, I will describe the statistical methods utilized to compare outcomes amongst student groups.

Sample Selection

A large Research I university in Texas, assigned the pseudonym Texas Regional University (TRU), is the research site for the study. The enrollment of TRU includes 28,000 undergraduates from over 100 countries, therefore it provides a diverse sample of higher education students. Because it is a public Texas institution of higher education, TRU is subject to the course offering requirements stated in the Lower-Division Academic Course Guide Manual (ACGM) published regularly by The Texas Higher Education Coordinating Board (Texas Higher Education Coordinating Board, 2017). Although not every TRU course is listed in the ACGM, for those courses that are listed, prerequisites and course outcomes will be similar across all public colleges and universities in the state (Texas Higher Education Coordinating Board, 2017). This standardization increases the applicability of findings to other Texas institutions.

The selection of follow-on courses for inclusion in the study required an examination of

prerequisite requirements stated in both the TRU catalog and the ACGM, as well as the methods

available to fill the prerequisites through either AP or DC. The ACGM defines a prerequisite as

"an academic element that must be successfully completed prior to beginning the course

identified" (Texas Higher Education Coordinating Board, 2017, p. 6). I examined TRU policies

for award of AP credit to determine what courses were transcripted for eligible exam scores, and

whether those courses were a prerequisite to a follow-on course of interest. Finally, my personal

practitioner knowledge as a K-12 administrator was useful in identifying course options available

for AP credit that are also frequently offered to high school students as DC opportunities.

After consideration of these sources, the academic area of English was selected for study

because it included several follow-on courses that could have prerequisites gained by AP and

DC. TRU awards credit for Rhetoric and Composition I (ENGL 1301) with a score of 3 or 4 on

the Language and Composition AP exam; a score of 5 on the exam results in award of both

Rhetoric and Composition I and II (ENGL 1301 and 1302). In earlier years, a minimum score of

4 was accepted for ENGL 1301. Both ENGL 1301 and 1302 are also frequently offered as DC

courses in high school. Although many courses are common to other public Texas institutions,

some are particular to TRU. A limited number of TRU-specific courses were included in the

sample because their inclusion has the potential to understand a broader cross-section of

students, including those that may not take coursework generally reserved for English majors.

The follow-on courses selected for study are included in Table 1.

Table 1

Follow-on Courses Requiring Composition and Rhetoric Prerequisites

Course Name	TRU Catalog Number	Corresponding ACGM number	Prerequisite(s)
Composition and Rhetoric II	ENGL 1302	ENGL 1302	ENGL 1301

Topics in Literature	ENGL 2303	ENGL 2341	ENGL 1301 and 1302
World Literature	ENGL 2309	ENGL 2331	ENGL 1301 and 1302
British Literature	ENGL 2319	ENGL 2321	ENGL 1301 and 1302
American Literature	ENGL 2329	ENGL 2325	ENGL 1301 and 1302
Technical Writing	ENGL 2338		ENGL 1301 and 1302
Professional and Technical Communication for Science and Engineering	COMS 2302		ENGL 1301 and either ENGR 1300 or ENGL 1302[a]

Note. [a]Prerequisites for COMS 2302 in 2014-2015 were only ENGL 1301 and 1302.

Data collection and Preparation

De-identified student data requested from TRU included individuals' course grades in follow-on courses listed in Table 1, information about the method used to earn credit for ENGL 1301 and/or 1302, the individuals' total cumulative college GPA the semester prior to follow-on course completion, and information about the students' selected major areas of study. World Literature grades were not included in data provided by the university, therefore were not included in analyses. The dataset included records from fall 2011 through spring 2017 to ensure an adequate sample size. Archived TRU course guides indicate only one change to the selected courses' prerequisites since the fall 2011 semester, as noted in Table 1.

Data included letter grades earned from first attempts of specified follow-on courses, along with the method chosen by students for fulfillment of the two levels of Rhetoric and Composition courses: ENGL 1301 and ENGL 1302. Possible prerequisite methods were AP exam credit, DC earned as a high schooler, or in-residence credit taken at the university (IR). The in-residence group served as a comparative group of students who earned prerequisites in college after high school graduation. When ENGL 1302 was analyzed as a follow-on course, the

prerequisite of ENGL 1301 was considered. All other follow-on courses of interest required both

levels of Rhetoric and Composition courses; therefore, only ENGL 1302 was analyzed as the

prerequisite credit. Students with multiple methods of prerequisite credit were removed so that I

could focus my analysis on only those grades following first attempts at one of the three

prerequisite options. Follow-on course letter grades were converted to a scale variable by

assigning the grade points awarded for the letter grade according to university grading policy:

Grades of "A" earned 4 points, a "B" earned 3 points, a "C" earned 2 points, a "D" earned 1

point, and an "F" earned 0 points.

Limitations

Just as in any research, this study has limitations to interpretation and application. The

design includes the assumption that satisfactory achievement on AP exams and in DC

coursework are adequate indicators for prerequisite skill mastery. Furthermore, the actual grade

earned in the DC course or the precise exam score from AP tests are not available but could be

important parts of the larger picture. For example, a student that earned prerequisite credit

through DC with a grade of 70 may have different levels of content competency than one who

earned credit with a grade of 95, but both are in the DC group. Likewise, grades in the follow-on

course are used as a proxy for the level of prerequisite learning mastery. This assumes that the

grade indicates mastery of content, not compliance with instructor preference. However, this data

set includes multiple semesters and multiple sections of coursework in an effort to minimize the

effect of instructors. Efforts by students to overcome any prerequisite deficiency such as tutoring

or remediation would also be absent from the data. Although broad generalization is limited due

to these issues, my analysis still provides a starting point for understanding how different

prerequisite credit types are related to college success, and it addresses a gap in current literature.

Data Analysis and Results

Because my goal was to determine whether the method of prerequisite credit was

associated with differences in follow-on course performance, I utilized a series of one-way

between subjects ANOVA tests to examine follow-on grades for students who earned prerequisite

credit through either AP, DC, or IR. The means and standard deviations are presented in Table 2.

Table 2

Means and Standard Deviations of Follow-on Course Grades for Three Prerequisite Methods

Follow-on course	AP Prerequisite Credit			DC Prerequisite Credit			IR Prerequisite Credit		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
ENGL 1302[a]	526	3.53	.796	150	2.98	1.201	7852	3.11	1.075
ENGL 2303	24	3.08	1.558	374	3.08	1.065	1364	3.16	1.061
ENGL 2319	17	3.76	.437	280	3.22	1.061	1383	3.19	1.079
ENGL 2329	21	3.24	1.480	648	3.26	1.002	2060	3.16	1.030
ENGL 2338	11	3.55	1.214	493	3.44	.830	905	3.50	.782
COMS 2302	32	3.72	.581	514	3.27	.854	1357	3.31	.802

Note. [a]The prerequisite of ENGL 1302 was utilized for all follow-on courses except ENGL 1302, which required ENGL 1301 as a prerequisite.

Table 2 suggests differences in follow-on course grade points earned according to the

method of prerequisite. For most courses, AP students demonstrated higher performance in later

coursework compared to DC or IR students. That said, additional analysis was needed to

determine whether these differences in means were statistically significant.

Although course grades were not normally distributed for any follow-on courses of

interest, the assumption of normality for ANOVA is often relaxed and of no concern in large

datasets such as that which I used (Gravetter & Wallnau, 2013). However, data for each follow-

on course contained different sample sizes for credit methods, and data for multiple follow-on

courses violated the assumption of homogeneity of variance as indicated by significant Levene

Statistics. Therefore, because assumptions of the ANOVA test were violated, I used a Welch test

instead to determine whether differences between groups were significant. I used an alpha level

of .05 for all statistical tests. A Welch test is appropriate to detect differences in means when data

violates the assumption of equal variances and may also be used when sample sizes are unequal

(Clinch & Keselman, 1982). Where significant differences were present, the Games-Howell

post-hoc test revealed which pair(s) of credit methods had differences in follow-on course

grades. For each Welch test, the dependent variable was the follow-on course grade, and the

independent variable was the method for prerequisite English credit.

 I found statistically significant difference among the prerequisite credit groups for grades

in three follow-on courses: For ENGL 1302, $F(2, 331.19) = 67.18$, $p < .001$, for ENGL 2319,

$F(2, 47.35) = 13.95$, $p < .001$, and for COMS 2302, $F(2, 85.02) = 8.32$, $p = .001$. For both ENGL

1302 and ENGL 2319, statistically significant mean differences existed for follow-course grades

between the AP prerequisite group and both the DC group ($p < .001$) and the IR group ($p < .001$).

Similarly, for COMS 2302, statistically significant mean differences existed for follow-course

grades between the AP prerequisite group and both the DC group ($p = .001$) and the IR group ($p

= .001$). Welch test outcomes are summarized in Table 3.

Table 3

One-Way Welch Analysis Comparing Prerequisite Credit Groups on Follow-on Course Grades

Follow-on course	df	Welch's F	p
ENGL 1302[a]			
Between groups (df_1)	2	67.18	.000[b]
Within groups (df_2)	331.19		

ENGL 2303

Between groups (df_1)	2	.91	.410
Within groups (df_2)	59.73		

ENGL 2319

Between groups (df_1)	2	13.95	.000 [b]
Within groups (df_2)	47.35		

ENGL 2329

Between groups (df_1)	2	2.29	.112
Within groups (df_2)	52.77		

ENGL 2338

Between groups (df_1)	2	.99	.384
Within groups (df_2)	26.57		

COMS 2302

Between groups (df_1)	2	8.32	.001 [b]
Within groups (df_2)	85.02		

Note. [a]The prerequisite of ENGL 1302 was utilized for all follow-on courses except ENGL 1302, which required ENGL 1301 as a prerequisite. [b]Significant based upon alpha $\leq$ .05

The Welch test was useful to find that for three follow-on courses, the grades were significantly different for the AP method of prerequisite from the other two methods. Means from Table 2 indicated the direction of the differences; compared to the AP method, the DC and IR methods were predictive of lower grades in ENGL 1302, ENGL 2319, and COMS 2302. In other words, students that earned prerequisite credit through an AP exam attained higher ENGL 1302, ENGL 2319, and COMS 2302 grades than those who earned the credit through DC or IR.

Although I found significance between prerequisite groups, other factors can also be associated with students' follow-on course achievement. For example, students with a strong history of academic achievement would likely be expected to perform at relatively high levels in future work. However, if that student was not competent in prerequisite requirements, perhaps performance would be lower in the follow-on course and therefore different than the history of academic achievement.

Therefore, I used a multiple regression analysis to further examine the differences noted in ENGL 1302, ENGL 2319, and COMS 2302 grades according to prerequisite type. I included cumulative GPA in the semester prior to the follow-on course attempt as a covariate serving as a proxy for academic achievement. The model regressed course grade on form of prerequisite obtainment, holding constant the students' GPAs in the term prior to the follow-on course attempt. Because the dataset was not normally distributed, robust estimations of variance were utilized to make valid statistical inferences (Huber, 1967; White & Macdonald, 1980). Results are displayed in Table 4.

Table 4

Multiple Regression Analysis Summary Predicting Follow-On Course Grades for DC and IR Methods of Prerequisite English Credit Compared to AP Method, Controlled for Academic Achievement

Follow-on course and prerequisite method	B	$SE\ B$	t	p
ENGL 1302				
Prior term GPA	.72	.02	42.09	.000
IR	-.13	.07	-1.86	.274
DC	-.19	.17	-1.09	.063

Constant	1.05	.09	11.24	.000
ENGL 2319				
Prior term GPA	.95	.04	21.43	.000
IR	-.14	.10	-1.34	.182
DC	-.22	.12	-1.74	.082
Constant				
COMS 2302				
Prior term GPA	.72	.03	26.02	.000
IR	-.02	.05	-.51	.610
DC	.01	.05	.19	.848
Constant				

Analysis indicated that when controlling for students' academic achievement as indicated by GPA, the method used for prerequisite credit has no significant relationship with follow-on course grades. In other words, the differences earlier noted in mean course grades for AP, DC, and IR groups exist due to other student factors such as achievement history, not the prerequisite course method.

Discussion and Implications

The results of this study are an important contribution towards understanding the implications of high school advanced coursework options. The few existing studies comparing AP and DC found a slight advantage to later college success with AP coursework (Eimers & Mullen, 2003; Murphy & Dodd, 2009; Wyatt et al., 2015). However, those studies accounted for students' pre-existing academic achievement by utilizing high school measures such as college

entrance exam scores (Murphy & Dodd, 2009; Wyatt et al., 2015) or high school rank and graduation plan (Eimers & Mullen, 2003). Since Conley (2013) asserted that college achievement requires a substantially different skill set than high school, I used college GPA to control for achievement so that follow-on course success was compared to postsecondary, rather than secondary, achievement history. When I accounted for both content area and college academic history, no significant difference existed in English follow-on course achievement between students that fulfilled a prerequisite credit through an AP exam and those who took a DC course. Furthermore, follow-on course achievement of students who earned the prerequisite in high school was not significantly different than that of students with similar college GPA who took the course in the traditional college setting.

The mastery of English composition skill is important for overall college success in a variety of classes, even beyond those that are strictly follow-on courses (Miller et al., 2017; Tinberg & Nadeau, 2013). Considering this, it is logical that controlling for college GPA would eliminate the significance of the Rhetoric and Composition prerequisite methods. If college achievement relies heavily upon writing skill, then college GPA could be indicative of writing ability more than students' general aptitude for college content. In other words, students from any Rhetoric and Composition course setting who learn to be capable writers could experience greater college success generally as well as follow-on course success specifically. For this reason, future research is warranted to determine whether prerequisite method is important for follow-on courses in other content pathways such as math or science that do not have prerequisites as widely utilized across all coursework.

The results indicate that a student's history of overall college achievement is more predictive of success in English follow-on courses than is the method that prerequisite credit was

earned. Students who wait to take Rhetoric and Composition foundations in a traditional college setting have no advantage in follow-on course grades over students of similar achievement who gained college credit in high school. Furthermore, follow-on grades were not different when GPA was controlled for either method of Rhetoric and Composition credit earned as a high schooler. But because the mean course grades for AP students were generally higher, this indicates that more AP students in this data set tended to be high-achieving than those from a DC background. Future research could focus on the reason(s) for this. Perhaps the reputation of the AP program's rigor and competitive edge for college entrance (Schneider, 2009; Tai, 2008) makes it a more attractive choice for the most ambitious high schoolers. Possibly the lack of standardization in DC settings, instructors, and financial arrangements (Tobolowsky & Allen, 2016) results in more variety of enrolling student aptitudes. Future work could uncover other associated characteristics or possible reasons for the differences between AP and DC groups.

Perhaps in light of this study, guidance for high schoolers choosing between methods of early college credit can center around personal preferences between available options rather than a concern that one type of course more adequately prepares for college than another. For example, students prone to test anxiety and poor test performance may prefer the DC method since the entirety of AP credit award is determined by one standardized test. On the other hand, particular high school teachers may have a reputation for excellence in one type of class versus another. Additional research is needed to determine whether similar outcomes exist for additional disciplines such as mathematics or science; however, for English, general achievement is more indicative of follow-on course success. This information adds to the information available for decision-making when students face a fork in the road for methods of early credit.

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Chapter 3: A Foot in Two Worlds:

The Experiences of High School Dual Credit Teachers

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A Foot in Two Worlds: The Experiences of High School Dual Credit Teachers

Today's U.S. high schools face unprecedented pressure to produce *college-ready* students: those able to complete non-developmental, credit-bearing coursework towards timely degree completion (Malin, Bragg, & Hackmann, 2017). One popular college-readiness strategy is to provide secondary students the opportunity to take college courses, often referred to as *dual credit* (Malin et al., 2017; Tobolowsky & Allen, 2016). Between 2003 and 2011, the number of U.S. high schoolers earning college credit doubled to over 1.2 million students (Kleiner & Lewis, 2005; Thomas, Marken, Gray, & Lewis, 2013). In the state of Texas alone from 2000 - 2015, the numbers of dual credit students skyrocketed by 650% and grew to comprise 10% of the total public higher education enrollment (Texas Higher Education Coordinating Board, 2016). Continued growth in dual credit participation is anticipated in light of explicit financial and accountability provisions in the 2015 Every Student Succeeds Act (ESSA) (Malin et al., 2017).

Terminology and definitions related to college credit earned in high school vary widely (Tobolowsky & Allen, 2016), and the inconsistencies often complicate analysis of existing research (Miller et al., 2017). For the purposes of this study, the term "dual credit" will refer to a college course taken on a high school campus, transcribed for credit at both the college and high school. This study will also focus solely on courses taught on a secondary campus by an *embedded* instructor: a high school teacher with college adjunct faculty status (Howley, Howley, Howley, & Duncan, 2013).

Students generally experience positive college outcomes following dual credit participation (U.S. Department of Education, 2017); however, the underlying reasons and mechanisms are not well understood, largely because most existing research on dual credit

outcomes is quantitative in nature (Lile, Ottusch, Jones, & Richards, 2017; Miller et al., 2017). Qualitative descriptions could provide important starting points and context for future work. Because classroom- and school-level factors are important for the development of college readiness skills (Conley, 2013; Nagaoka et al., 2013), teachers likely play a critical role in student preparation. However, qualitative studies involving dual credit teachers are scarce, and little is known about their work to promote college readiness.

Teachers' understanding of what college readiness entails and the level of responsibility they assume could affect decisions made in classrooms. Similarly, the simultaneous demands of two institutions could affect classroom activity if teachers feel that their decisions are subject to competing requirements from both the college and high school employer. Embedded teachers are directly involved at the intersection of high school and college, and their perspectives could hold important clues to better understand the ways dual credit programs influence students. They work daily with students who are tackling college-level work while still operating on a high school campus. They also interact with students preparing for success in a future traditional college setting. Their knowledge regarding procedures and practices that help or hinder student success is important for practitioners to know, and may be unavailable through any other information source. Since college readiness hinges upon classroom- and school-level influences (Conley, 2013; Nagaoka et al., 2013), embedded dual credit instructors are a natural source of insight to address current gaps in the field.

The purpose of this study is to describe the lived experiences of embedded dual credit teachers and to explore the meaning they ascribe to their role. Research questions are:

1. How do embedded dual credit teachers ascribe meaning to college readiness, and to their role in promoting the college-readiness of students?

2. In what way do embedded dual credit teachers experience the concurrent professional

   expectations of the high school and college employers?

3. How do embedded dual credit teachers perceive obstacles and opportunities that result

   from program design and implementation?

   The questions above seek to illuminate the experiences that may drive teacher actions.

The perspectives of teachers from this unique sector of education could reveal important

influences that may be useful to inform future research and administrative practices.

Related Research

National policy refers to dual credit as an indicator of college readiness, and enrollment is

projected to rise (Malin et al., 2017). In the following section, I will summarize current research

that relates dual credit to college readiness. First, I will describe evidence that supports dual

credit's contribution to readiness as well as factors that complicate its clear association with

preparedness. Next, I will describe the college readiness framework utilized in this study. Finally,

I will describe examples of challenges faced by embedded dual credit teachers. Their unusual

professional arrangement involves circumstances that will provide context for a study of their

perspective.

College Readiness Following Dual Credit Participation

Studies regarding the effects of high school dual credit on later college success show

positive results. Participants in dual credit are more likely to enroll in college, stay in college,

achieve in non-remedial coursework, and complete a degree, (An, 2012; Taylor, 2015; U.S.

Department of Education, 2017). Because dual credit students are generally high-achievers who

self-select into the coursework (An, 2013; Miller et al., 2018, 2017; Taylor, 2015), positive

outcomes are often attributed to selection bias. However, multiple studies found that when

compared to non-dual credit, high-achieving peers, dual credit students still show evidence of benefit (An, 2013; Ozmun, 2013). Such outcomes encourage further expansion of dual credit programs as a way to increase college readiness (U.S. Department of Education, 2017).

Although many studies substantiate positive dual credit results, they largely focus on quantitatively measurable outcomes or qualitative reports of student perceptions (Lile et al., 2017; Miller et al., 2017). Few attempt to explain the reasons or mechanisms behind the increased college readiness. Additional research is warranted to understand the factors and influences that contribute to postsecondary effects (Lile et al., 2017; Miller et al., 2017). Because multiple definitions of college readiness abound (McClarty, Mattern, & Gaertner, 2017), a study of mechanisms must be grounded in a comprehensive college readiness framework.

Framework for College Readiness

College readiness is "a multidimensional construct, and no single measure will capture accurately the dimensions of readiness" (McClarty et al., 2017, p. xi). Therefore, many readiness frameworks include both academic and non-academic skills (Conley, 2013; Nagaoka et al., 2013; National Research Council, 2012). After working as a K-12 education practitioner and policy advisor, David T. Conley (2008, 2013) constructed one of the most widely-used college readiness models. Although initially written as a model exclusively for college readiness, the current revision of his model includes related skills for success in future careers: *four keys to college and career readiness* (Conley, 2013). Areas of proficiency within the four keys interact considerably, and involve interdisciplinary deep thinking, knowledge of discipline-specific demands, productive learning practices and habits stemming from high student ownership, and understanding how to navigate college institutions (Conley, 2018). The four keys framework has been widely used and is currently incorporated into partnerships with the College Board, Texas

Education Agency, and other educational agencies (Conley, 2013; Inflexion, 2018).

The discrete skills described by Conley (2013) can be promoted and developed in high school students rather than relying on innate student strengths or family backgrounds (Conley, 2018). Not only are these components tied to instructional decisions of teachers, but "the context of the classroom also influences how students learn, as does their relationships to one another and to the learning tasks" (Conley, 2013, p. 116). Therefore, the understandings and actions of teachers play a critical role in increasing student college readiness. Conley's (2013) four keys to readiness are utilized in this study to frame the lived experiences of embedded dual credit teachers as they work in unique and challenging situations.

Challenges for Dual Credit Teachers in Promoting College Readiness

The beliefs and understandings of individual high school teachers are important beyond a personal level; they can influence the postsecondary preparation provided to students (Charlier & Duggan, 2009; van Rooij & Jansen, 2018). Therefore, context-specific skills and affective requirements warrant consideration. High school teachers employed as college adjunct instructors are typically the most experienced and highly-credentialed of their K-12 colleagues (Hebert, 2001; Miller et al., 2018), but the preparation and training for embedded dual credit instruction has not kept pace with the rapid program expansion (Snyder & Bristol, 2015). Teachers may lack clarity regarding the college's goals for dual credit as a whole (Charlier & Duggan, 2009). Embedded teachers desire explicit conversations regarding the expectations of the college partner, and they benefit from training in navigation of college systems (Charlier & Duggan, 2009). When authentic collaboration between high school and college institutions was absent, Howley, Howley, Howley, and Duncan (2013) described that embedded instructors found "their limited familiarity with the college bureaucracies made it difficult for them adequately to

perform their adjunct faculty roles" (p. 94). The unique employment arrangement results in

professional experiences that are distinctly different and demand different support compared to a

traditional faculty role (Charlier & Duggan, 2009; Howley et al., 2013).

Besides a lack of teacher education and support systems, the demands of competing

institutional requirements and vastly different school cultures can result in teacher stress and

reduced effectiveness (Howley et al., 2013; Skaalvik & Skaalvik, 2017). Beliefs and attitudes

about dual credit can differ between the K-12 and higher education leadership, and teachers may

be caught in the middle (Howley et al., 2013). Teacher stress in discordant environments is

especially pronounced when conflicts are related to the value placed on the work itself (Skaalvik

& Skaalvik, 2017), and the work of an embedded dual credit teacher is often scrutinized and

accused of not holding to college rigor (Howley et al., 2013; McWain, 2018; Miller et al., 2018,

2017). Embedded instructors are accountable for two sets of procedural and curricular

requirements (McWain, 2018), but many college readiness skills such as those in Conley's

(2013) four keys model are not necessarily related to content from either institution. Teachers

may also feel that deliberate work towards college readiness is not a part of their classroom

responsibilities (van Rooij & Jansen, 2018). Even if teachers do have the understanding and

desire to teach the college readiness skills, the professional demands of concurrent high school

and college employers could affect classroom implementation (Howley et al., 2013).

Understanding embedded instructors' perceptions about college readiness will contribute

to a deeper understanding of how dual credit classroom- and school-level factors may or may not

influence student preparation. Instructor perspective could also inform administrators about

teacher training and support needed to effectively increase student readiness. Embedded dual

credit teachers could be a valuable source of insight, as they stand in the crossroads of both high

school and college.

Method and Procedures

My interest was to describe teachers' subjective perceptions of how they experienced and assigned meaning to their work. I utilized an empirical, transcendental phenomenological approach (Moustakas, 1994) to focus on the perspectives of teachers who operate in both high school and college. This approach calls for data collection from multiple individuals who have experienced the same phenomenon, followed by the development of a "composite description of the essence of the experience for all of the individuals" (Creswell & Poth, 2017, p. 75). By viewing embedded dual credit through the teachers' eyes, I aimed to describe the shared experience.

Sites

I received contact information for a purposeful sample of twenty five veteran dual credit teachers from a Texas regional community college that serves five counties. Only teachers with at least one full year of experience as an embedded dual credit instructor were invited to interview. This inclusion criterion ensured experience with the full cycle of seasonal events in a school year. I interviewed teachers at the location of their choosing, which included classrooms, by video streaming, and at a local diner.

Participants

Nine teachers of core academic disciplines from four high schools participated in the final study. I asked participants to select a pseudonym or have one assigned. In addition to the embedded dual credit history, all instructors had experience teaching on-level high school classes, and most had experience as a college adjunct instructor in the evenings and/or summers. Teachers had between six and 30 years of high school teaching experience. A majority also had

experience teaching Advanced Placement© (AP) courses approved by the College Board, which

prepare high school students to attempt college credit through a standardized exam score

(College Board, 2014). Although the diverse instructional experiences were not requirements for

inclusion in the study, the varied backgrounds resulted in rich insights. The characteristics of

participants are summarized in Table 1.

Table 1

Embedded Dual Credit Instructor Participant Characteristics

Pseudonym	Academic discipline	Gender	Experience with on-level high school	Experience with high school AP	Experience as a college adjunct
Maggie	English	Female	Yes	Yes	Yes
Allen	English	Male	Yes	Yes	Yes
Rose	English	Female	Yes	No	Yes
Hugh	English	Male	Yes	No	No
Bobbi	Science	Female	Yes	No	Yes
Paul	History	Male	Yes	Yes	No
Patti	Government	Female	Yes	Yes	Yes
Sunny	Math	Female	Yes	Yes	Yes
John	Math	Male	Yes	Yes	Yes

Because of the relatively small number of high school teachers working as embedded instructors

with the college, and due to the limited list of contacts provided to me through the one

community college, rich personal descriptions of participants could reveal their identities to their

employers. As such, I have limited the additional information included beyond Table 1 to protect their anonymity.

Procedures and Limitations

I utilized an open-ended, semi-structured interview protocol (see Appendix). A previous pilot study with a fifth high school in the same college area allowed for refinement of the final instrument. I designed the interview protocol to elicit discussion about the experience of dual credit teaching as well as the meaning instructors personally gave college readiness. I also asked about whether teachers were intentional to build readiness competencies, and if so, what actions they took to promote student outcomes. I used follow-up questions based upon Conley's (2013) keys as probes to clarify teachers' ideas about readiness. I also asked teachers to reflect and share about institutional policies or practices that were perceived to interfere with their instruction or the student experience, as well as their thoughts on what practices were beneficial. The instrument served to address my research questions by not only seeking the teacher's view of their professional lived experience, but also their ideas about college readiness and dual credit program design.

Initial in-depth interviews were conducted over the course of six weeks and ranged from 45 minutes to over two hours in length. Interviews were digitally recorded, then transcribed, and the transcripts were checked against the recording for accuracy. I wrote memos to capture insights as I reflected between interviews. I conducted follow-up correspondence with three teachers by telephone or video conference to clarify or allow for additional elaboration.

Positionality

During data collection, I remained mindful of my personal connections to my research topic and attempted to bracket (Creswell & Poth, 2017) my own experiences with dual credit on

high school campuses. As a K-12 educator with experience in dual credit program administration, I regularly communicate with dual credit teachers in my own school district. However, I have no employment history with any of the school districts of the participants. I exercised caution during interviews to not interject opinions, and to ask clarifying questions and utilize probes to accurately capture the teacher's perspective. During analysis, I also actively set aside my preconceived attitudes and biases to focus solely upon the experience as described by teachers.

The phenomenological approach was appropriate to understand the essence of a lived experience. However, the study is limited in that all participants were affiliated with the same regional college, and the college provided contact information for instructors in only one of the five counties it serves. It is possible that the experiences of participants were not representative of embedded teachers in other locations. Regardless, the insight gained from this study is a useful addition to the field and can inform future research.

Data Analysis

After a first reading of transcripts in their entirety, I began the process of *horizonalization* (Moustakas, 1994): initially considering each statement by teachers as equally important so that commonalities within and among transcripts emerged. I then noted by hand on the transcripts the *meaning units* (Moustakas, 1994) that emerged. In other words, I assigned a word or phrase to represent an idea representing a natural group of statements; a participant's discussion following a single protocol question could be broken into multiple meaning units. I clustered meaning units into thematic categories by listing and then combining non-redundant meaning units into larger ideas that were well-represented in the transcripts.

After utilizing the phenomenological tradition outlined above for initial analysis, I

incorporated a second reflexive look at the data utilizing a framework developed by Srivastava and Hopwood (2009). Their framework includes three questions- "What are the data telling me? What is it I want to know? What is the dialectical relationship between what the data are telling me and what I want to know?" (Srivastava & Hopwood, 2009)- which tie qualitative data back to research questions. When used alongside traditional qualitative methods, the framework served to focus my research findings and uncover areas of remaining uncertainty (Srivastava & Hopwood, 2009). As such, I reviewed transcripts to find whether elements of Conley's (2013) keys were mentioned, and assigned meaning units where appropriate, similar to *a priori* coding (Creswell & Poth, 2017).

By reflecting upon the questions of what the data actually reveal, what my research goals included, and how the data and my goals interacted (Srivastava & Hopwood, 2009), I revisited transcripts to determine whether topics needed clarification through selective second interviews. To validate my findings, I utilized member checking and peer review. When considered together, the themes allowed for an in-depth description of the experience of embedded dual credit teaching. By using the themes to organize responses of teachers, I found areas of importance to the essence of embedded dual credit teaching as it relates to college readiness.

Findings

Embedded dual credit teachers experience a unique professional life that they consider both challenging and rewarding. As they described both the contexts and perceptions of their work, six general themes emerged. Instructors discussed the work contexts of both high school and college, and how the high school identity in particular was important for student success. They also reflected upon their views of what college readiness entails, and described the strategic actions they took to build college readiness. Stakeholder expectations of the teacher and the

course was an area of disconnect that required ongoing communication. And although their

unique position and institutional practices resulted in feelings of isolation, the teachers took great

pride and felt purpose in their work to equip students for college success. I elaborate upon the

findings within each theme in the following sections.

Full Embrace of Both High School and College Contexts

Although employed by two institutions, teachers identified primarily as high school

teachers. Sunny simply stated, "I'm right here on the high school. I'm a high school teacher."

She added that students also perceive her as a high school faculty member because "they have

friends that have had me before. Sometimes some of them have had me before, and they see me

every day." Allen elaborated, "I guess just being here on the high school campus, it just makes

me feel more like a high school teacher. I feel like that hat's a little heavier than the college hat

is." Frequent professional collaborations at the secondary campus further contributed to teachers'

high school identity. According to Bobbi, the difference in high school versus college collegial

interactions "is very different. You see your administrators all the time at high school. You see

your whole department every day."

Although teachers felt closely tied to the high school, they were also comfortable in their

identity as an adjunct instructor with the college. Rose stated, "we are employed by both of them.

I mean, my name tag is both…." And even though they saw college colleagues far less

frequently, she felt supported, saying, "they are a phone call away for us. They really are."

Furthermore, teachers felt strongly about adhering to the syllabus and materials approved by and

used at the college. For example, Patti asserted, "We all teach from the same book that's dictated;

we're all giving the same quizzes." In Paul's view, "Essentially those students that are at [the

local] high school, they're in [the college] when they're in my class." Teachers were cognizant of

their responsibilities as a credentialed adjunct instructor of the college.

Simultaneous freedom and conflict for teachers. The college instructor identity conveyed professional freedoms in the high school context. Patti noted, "I think I get more discretion with the college, which is a luxury you don't always have in a public high school…." Bobbi echoed, "You're trusted to do your thing." John explained that the teacher evaluation rubric sometimes shaped his instructional decisions when planning for on-level high school classes; however, because the college governs the content of his dual credit class, he said, "I have the freedom to teach the class as I see fit." Maggie further described, "While I do serve two masters, I am in a good position where both of them seem to trust me to steer the boat." Teachers enjoyed the additional flexibility that the high school allowed because of their status as a college instructor.

Navigating the demands of two educational entities was not always easy for teachers. Procedures such as grading structures and calendars differed, and teachers had to ensure adherence to college requirements while also meshing with high school stakeholder needs. Allen explained, "We start a week later than the other high school classes, and we end about a week and a half earlier than the other high school classes." However, because the final grades for both institutions had to match, he couldn't use the extra days to "have a high school graded assignment… because that's going to affect a grade." Sunny described how the high school became more responsive as administration became increasingly familiar with the needs of dual credit:

> I was having to try to meet the district's grading guidelines of so many daily assignments, so many tests… Well now, they've really pulled back and they're like, 'No, we can't make the embedded teachers follow the [high school] grade guidelines…. If you're

teaching dual credit, you're following [the college's] policies.' So now I think it's more

college-based.

Hugh described, "I take the best of both worlds." Because the college policies generally

prevailed, the embedded instructors found they could take advantage of the daily interactions of

high school while also enjoying the enhanced professional freedoms of the college.

Students benefit from secure relationships. Teachers felt that the melding of two

contexts was beneficial for students as well. Because they were a familiar face in a known

environment, teachers felt they provided what Maggie described as "a safe place for them to

learn." John also referred to the secure feel:

> It's a safer environment because even though I treat them like college students [and] we
>
> run the class like a college class, I still interact with them like their high school teacher…
>
> I pursue them when they're messing up, as opposed to in college they have to take care of
>
> themselves. So it's kind of a safe environment to experience.

The importance of understanding high school norms was further evidenced when travelling

adjuncts from the same college struggled to connect with students. As Sunny explained, "I just

think it's harder for them to come in over here and teach one class and leave and not be in our

culture…." Because they were embedded in the campus, teachers knew the culture and norms

that were comfortable to students. And Hugh explained, "the relationship that gets built up in a

high school is certainly a big part of the success or lack of success in dual credit." Teachers felt

that they as well as their students benefitted through relationships and shared culture.

Well-versed in College Readiness Components

Embedded dual credit teachers repeatedly referred to college readiness as their primary

focus and purpose. Rose said:

The goal is for them to be prepared to leave this place and have all the tools that they

need, and all the skills that they need to just slip right into a four-year university and they

already know what they're supposed to be doing, and they can be successful.

Teachers also demonstrated an awareness of well-known critical elements of college readiness.

The four key readiness areas of cognition, content, learning skill, and transition described by

Conley (2013) were present in teacher descriptions of skills they incorporated into classes.

Cognitive demand and content knowledge. Embedded teachers described foundational

content knowledge used at high levels of cognitive demand. For example, English teachers spoke

about writing in response to literature with proper mechanics and organization. Maggie asserted,

"They're going to understand that there's more than one way to approach a piece of literature."

She also felt that "there should be times that they should be writing their hands off, because

that's part of the process." Allen said, "Students have told me that they're prepared when it

comes to the writing. They feel like they know how to write an essay, no matter what that essay

is going to be." He felt that proficiency was due to his focus on organization and mechanics,

saying, "Organization of ideas is something they need to come away with…. Usage of the

language is another key skill…." Rose also felt that her students gained proficiency in writing,

stating "there's nothing out of bounds for them now with their writing ability."

Social studies teachers valued skilled written expression as well, and they also wanted

students to understand proper research and use of primary source documents in their work. Paul

said that his history students "study a lot of documents" and through his class, they were "able to

cite historical content, and to be able to put it in a proper perspective, to be able to compare and

contrast, to be able to connect it with things that have happened before, and things that happened

later." Patti expressed high expectations for writing from her government students. She said,

"They definitely write a research paper for me that they wouldn't be doing if they were an on-level high school student." Social studies teachers were passionate about students understanding content and utilizing discipline-specific methods of research.

Mathematics and science teachers expected the proper use of tools, systems thinking, and precision and accuracy in conclusions. Bobbi described starting the year immediately "with microscope work, where they had to use the rulers to measure and know their field of vision, know their working distance." She emphasized that due to the nature of the scientific discipline, "it's not just writing and reading. It's getting up and doing things, dissecting and analyzing a tissue…. It's different skills." She then taught students to apply their learning to hands-on work and develop systems-level thinking skills to understand that "everything is dependent." Regarding interpretation of lab results, she said, "You've got to be able to use it. Why do this and it doesn't mean anything to you?" Math teachers also used discipline-specific tools and processes in class. Sunny said, "We teach them a lot of calculator…," but she also explained that sometimes students need to function without a tool. John said he expected students to "keep working problems 'til you can do them without thinking." Sunny added that when students show their work, she tells them, "I'll give you some partial credit…. But the majority is precision and accuracy." Both math and science teachers expected students to practice discipline-specific processes and use tools until they were done correctly.

The inclusion of deep content in the embedded teachers' classrooms was not surprising given the level of passion they expressed for their respective course. Maggie said, "I love teenagers, and I love literature, and you put the two together and you've got the perfect marriage." Paul "loved" history, and described how his former students had written him notes saying, "You were passionate about your subject." Bobbi also spoke of science as her "passion,"

and Patti shared that government "was always kind of [her] thing." Because they felt so

personally connected to the content, the teachers enthusiastically worked to ensure students had a

thorough foundation for future work within the discipline.

Learning strategies and ownership. In addition to foundational content, teachers taught

students important personal skills. The process was neither accidental nor a simple by-product of

rigorous coursework; teachers described their intentionality to push students to a different way of

thinking about their role in learning. Students grew to feel ownership of their learning and

proficiency with learning strategies.

Ownership of learning. Instructors deliberately incorporated practice with experiences

such as seeking help, persisting through difficult tasks, and finding self-efficacy and motivation.

Maggie felt one of her roles was to help students "learn how to be an advocate for their own

education." By the end of her course, students told her that, "I know how to fight for myself."

Paul echoed that students must learn to access options for help by saying, "They're gonna have

to be able to navigate the tools that are available to them through the university and get that

information." Students gained the ability to match needs with resources.

Instructors expected students to become self-directed and less reliant on teacher

prompting over the course of the semester. Bobbi admonished students, "when you start college,

don't wait 'til that first day to open that book. 'Cause they will eat you up. And you will find out

you're three chapters behind. So you need to get on it." Maggie told students, "In college, they

don't necessarily break everything down for you. The expectation is that you're tenacious

enough with your education." Students learned to initiate and maintain good communication

directly with the instructor rather than rely upon parents, which was a new skill for many; as

Allen pointed out, "Students are very unlikely to email a teacher in high school." Sunny told

students, "I'm going to try to treat you as adults. I'm going to try to get you to take care of things. If I see a problem, I'm going to talk to you first." Teachers often had to teach families about the need for instructor communication to flow through the student rather than the parent.

Sometimes the lessons of self-direction were difficult. Patti described a common occurrence for students early in the semester: "Kids missed test days and they think they should be able to make them up and I'm like, 'No, that's not college. You don't just get to come when you want to and test when you want to. If you miss, there's a liability associated with it.'" Ownership also came as students found their voice and thought for themselves. Rose encouraged this by telling her students, "I don't want canned answers or anything like that. I want you to know why you feel the way you do." Patti described the "eye-opening experience" students gained in dual credit, and that "it's a good growing step before they leave home and go off," since teachers supported them in exercising ownership.

Learning strategies. In addition to high ownership, teachers led students to greater skill with approaches to learning activities. Maggie described that "the students who take dual credit are the busiest students in the building." She said that students involved in extracurricular activities or part-time jobs experienced that "when you're doing all these things… time management is a huge problem and a huge issue." Rose expressed, "there's more on a dual credit student's plate, just because they're trying to meet the requirements for both high school and college." Sunny felt that it was helpful to students to have fewer daily homework assignments, and that "it gives them flexibility" while she still felt "I'm trying to teach them responsibility without standing over them." Students learned time management to balance the demands of college coursework with the life of a high school teenager.

Students also gained proficiencies such as study and notetaking strategies that supported

their learning. Teachers found the need to explicitly teach these competencies. John noted, "I don't think they understood how to study for a test yet in a college class." He observed that high schoolers have "never had to sit through a lecture class and know how to take notes." Hugh also shared that "they hate lecture, and they hate taking notes." But teachers provided extensive support to bridge the student need. John said, "Well, they're going to learn it from me because they're going to be in a lecture class and… by the end of the year they will know how to take good notes in college class." Through deliberate guidance, embedded teachers led high school students to gain learning skills that would serve them in their postsecondary future.

Transition knowledge. Embedded dual credit teachers worked to not only prepare students with cognitive, content, and learning skills; they also provided experiences and information to help students transition from a secondary to a postsecondary setting. Maggie said that by doing so, "there's a demystification of college for them, so that they see it for what it really is rather than romanticizing it." Hugh shared that he made no assumptions about students' understanding of college; he said, "I draw an umbrella on the board, and I go, 'This is a university. There are colleges under a university. What are hours? Most classes are three credit hours.'" Rose shared that because dual credit students must complete registration paperwork and pay tuition, they "had to kind of go through some hurdles before they even get here," meaning they have some exposure to institutional practices from the very beginning of the semester.

Teachers also embedded the norms of the postsecondary world into dual credit courses. Allen said, "I expect them to act like college students, and I show them or really tell them what that's like." Patti felt that, "when they get to the college or the university, they've got a lot of experience on what to expect every day." Rose shared, "I want this class to mirror exactly what I do on a college campus." Because the students were able to experience the college postsecondary

norms and expectations, Patti described it as "a good middle step … between being at that point where they're completely liberated." Teachers felt that students would be ready and prepared to thrive in the full-time postsecondary setting with the transition skills gained through dual credit.

Mismatched Student Goals and Expectations

Teachers described unrealistic or misaligned goals and expectations for dual credit coursework. As one example, because dual credit students generally have successful academic histories in high school classes, they frequently expect to achieve at similar levels when beginning dual credit coursework. Paul described that at the start of the semester, "typically they're used to making As. I don't give them any As. So they really have to work." Patti told her students, "You're not under the same criteria that every other high school student is- you're under the college criteria which is holding you to a higher level." Bobbi shared that similarly, parents of dual credit students "were concerned because it would be the first time their child ever made a 50 on a test." She noted that "You can be successful in high school and never study," but that dual credit courses were "rigorous, it's hard, and the studying is different than what you do in these other classes." Parents and students alike required guidance from the teachers to align expectations to the realities of college work.

Teachers were additionally frustrated by the frequent student goal of boosting their grade point average (GPA) through dual credit courses that carry a weighted value. Hugh lamented, "all the kids are concerned about is their grades, as opposed to learning something." Bobbi felt that sometimes the pressure came from home. She said, "The parents put their kids in all these classes and a lot of times you're not ready for those classes, but they want to play that GPA game." She also expanded, "Everybody's wanting to be Valedictorian, and I tell them that's not the goal." Paul described similar concerns with families at his school: "Occasionally, I'll have a

student or a parent communicate, 'My student's in the top ten. We're really worried about their average.' I ignore that. It doesn't matter who it is. This is the course. You've got to do the work." Sunny explained, "Our kids are so obsessed with class rank. Unhealthy, obsessed with class rank…. It's ridiculous how obsessed they are." She later sighed, "It is exhausting."

Another common mismatch described was when dual credit students approached the course with the singular goal of obtaining transferable college credit, even if they were unprepared for the rigor of the class or the degree requirements of their future institution. Allen observed that some students "see friends getting the college credit and they want that, but they haven't taken a lot of courses prior to this to prepare them for that jump." This trend concerned teachers because some students built a permanent college transcript before they were ready. John pointed out to his students that "there are certain fields that require master's degrees… and the determination could be that class you took as a freshman." Additionally, teachers were concerned that students failed to understand that future degree plans may not require the dual credit course they selected. John said, "I never want a student in my class that's going to earn this year of college credit and the college says, 'Nope, it's not what you need.'" Sunny emphasized that for college credit to transfer, "it does depend on where they're going. And it also depends on what they're going to major in." Teachers were aware that money was on the line for families. Patti found that sometimes students "would find out that those classes are not refundable. You pay for them and if you're not successful, then you have to take them over." Similarly, Allen told students, "It's not like failing a course that's free… you've got a lot more at stake." Patti explained that although dual credit has many positive benefits, "Not everybody is ready for that yet. Not everybody is gonna ever have that ability." Teachers felt wary of outcomes for students

and families that came to dual credit with unrealistic expectations of instant achievement, a GPA boost, or easy, transferable credit.

Strategic Actions to Shape Student Readiness

Teachers emphasized that although some of the content-specific readiness skills were embedded in the content and delivery of the course, they took strategic action to build other readiness components. The secondary context allowed teachers to gradually orient learners to college-level expectations before they became full-time postsecondary students. Allen said, "I feel like I can just ease them into it a little bit more than just being thrown into it their freshman year." Similarly, Patti expressed, "they don't have to learn it all as a freshman in college somewhere, moving away from home for the first time." Instructors were clear about the fact that high school students were not truly college-ready, even if they scored well on standardized academic measures. Bobbi laughed that, "All they know when they first come in is their books are bigger. There's a lot more than that." When asked whether he thought high-achievers were college-ready, Paul replied, "They're not college-ready. After they come out of my class, they are." Teachers used surplus time and a growth mindset to progressively cultivate college readiness.

Time matters. How did teachers manage to shape secondary students into postsecondary scholars while still maintaining the college pacing and course rigor? Teachers shared that the additional time resulting from the high school schedule was a major factor. Sunny said, "we have more hours with them, more contact hours with them." Bobbi explained,

It really makes, I think, the difference, too. When I teach at [the college], I don't get all the time with them. When you're high school, you have before school, you have class. We now have something called advisory, and then we have after school. I'm so available

to them. And I get to know them a lot more.

Similarly, John described that he was much more accessible to his dual credit classes than is typical in college. He said, "My students can see me from 7:30 in the morning to 4:15 in the afternoon. That's a big amount of time that they have to get in touch if they have an issue." Teachers felt that convenient access to the teacher was a major factor to student success.

Besides being generally available, some embedded instructors assigned the extra class days as study and tutoring time while they were available for assistance. Sunny shared that as a result, her dual credit students "have built-in work days where I'm here if you need me." She felt that the use of extra time should be an opportunity for students to learn self-management. She explained to students that if they were in college full-time, "this would be your time in your dorms, your time to meet up at the labs, to work. You can ask me questions but I'm not going to stand over you and baby you." Likewise, Allen said students get a "taste of that freedom that you have in college when it comes to how many hours per week you're actually in the classroom versus how many hours you're supposed to be working on schoolwork for that class." The opportunity for student-directed time management was a benefit of surplus class time.

Teachers sometimes used extra time for directed activities including test preparation, college research, and deeper applications of course content. When describing time spent on college and financial aid research, Allen commented, "I've got time with them. Why not just kind of talk to them about those things?" Maggie shared, "if I have time left, that's when I'm doing SAT and ACT prep, and I try to do things to help them with standardized testing." For some teachers, the time allowed richer application of course content than would have been possible in a traditional college setting. Sunny said, "I feel like I actually go into more depth on some things because I do have that additional time with them." Bobbi shared that she had

partnered with a local organization to create "a mini internship for my kids…. So they fill in

some of that time." Teachers created meaningful enrichment for students with the additional time

that resulted from the embedded class on a high school schedule.

       Growth mindset with accountability. Teachers worked with students to continually

grow personally and academically. Maggie said, "I meet them where they are. My goal is to see

growth more than I have an ideal for every student to fit into a mold." Hugh shared with his

struggling students, "I'm not going to judge you on what you don't know. I'm going to judge

you… on the progress you make." By helping students set intermediate goals and reach them,

teachers modeled a mindset that served students well. Maggie said her students showed "pride in

their work and the fact that they see their own growth." Bobbi reflected, "I like when they realize

they can think. I've seen kids grow through the year…. They have more confidence in

themselves." The growth mindset helped students persist through difficult work.

       However, teachers maintained high expectations and high accountability for work even

though they embraced a growth mindset. Hugh stressed, "We're not giving anything away." Rose

clarified that, "If they don't turn things in, there's no grace for that. They have to be more

responsible, and their parents can't save them." Paul shared that he expected students to go

beyond baseline compliance to achieve. He said, "They have to stretch and do more…. It's not

just showing up and paying attention and acting nice and taking notes." In fact, because of the

extra time due to scheduling, teachers felt they actually expected more from their dual credit

students than from students in their classes on the college campus. Sunny said, "I feel like I've

extended beyond what they would have gotten in a college class; it actually makes it harder."

Similarly, Bobbi shared that she supplemented her course materials from the college to "try to go

beyond that and really push them." By promoting a growth mindset rather than focusing on

initial shortcomings, instructors felt that they pushed students further than they could otherwise. Teachers felt confident that college-level work and expectations were present in classrooms, but they also shared that they were sometimes left to celebrate that accomplishment alone.

Feelings of Professional Isolation

The work of embedded instructors is so distinct and unique that they shared frequent feelings of professional isolation. Bobbi shared, "There's no one else that teaches what I teach at the high school, so it's me in my own world." Patti also said, "I teach in a very lonely world," and later added, "It would be really nice to have somebody that taught the same thing …. It's very isolating." Although they felt personally connected to the high school campus, the professional interactions were missing. This wasn't taken personally, but as part of the nature of the job. John said, "We pretty much work on an island or like a contractor," but in reference to the college, "They may leave me alone because they trust me…. If that's the case, all the better." Teachers felt that they had no professional counterpart with whom to regularly interact.

The teachers were so professionally isolated that they felt unaware of how other dual credit instructors operated, and they desired more collaboration. Allen mused, "I'm wondering what maybe other teachers have had to deal with." Regarding course rigor, Paul said, "I'm sure it varies from teacher to teacher, and program to program." Sunny supposed, "there probably are exceptions to the rule and there probably are places that have embedded teachers that maybe aren't teaching to the level and standards of the other classes." In fact, when asked about their ideal program, collaboration was cited often. Patti described that for her on-level courses, she could plan with other high school teachers. She described that "it's a luxury for me to actually have somebody to collaborate with," and that for dual credit courses, "it would be great to have more structure as far as having… professional learning communities here." She said, "There are

not many opportunities at the college level really for the adjunct to collaborate, other than emails." Teachers felt that isolation was part of the unique nature of the job.

Teachers shared that in high school the professional isolation was due to unique content, but that at the college, some of the isolation was due to their off-campus adjunct status. Allen said, "You're just kind of a low man on the totem pole, and so I just kind of do what I'm told." Even when professional development opportunities were hosted by the college, they were not available to embedded dual credit teachers because they were held during the day on weekdays. John said, "Their professional development opportunities happen during the semester… during the school day here. I can't just leave to go do that." Sunny felt that when it came to her college department, "We don't really know each other. We don't really have a lot of communication together." Allen said that when it came to his on-level course high school colleagues, "I'm more a part of a team of collaborators where I do have a voice," but with the college, "it's kind of out of sight, out of mind sort of kind of thing." Teachers didn't resent the college; they understood the challenge of off-campus connection, but they also acknowledged the isolation that resulted. Despite the barriers, they felt pride and purpose in their work with their own dual credit courses.

Sense of Pride and Purpose

Teachers were proud to provide a service to students that they believed would carry them into successful postsecondary endeavors. They took great ownership to guard the quality of the dual credit experience on their high school campus. Sometimes conflicting policies or practices necessitated that teachers take issues to administrators for resolution. John shared that "the two systems don't talk to each other. It's up to the dual credit teacher." Hugh described, "The conflicting schedules, the conflicting attendance policies, they're all very real, and sometimes problematic, but… they've let the instructors figure it out." Rose described that in the early days

of dual credit on her campus, she had to advocate for the college expectations to be the rule. She said, "We've dug our heels in about it, and the district has worked through that." Referring to her campus, Sunny shared, "our administration has listened to us so much over the past few years." Teachers actively initiated efforts to bridge the policy and communication gaps that were evident between K-12 and college institutions. They felt a sense of purpose in creating proper alignment.

Embedded instructors were aware of dual credit critics. Not only did they feel the accusations of low rigor and easy credit were unwarranted, they felt the claims were disrespectful in light of their hard work. Maggie shared,

> It hurts my heart because I feel like I'm a professional. I feel like the amount of work I have to do in order to please both, and the rigor I have to do in order to please both, I feel like that needs to be more respected.

Sunny said, "I do not feel like there is anybody on our campus that's an embedded teacher that doesn't teach… either at or above [the college] level." Hugh shared that he felt higher education institutions often looked down on embedded instructors, with accusations such as, "your rigor is not up to snuff because it's dual credit." He said, "I felt very scrutinized, and I felt like I had to be very accountable." Sunny acknowledged the high passing rate of dual credit students, but attributed it to the embedded setting rather than a lack of rigor. She said, "the kids are more successful when they have a high school teacher teaching it. And I do not think that the high school teachers are making it easier." Maggie explained that relationships and rigor can co-exist. She said, "I don't feel the fact that you care about your students is a detraction as long as the standards are still the standards." Teachers were proud of their efforts to make dual credit classes rigorous and reflective of college standards, and they desired for the work to be acknowledged rather than scrutinized.

Despite the criticism from external sources, teachers repeatedly expressed the pleasure and pride they felt through their work. Sunny declared, "I love teaching dual credit," and Bobbi beamed, "I love what I do." Maggie said, "I have the greatest joy teaching these wonderful students and teaching dual credit." She wished more students would attempt college work, saying, "If I could do pep rallies, I would, because it's the most rewarding thing, professionally, I've ever been a part of." Teachers felt fulfilled through offering an aligned college experience.

Discussion

This study provided new insight regarding the experiences of embedded dual credit instructors. Although dual credit programs are predicted to expand rapidly (Malin et al., 2017), little research to date has explored teacher perceptions. Therefore, my findings are an important contribution that may inform future research efforts.

Participants spoke at length and in detail regarding the promotion of college readiness for their dual credit students. They seemed to take ownership of and find satisfaction in the college preparation of students, which they saw as a central part of their role. This finding is important because other studies have suggested that pre-university teachers sometimes do not believe college readiness is their responsibility (van Rooij & Jansen, 2018). If teachers are asked to promote that which they do not value, the resulting stress could reduce effectiveness (Skaalvik & Skaalvik, 2017). But participants in this study not only embraced postsecondary preparation, they displayed an understanding of readiness that aligned to current research. All of Conley's (2013) four key areas were represented in descriptions of course content and classrooms. It was clear that instructors supported a well-rounded view of proficiencies that benefit students. This means that embedded dual credit classrooms do indeed promote college-ready behavior.

Teachers actively worked to align high school dual credit classes to college expectations.

Historically, criticisms of dual credit have questioned content alignment and rigor (Howley et al., 2013; Miller et al., 2018). However, participants in this study carefully tied activities and assessments to college departmental syllabi. They spoke to the foundational content and level of thinking that students would master in their dual credit coursework so that they built a solid groundwork for future college learning. Accusations of low rigor and easy credit were offensive to the instructors who had diligently worked to build a program they felt was worthy of college credit. My finding of alignment in content and rigor is logical because the embedded teachers are fully credentialed adjuncts, and as such, have as much expertise to deliver high-quality instruction as do the adjuncts working on the college campus.

Teachers actively advocated within the high school administration when policies or practices interfered with college expectations. They often served as what Howley, Howley, Howley, and Duncan (2013) referred to as "border crossers" (p. 92) because they understood both institutions' needs and were willing to initiate communication regarding conflicts. In response, high school administrators facilitated the implementation of college norms and expectations when they relaxed or set aside the typical expectations for secondary classrooms. However, serving as an institutional liaison could take away from teachers' time and energy spent on student learning. My findings suggest that administrators from both high school and college are often unaware of the disconnects between each other, and that they would likely benefit from seeking teacher perspective and collaborating with each other more effectively.

Besides the beliefs and competencies of the teachers, this study also revealed contextual factors that contributed to the positive outcomes of dual credit. The additional class time and instructor availability resulting from a high school schedule provided a substantial advantage to students. Teachers reported considerably more time to intervene, tutor, advise, or teach additional

content for dual credit classes that would not be possible in college-only classes. In fact, some

participants expressed that dual credit sections were more rigorous than the college-only sections

of the same course they taught due to additional instructional time. A recent comparison of dual

credit and college-only course grades indicated that dual credit students generally out-perform

their college peers, but the helpful mechanisms of dual credit remained a "black box" (Miller et

al., 2017, p. 3). Perhaps a major factor at work is the additional time with teachers gained in an

embedded setting. Embedded instructors had extra hours over the course of a semester to add

supplemental projects and college-prep activities to dual credit courses.

Teachers reported that their familiarity with high school norms and culture is beneficial to

students. Students' feelings of security with the secondary setting promoted help-seeking

behaviors. The comfort of the campus also allowed students to focus on new levels of academic

and personal expectation without the distraction of an entirely new institution and living

arrangement as they would experience when moving away from home to college. Consistent

with Hebert's (2001) findings, embedded instructors were experienced at working with

teenagers, and they enjoyed interacting and building positive relationships with young students.

Teachers also noted that when a college instructor from outside the high school campus was

utilized, both the students and teacher seemed to struggle. Understandably, an adjunct who

travels to multiple campuses and between multiple student groups could struggle to relate to the

variety of cultures and norms in each place. Visiting instructors are also unavailable to students

before or after school, and they are not visible on campus through the course of a normal school

day. Perhaps young students are less likely to reach out for help or clarification with someone

less familiar. The embedded teachers underscored the increased effectiveness they felt with

students because they were integrated into a familiar school culture. Dual credit students with

embedded teachers experience true college-level work and expectations that are facilitated by additional time and relationships with familiar teachers. These findings have implications for researchers and practitioners alike.

Implications for Research, Policy, and Practice

Dual credit enrollment is anticipated to continue increasing (Malin et al., 2017). As both secondary and postsecondary institutions prepare for an influx of new students, they must plan for appropriate instructor staffing. The findings of this study suggest that embedded dual credit teachers have an understanding of college readiness aligned to current research. As more teachers are needed, practitioners should note that students could be influenced by high school contexts and relationships in important ways. If financially feasible, further education and college credentialing of existing high school teachers may fill the demand more constructively than by increasing the number of visiting college adjuncts. Where possible, administrators should note the benefits of choosing to hire embedded instructors.

High schools and colleges should also note the isolation felt by embedded teachers. Instructors expressed a desire to share ideas with colleagues to improve classroom activities and instructional practices, and institutions could purposefully facilitate such work. Administrators could also consider counteracting criticisms of dual credit rigor through intentional recognition and encouragement of embedded teachers, especially when college-level expectations are evident. Reducing the feelings of being disparaged or isolated could not only honor teachers' professionalism, it could also address burnout factors such as emotional exhaustion and stress (Skaalvik & Skaalvik, 2017).

Future studies are warranted to build upon these findings. For example, surveys to a wider sample of embedded instructors regarding surplus contact hours and the ways the time is

utilized could shed light on possible mechanisms for student success. Additionally, a few

participants spoke briefly to their perceptions of AP classes they taught. Although it was outside

the scope of this study, future work could explore teacher efforts to build college readiness in AP

classes, which is also a popular method to attempt college credit in high school. Furthermore,

other dual credit instructional settings such as on college campuses or online could be explored

through the lens of Conley's (2013) four keys. By expanding to additional contexts, future work

could inform practitioners and policymakers of ways to maximize benefits for students.

Conclusion

Embedded dual credit teachers have a deep understanding of college readiness aligned to

current research including Conley's (2013) four keys framework. They also intentionally build

postsecondary competencies in students through structured activities. My findings suggest that

higher education institutions and the education community at large should be more confident in

the rigor of embedded dual credit settings. Rather than treating embedded teachers as second-

class faculty, colleges should value their input and invest in their professional growth. Dual

credit teachers stand boldly with a foot in two worlds, balancing the demands of high school and

college; in doing so, they leave a mark on the future through their students.

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Appendix: A Foot in Two Worlds: Interview Protocol

1. Please tell me a little about yourself and your work as a dual credit teacher.

    What DC courses do you teach? What high school courses?

    Why did you become a dual credit teacher?

2. How would you describe the goals of dual credit?

3. How do you deal with challenges you might encounter in meeting those goals?

4. What kinds of interactions do you have with your dual credit partner college versus your high school?

    Administrator expectations?   Regular communication?

    Professional development?

5. How do you plan for meeting the professional expectations of both high school and college employers?

    Could you describe a time that employer expectations were in conflict?

6. What experiences do you think students have when they take your dual credit course(s)?

    What elements do you feel are helpful to students?

    What elements do you feel are obstacles to students?

7. What subject-specific skills do you think students in your DC classes will gain?

8. What other skills do you think students in your class gain that are not specific to your subject matter?

    Problem-solving?   Precision / accuracy (math/science)

    Research?   Time management?

    Proof or argument formation?   Project management?

    Interpretation?   Study habits?

9. [For each skill mentioned above] How do you help students gain or improve that skill?

10. How do you think dual credit students' knowledge about general college expectations compare to other high school students? Please explain.

11. Do you feel that parents of dual credit students understand college-level expectations? Please explain.

12. Currently the state is proposing to use dual credit coursework completion as an indication of students' college readiness. Do you agree or disagree with that (and why)?

13. What do you think your role is in promoting college readiness?

14. If you could design your ideal dual credit program, what would it be like?

15. What additional things about this topic would you like to share, if any?

16. If later I need to contact you, would it be okay to contact you by email?

Chapter 4: The Best of Both Worlds:

Exploring a Comprehensive High School Associate Degree Program

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The Best of Both Worlds: Exploring a Comprehensive High School Associate Degree Program

The race for college degrees drives today's educational culture, and the labor market demands postsecondary credentials in ever-growing numbers (Malin, Bragg, & Hackmann, 2017). Accordingly, public secondary schools are accountable for preparing students for success in higher education pursuits (Malin et al., 2017). The term *college readiness* is broadly used when referring to student preparation for successful credit completion in postsecondary settings (Conley, 2018). One popular readiness strategy employed across the U.S. provides students the opportunity to earn simultaneous credit on both high school and college transcripts through *dual credit* coursework (Karp, 2015; Tobolowsky & Allen, 2016). By blending the norms and expectations of secondary and postsecondary education, dual credit may smooth the pathway to higher education (Karp, 2015). Dual credit coursework can occur in a variety of instructional settings such as on a college campus, on a high school campus, or online (Tobolowsky & Allen, 2016). Districts sometimes utilize the specialized dual credit setting of an *early college high school* (ECHS), especially when working with underrepresented student groups (Haxton et al., 2016).

An ECHS requires a strictly-defined partnership between a high school and college that allows the completion of an associate degree or two years of college credit (Haxton et al., 2016). Cohort sizes are limited, students have extensive emotional and academic supports, and the school day is structured to facilitate successful completion of both high school and college work (Bayerl, 2018; Haxton et al., 2016; McDonald & Farrell, 2012; Texas Education Agency, 2018a). The most recent national data indicate that about one-third of ECHS students attain an associate degree while still in high school (Bayerl, 2018; Webb & Gerwin, 2014), an accomplishment certainly beyond most traditional high school peers (Haxton et al., 2016).

However, the ECHS model is not preferred by many school districts. In Texas, only 126 of 1,200 public school districts chose to operate an ECHS in the 2017-2018 school year (Texas Education Agency, 2018a). Traditional, *comprehensive* high schools allow students to specialize in academic, artistic, and vocational options while still being part of a unified campus identity and culture (Copa & Pease, 1992). The experience of attending an ECHS is substantially different than a comprehensive high school because of the former's lack of extracurricular activities, clubs, organizations, and social activities (Fischetti, MacKain, & Smith, 2011; McDonald & Farrell, 2012). In addition, because the cohort size is often limited by statute (Texas Education Agency, 2018a; Webb, 2004), and the costs to implement an ECHS are substantially higher (Webb, 2004), district stakeholders may not want an additional high school with such a narrow focus. Although support towards degree attainment is a benefit of an ECHS, it costs districts financially and excludes traditional opportunities for students that are found in comprehensive settings.

One North Texas school district worked to capture the benefits of the ECHS model while still retaining the benefits of a comprehensive high school. Through a three-way partnership between the district, a community college, and a regional university, leaders designed a program that utilized extensive dual credit coursework along with supports similar to an ECHS within the district's existing high school. Students applied to the program in their eighth-grade year of middle school, and those who were accepted began dual credit coursework in the ninth grade as part of a pathway designed to complete an associate degree by high school graduation. Because the students remained in the comprehensive high school, they still experienced traditional high school activities. The first graduating cohort experienced an impressive 77% associate degree completion rate (Jones, 2018). For the purposes of this study, I refer to this specialized dual

credit program as a Comprehensive High Associate Program (CHAP).

The purpose of this case study is to explore the CHAP elements in the context of college readiness and degree completion. Postsecondary preparation involves more than simply test scores and credits earned (Conley, 2013). Therefore, such an undertaking required an exploration of stakeholder perceptions of the program rather than solely relying on quantitative data analysis. We chose to focus on faculty involved in the program design and implementation as well as alumni of the program who were attending college and could therefore speak to the effectiveness of their postsecondary preparation by the high school experience. These two groups of participants had first-hand knowledge and observations regarding the completion of an associate degree while still participating in comprehensive high school extracurriculars and activities. Because they were familiar with a program of study similar to that of an ECHS, but were also situated in a traditional campus, they represented a perspective not found in existing dual credit or ECHS research. Research questions to guide our work were:

1. What elements of the program are viewed by alumni and faculty as most helpful to promote college readiness and success, and why?

2. How effectively does the program selection process identify college-ready students who later succeed in dual credit courses and degree completion?

3. What obstacles and opportunities within the program do alumni and faculty perceive?

By asking participants to reflect upon both the design and the actual implementation of the CHAP, we sought to understand how the program influenced students. We also wanted to know whether elements that were part of the eighth-grade application process were predictive of success so that the opportunity could be expanded to other students in the future. By studying the CHAP through the lens of faculty and students, we aimed to refine the program for the benefit of

future student cohorts.

Significance of Study

Because the CHAP is still relatively new, study is warranted to reveal mechanisms behind the high level of degree completion. The program is an example of blending of secondary and postsecondary settings. Practices found to be effective may be useful for building college readiness for high schoolers in general; this could inform practitioners who work in a variety of education settings. The relationship between the K-12 district, community college, and university is also unique, and the perspective of faculty through the collaboration is an important contribution to existing research on dual credit partnerships.

Additionally, because CHAP students experience the academic load typical of an ECHS along with the activities of a comprehensive high school, the program presents an opportunity to better understand the needs of students with broad interests and talents. Existing research on ECHS student experiences is limited to those teens who choose to forgo a traditional secondary experience in favor of an academic focus. Therefore, the experiences they deem as helpful or important may not be generalizable to more typical high school students. Similarly, existing research on dual credit students is limited to those who are taking a limited number of credits with the goal of earning a future degree after, not during, high school. The CHAP alumni and the faculty who guided them through have a perspective that substantially adds to the current field.

Finally, findings could inform administrators from other districts who seek to build similar programs. By revealing pitfalls to avoid and essential elements to this program's success, we seek to further the information available to practitioners who wish to provide opportunities to students. Before delving deeply into the CHAP case of interest, I will provide a review of existing research to give scholarly context to the study.

Review of Existing Research

With the nationwide push for postsecondary credentials (Baldwin, Alfred, & Sydow, 2017), options for high school students to earn college credit continue to expand (Malin et al., 2017). In the sections that follow, I will describe ways that one popular method, dual credit, uses college coursework to fulfill not only postsecondary credential requirements, but high school diploma requirements as well (McDonald & Farrell, 2012; Tobolowsky & Allen, 2016). I will outline how dual credit relates to an established framework for college readiness, describe the popular dual credit setting of ECHSs, and relate how dual credit and ECHSs are utilized in the state of Texas.

Dual Credit and a College Readiness Framework

Beyond mere credit acquisition, participation in dual credit appears to provide benefits to students after high school: increased levels of college enrollment (Allen & Dadgar, 2012; Taylor, 2015), higher college performance (An, 2012; Young, Jr., Joyner, & Slate, 2013), and reduced time to degree (Allen & Dadgar, 2012; Taylor, 2015). Furthermore, dual credit programs require formation of partnerships between school districts and higher education, which may increase the alignment of student expectations and ease transition from one institution to another (Karp, 2015). Because dual credit students complete advanced coursework and gain experience with college norms, many believe that participation builds *college readiness*, a complex concept that is tied to school accountability (Malin et al., 2017).

For students to be ready for success in college, they need competencies in multiple areas (Conley, 2008). Historically, readiness has been determined through academic performance on standardized assessments (Malin et al., 2017; McClarty, Mattern, & Gaertner, 2017). Entrance exams still serve as a minimum gatekeeper to college coursework (Texas Higher Education

Coordinating Board, 2017). However, the process of merely gaining eligibility for college

through satisfactory testing does not guarantee readiness for postsecondary work (Conley, 2018).

Multiple college readiness frameworks exist that include academic and non-academic

competencies (Conley, 2018; McClarty et al., 2017; Nagaoka et al., 2013). This study utilizes the

framework of David T. Conley (2013) involving four broad areas, or "keys" that are necessary

for success in college (p. 54). The *four keys to college and career readiness* model organizes 41

teachable components into "key cognitive strategies," or thinking skills used across content, "key

content knowledge," which involves foundational academic discipline and technical skill, "key

learning skills and techniques," involving ownership of personal learning processes, and "key

transitional knowledge" that includes understanding postsecondary systems and norms (Conley,

2013, p. 54). The four keys model is used by multiple state and private education entities to

frame the necessary competencies that students need to be ready for college (Inflexion, 2018). As

such, it served to organize this study which involved multiple academic and non-academic

factors.

Conley (2013) discussed the benefit of students experiencing college expectations while

still in high school so that they become more prepared. He also argued that providing college

experiences in high school would require secondary and postsecondary institutions to work

closely together and create "seamless transition programs" (Conley, 2013, p. 247). His idea is

similar to that of Melinda Karp's (2015) "leaky pipeline" analogy in which she asserts that

institutional collaboration resulting from dual credit "fuses pieces of the pipeline more closely

together" (p. 105). One type of program that maximizes the such alignment of secondary and

postsecondary experiences is that of Early College High School (ECHS).

Early College High Schools

The ECHS model originally began in 2002 with the goal of increased college access and enrollment for underrepresented student populations (Haxton et al., 2016). Students enter a highly structured setting with extensive supports such as small cohort sizes, built-in tutoring, and frequent advising (Haxton et al., 2016; McDonald & Farrell, 2012). The school introduces postsecondary norms and provides extensive dual credit coursework so that students not only begin earning college credit, but also have a pathway to complete an associate degree by the time they graduate (Bayerl, 2018; Fischetti et al., 2011). Research indicates that ECHS participants have increased college enrollment and degree attainment than their non-ECHS peers (Haxton et al., 2016). Especially for disadvantaged populations, the model holds promise (Leonard, 2013), as approximately 30% of students complete an associate degree or other postsecondary certification by high school graduation (Webb & Gerwin, 2014).

However, the ECHS model is not without challenges. Campuses can be remarkably expensive for districts to operate because economy of scale is lost with cohort size limits, college costs must be absorbed rather than paid by students, and sometimes transportation to a college campus must be provided (Bayerl, 2018; McDonald & Farrell, 2012; Texas Education Agency, 2018a; Webb, 2004). The early days of the initiative were accompanied by substantial public and private grant support (Leonard, 2013). As funding has expired, leaders are left to consider creative solutions to keep existing ECHS campuses open (Bayerl, 2018; Leonard, 2013), much less contemplate opening new ones. In addition to financial challenges, districts sometimes find that not all stakeholders are attracted to the idea of an ECHS (Howley, Howley, Howley, & Duncan, 2013). Students at an ECHS typically have fewer extracurricular and activity options compared to a traditional high school setting (Calhoun, Snodgrass Rangel, & Coulson, 2018;

Fischetti et al., 2011; McDonald & Farrell, 2012), and they sometimes report significant stress as they work to fulfill both high school and college curricula (Calhoun et al., 2018; Fischetti et al., 2011). In many states such as Texas, ECHSs are subject to additional state oversight above and beyond existing high school accountability measures (Miller et al., 2017; Texas Education Agency, 2017b), which may be time-consuming for administrators to monitor and report. Due to the challenges of operating ECHSs, many districts choose to offer dual credit in other ways.

Dual Credit in Texas

In Texas, most dual credit is offered through traditional, comprehensive high schools (Miller et al., 2017). State legislation in 2015 made it possible for students to begin dual credit coursework as young as the ninth grade if entrance exam criteria were met (Miller et al., 2017; Texas Higher Education Coordinating Board, 2017). Participation has grown tremendously; from 2000 – 2016, the number of participants rose by 1,100% (Miller et al., 2018). Dual credit students in comprehensive high schools can participate in a full array of extracurricular and co-curricular options while pursuing multiple academic or artistic areas of interest (Copa & Pease, 1992; Fischetti et al., 2011). They can also combine dual credit with other above-level work such as Advanced Placement (AP) courses from College Board (College Board, 2014). Such high-interest activities are often motivators for students to succeed, and they provide leadership experiences that are linked to potential postsecondary readiness (Camara, 2013; Wolniak, Wells, Engberg, & Manly, 2015). For these reasons, even students interested in extensive college-level coursework often choose to remain in a comprehensive high school rather than an ECHS.

Relatively few students statewide complete an associate degree, even within ECHS settings (Miller et al., 2018; Texas Education Agency, 2017a). The lack of degree attainment is due in part to insufficient numbers of credit hours completed (Texas Education Agency, 2017a),

but also stems from random or haphazard course-taking that does not lead to a degree (Miller et al., 2018). High school counselors working with student's *a la carte* dual credit can be overloaded or disconnected from college advisors for specific degrees in a comprehensive setting; therefore, students often enroll and pay for college coursework that amounts to an accumulation of electives (Miller et al., 2018). In contrast, counselors who worked with students in a program that led to a certification or degree reported that they were more intentional with their guidance (Miller et al., 2018). This contrast alludes to the power of partnerships between secondary and postsecondary institutions to align pathways for students, which is often noted in ECHS research (Bayerl, 2018; Bush, 2017; Howley et al., 2013). In the absence of such collaborations, students may take and pay for dual credit courses aimlessly.

As dual credit enrollments within comprehensive settings rapidly grow, school districts must find new ways to ensure that coursework fits within a long-term plan. One district in North Texas began an associate degree program within its comprehensive high school (a CHAP) that also incorporated many of the supports of an ECHS (Red Oak ISD, 2017b). Of the first cohort, 77% completed an associate degree in the weeks prior to high school graduation. Although numerous other high schools provide extensive dual credit offerings (Miller et al., 2017), we were interested in understanding how the processes and structures of this CHAP influenced college readiness and promoted high levels of degree attainment.

Profile of the CHAP in Red Oak, Texas

This study's setting is a CHAP within a public high school of over 1,830 students in the suburban North Texas community of Red Oak (Texas Education Agency, 2018b). Red Oak Independent School District's (ROISD) mascot is the Hawks, and as such, the program is named Hawk Scholars Academy. The district considers its CHAP a "bragging point" (Red Oak ISD,

2019), and thus has given permission to be named in this study, entered into a student data use

agreement, and has encouraged a scholarly review of the program. Red Oak High School

(ROHS) welcomed its first cohort of CHAP students in the fall of 2014, and to date has accepted

between 22 and 28 rising ninth grade students each year after. Between the fall of 2014 and the

fall of 2018, five cohorts including 104 students began coursework in the CHAP.

Creation of the Red Oak CHAP

At the time the CHAP was created in Red Oak, the high school offered a multitude of

both dual credit and AP opportunities, and even received national recognition for AP exam

participation and performance (College Board, 2013). Of the junior and seniors in the 2013-2014

school year, 53.2% had taken an advanced or dual credit course (Texas Education Agency, 2015).

Nearby communities had ECHSs that were open to Red Oak students to enroll, and the district

desired to provide its students with an opportunity to earn a degree without leaving the district.

In addition, the existing evidence of success in advanced course offerings within ROHS

bolstered the rationale to create the Hawk Scholars Academy.

After a year of planning with both a regional community college and a nearby university,

ROISD entered into an agreement in the spring of 2014 that that would facilitate the sixty hours

of dual credit credit necessary to complete an associate degree within the four years of high

school (Red Oak ISD, 2017b). Students would receive the degree through the community

college, and then the university agreed to accept the hours intact. In addition, the agreement

spelled out commitments to regular student advising by both the 2-year and 4-year partners.

Before registering for classes each semester, students were to meet with a community college

advisor; starting the junior year of high school, they also would meet with university advisors to

ensure credit transfer towards a 4-year degree seamlessly. Both higher education partners desired

to treat the students as members of their student body, inviting them to special events and field

trips, and providing access to resources such as libraries and tutoring centers. In this way, the

students had a taste of life as a college student even though they remained on their home high

school campus.

Student Application to the Red Oak CHAP

Selection to participate in Hawk Scholars Academy follows a process developed jointly

between all three partnering organizations. Even students who have never attempted advanced

coursework in middle school are invited to apply and demonstrate potential in other ways (Red

Oak ISD, 2017b). Eighth graders apply for consideration to the program in their last semester of

middle school by first submitting a portfolio of documents including grade reports,

accomplishments, schoolwork artifacts, a writing sample, reference forms, and agreements to

program rules (Red Oak ISD, 2017a). A committee from the school district then scores portfolios

according to a rubric developed in collaboration with the higher education partner institutions.

Applicants to the CHAP in Red Oak are also required to attempt the Texas Success

Initiative (TSI) assessment or show evidence of another substitute college entrance exam (such

as the PSAT test from College Board), and submit documentation of the attempt at the time of

application (Red Oak ISD, 2017a). In Texas, a minimum score is required in order to begin

credit-bearing college work at public institutions of higher education (Texas Higher Education

Coordinating Board, 2017). Eighth grade applicants were not required to meet the minimum

score at the time of application, but they were required to have attempted at least one test

administration.

After evaluation of portfolios, a district committee reviews the scores along with

applicants' academic history of course grades and state testing. Students who show potential for

above-level work are then invited to participate in panel interviews with members from both

higher education organizations and the school district (Red Oak ISD, 2017a). Interview questions

and scoring process were developed jointly among institutions (R.E. Jones, personal

communication, May 28, 2014), and college partners have continued to participate on the panel

each year to date (R.E. Jones, personal communication, March 6, 2018). Following panel

interviews, representatives from all partner institutions review the student's portfolio, academic

history, and interview information to decide together which students will comprise the next

cohort.

Structure of the Red Oak CHAP

The Hawk Scholars Academy program was designed around a general studies associate

degree rather than a particular major area of study (Red Oak ISD, 2017b). Nearly all dual credit

coursework takes place on the high school campus with *embedded* instructors: high school

teachers credentialed by the college as adjuncts. By remaining on campus, students are able to

retain more flexibility with non-college electives and choices about extracurricular involvement

(Red Oak ISD, 2017b). They are also able to take advantage of intervention and tutoring times

more typical of secondary campuses. High school counselors and faculty advisors meet regularly

with cohorts, and students are scheduled into one period of the day together as a cohort. By the

end of the fourth year, students graduate from the community college with a degree weeks before

they receive their high school diploma. Because the students can enjoy the broad options of a

comprehensive high school while also benefitting from coursework and support similar to an

ECHS, Hawk Scholars Academy was a CHAP success story that warranted empirical

exploration.

Methods

We implemented a mixed-method, single-case, embedded case study design (Yin, 2017) with quantitative student data and qualitative interview and document data. We chose this design because it is appropriate when exploring a phenomenon that is not easily distinguishable from its context (Yin, 2017), and we were interested in the phenomenon of college readiness within the context of a college credit-bearing program. The variety of data, as well as the focus on the single case, provided an "up-close and in-depth coverage" (Yin, 2017, p. 234) of the program.

Positionality of Researchers

Both investigators work as ROISD central administrators and have contributed to the creation and implementation of the CHAP. Although working in the program resulted in a high level of access to data and familiarity with the case, the resulting researcher bias required careful bracketing (Creswell & Poth, 2017) and reliance upon actual data collection rather than personal inferences (Yin, 2017). Recognizing that our positionality could influence our findings, we used email correspondence evidence, document evidence, and quantitative evidence as much as possible to triangulate qualitative findings. We explicitly expressed to participants at the beginning of each interview that we wanted both positive and negative reflections on the CHAP. Additionally, by incorporating Conley's (2013) four keys framework into the interview protocols, we provided a neutral, rather than leading, approach to probes for additional information. Through both quantitative and qualitative means, we worked to fully describe and understand the factors within the CHAP. Furthermore, as administrators within the school district, we were eager to learn about both strengths and weaknesses of the program so that we could respond for the benefit future cohorts of students.

Data Collection and Analysis

We sought to understand both objective student outcomes as well as subjective experiences in the program. Quantitative data included 104 students who either graduated or were enrolled in the CHAP from the fall of 2014 through the fall of 2018. A data-sharing agreement with the Red Oak Independent School District (ROISD) ensured that private student information was protected appropriately. Data included demographics, scores from program application materials, classroom grades, college credits earned, and standardized test scores.

Although only one cohort of 22 graduates had completed the CHAP at the time of this writing, we included an additional four cohorts for a total of 104 students in the descriptive statistical analysis. We also analyzed the middle school student application process against later degree attainment for the first graduating cohort. Independent variables were scores assigned to the application portfolio, student grades, and numbers of advanced middle school courses taken. The dependent variable was associate degree completion. By examining these objective measures, we could describe the outcomes of the program in measurable ways, and link middle school student characteristics to future success in the CHAP.

We collected qualitative data through interviews and document analysis. The principal investigator individually interviewed a convenience sampling of five current or former faculty member volunteers who worked in the program at various times from 2013-2019. Interviews were transcribed for analysis, reviewed for accuracy, and pseudonyms were assigned: Karen, Wendy, Pat, Janet, and Susie. In addition, alumni from the first graduating cohort of 2018 with known email addresses were invited to interview after the first semester of college when they returned home between semesters. Both investigators conducted interviews with the four volunteer alumni from the first graduating cohort of 2018; pseudonyms were Ashley, Beth, Greg,

and Josh. Because of the small size of the program, details regarding the personal characteristics

including demographics of alumni participants and the job assignments of faculty member

participants are withheld to maintain anonymity. We utilized separate semi-structured protocols

for faculty and alumni interviews. We also analyzed documents from the planning year of 2013

through the spring of 2018, including marketing materials, email communications, notes from

student advising, and news stories.

Interview transcripts were hand-coded directly on a paper copy of transcripts by each

investigator separately. We utilized open, idea-by-idea coding (Charmaz, 2014), which means we

represented each statement or natural grouping of statements with a word or phrase to summarize

the idea. We then followed by *a priori* coding (Creswell & Poth, 2017) for the competencies

listed within Conley's (2013) four keys framework by reviewing transcripts again while looking

intentionally for readiness skills to which participants referred. After coding separately using

different colors of ink, the few areas of difference were discussed to reach reliable *intercoder*

agreement (Creswell & Poth, 2017). The agreed-upon code was then recorded in the code index,

but the original sets of codes were retained on the paper working copies. Codes were then

collapsed into themes by grouping them in non-redundant categories that represented larger

ideas. The themes were then used to organize our findings. To ensure trustworthiness, we utilized

peer review as well as member checking by sending a draft of our findings to participants for

feedback (Creswell & Poth, 2017; Yin, 2017).

Limitations

This case study is situated in one program at one site. In addition, the institutional

partnership that delineated course advising and transfer arrangements are specific to the Red Oak

CHAP. Therefore, findings from this case may not apply to other programs or schools. Another

possible limitation is that the perspectives of our alumni participants may or may not be representative of the rest of the cohort. Although 14 alumni with known email addresses were invited to participate, only four responded with availability to meet. We bounded this case study to include only the K-12 school district alumni and faculty. Staff from the two-year and four-year partner institutions may have provided additional insight, but were beyond the scope of this study. Finally, the data available for the first cohorts was limited in that only final attempts at TSI testing were retained, not the early attempts included in the CHAP application. For this reason, we were limited to the use course grades and portfolio results rather than including college entrance scores.

Results

The combination of quantitative and qualitative data led to a rich description of the CHAP in Red Oak. Five themes emerged through qualitative analysis, and we chose to embed quantitative findings within the themes. Both faculty and alumni believed in the rationale for creating the CHAP, and they felt it provided a valuable option to students. However, to design and sustain the program, high levels of commitment from adults was necessary. Participants praised the idea of the multidimensional selection process that viewed students from a variety of facets rather than solely academic achievement. They also spoke to the need to continue program structures that benefit students while also retaining flexibility for a more personalized degree plan. Faculty and alumni spoke of increased college readiness aligned to Conley's (2013) keys when CHAP students worked through repeated challenges and gained resilience. In the following sections, we present both qualitative and quantitative findings organized by the five themes.

Belief in the CHAP Rationale

Early in planning for a degree program, ROISD faculty researched the possibility of

opening an ECHS, but it was not fiscally sustainable or philosophically attractive at the time. Karen explained that due to limits from the state on cohort sizes "you couldn't have… economy of scale" to maintain an additional campus; districts were also required to provide textbooks and college tuition, something that was not financially feasible for the district. In addition, Karen shared that her understanding of the district leadership at the time was that they "firmly believed that a student should be able to be in… dual credit if they want, and whatever activity they want, because 72% of our kids at our high school were in extracurricular activities." Because the ECHS model did not align with the financial needs or philosophical beliefs of the school district at the time, the CHAP was designed to provide an alternative route to an associate degree. Indeed, other neighboring school districts requested to collaborate with Red Oak and begin their own version of the CHAP to retain ambitious students within their comprehensive high schools (R. E. Jones personal communication, January 20, 2017).

Pat explained that CHAP students could earn the associates and "still be active in all the different things that they love to be active in." Janet expressed that students could be more "well-rounded" than those in an ECHS, and that they could "pursue other interests." Student perspectives reflected the faculty observations. Participants described their desire to stay in Red Oak for the CHAP although other area districts maintained ECHSs that were open to Red Oak applicants. Referring to the lack of extracurricular options in ECHSs, Greg commented, "You are going to get so burned out just doing school all the time." He also said he "wouldn't imagine going through high school" without his grade-level friends that were not in the CHAP. Beth appreciated that she could "still have a life outside of school." Because the CHAP allowed her to pursue her academic goals, activities, and social dimensions, it was "all those things put in one."

Josh said he would encourage anyone considering an ECHS to "be you" and stay in the

traditional high school.

      Quantitative data from the CHAP reflected students' assertions that comprehensive high

school options were important to them; they took advantage of the offerings that would be

generally unavailable in an ECHS setting. Table 1 displays the numbers of CHAP students who

chose programs of interest beyond graduation requirements, which we termed "comprehensive

choices" for the purposes of this study. Programs counted as comprehensive choices were

athletics, fine arts beyond the first year, drill team, cheerleading, career and technical courses

beyond the first year, foreign language beyond the second year, Navy Reserve Officer Training

Corp, and peer tutoring. Each choice was counted only once, regardless of the number of years a

student remained engaged in the program. Only school-day selections were included, so we were

not able to reliably account for after-school clubs, student organizations, or additional activities

that were not reflected on students' official transcripts.

Table 1

CHAP Student Participation in Comprehensive Choices

Number of Comprehensive Choices	Number of CHAP students
0 programs	7
1 program	62
2 different programs	30
3 different programs	5

      Had ROISD decided to utilize the ECHS model, students would likely have had fewer, if

any, opportunities for such comprehensive choices during the school day (Fischetti et al., 2011;

McDonald & Farrell, 2012). These activities were so important to alumni, that if they had been

forced to choose between a traditional high school with no degree or an ECHS with an associate

degree, they would have chosen to stay in the comprehensive high school. With the strong

support for the benefit of remaining in the comprehensive setting, the faculty began working

towards the creation of the CHAP program.

Adults "Lock Arms… and Do It."

Implementation of the CHAP required a high degree of adult determination and

collaboration. Faculty and staff from all institutions were dedicated to student success as well as

to each other. Participants described how critical commitments were during times of challenge.

Tenacious collaboration. During the initial program design, Karen described the

importance of connecting with other "people that want the right thing for kids and that see this

particular initiative as the right thing." She explained that

> None of this had ever been done before. In fact, there were people who told us that we
>
> couldn't do it without being under an early college high, and we told them to show us that
>
> in print, and nobody could.

Personnel from the district, college, and university began discussing the CHAP possibility and

making plans for the partnership a full year prior to the beginning of the first cohort (R.E. Jones,

personal communication, July 12, 2013). For nearly six months, Karen described that staff

"tenaciously kept working" to arrive at the point of final agreement signatures between

institutions (R.E. Jones, personal communication, February 2, 2014).

Much of the planning time was spent learning to understand each other's requirements,

and this was no small task according to Karen because "the junior college had their own

vocabulary, the university had their vocabulary, we had ours." Each institution had to appreciate

the needs of the others, which included curriculum, staffing, finances, and accountability (R.E. Jones, personal communications, December 18, 2013 and April 3, 2014). Karen explained that staff in a variety of roles from all parties intentionally "talked through each barrier" in regular meetings that bridged the gaps between institutions. Susie noted that senior leadership, or "the people running the show," needed to "all be on the same page" for the program to work. By keeping the goal of student opportunity in the forefront, faculty pressed on to create a plan.

Steadfast despite challenge. Once the program was designed, the group faced challenges within the district and in the school community as the CHAP was deployed. To prevent the effective rank penalization of students taking academic dual credit instead of AP, policy was changed to move most academic courses with college credit potential to the same level of weighting (Flowers, Ailara, & Jones, 2014). Although courses in the program were also available to other students *a la carte*, some stakeholders perceived that CHAP students had an unfair weighted GPA advantage ("Susie," personal communication, October 1, 2014). Ashley remembered that "people were not being kind" and that the cohort experienced "backlash" from competitive students who were not in the CHAP. Susie described, "There was so much peer pressure about that, and anger…. They were being accused of cheating." As the first cohort and their classmates matriculated through high school, evidence supported the fairness of the GPA policy because courses were also available to the general high school population (Jones, 2018). However, in the early years, the faculty had to remain steadfast in their commitment to continue communicating and educating school stakeholders about the CHAP.

The high school faculty relied on strong relationships to work through external communication and to support each other in professional growth. They were initially unfamiliar with details of college registration, degree plans, and advising. Janet referred to "a huge learning

curve" because of "so many options." Susie felt at first "inadequate" to work in the program, but the strong relationships developed with the community college staff made her comfortable asking questions. She said, "I could talk to them as a friend and a confidant as opposed to just somebody that was over me that I didn't feel comfortable asking questions." Similarly, Janet spoke positively about the community college partnership, saying, "We all work together. I can call them any time I need them." In fact, her phone rang during our interview, and she indicated it was the college staff, smiling, "It's a constant." For the faculty and staff involved in the CHAP, Wendy felt, "it really pulled us closer… created a really positive relationship with those two colleges that we've worked with." Karen described that strength came when faculty from all three institutions were willing to "hold course… to lock arms with us and do it." By remaining dedicated to a shared purpose and by collaborating frequently and intentionally, faculty created benefits for students and built organizational capacity to sustain the opportunity. With strong teamwork, members of all institutions made joint decisions about the program.

Multidimensional Selection Process

The CHAP student application process in Red Oak involved multiple measures. Students engaged in a variety of activities, and several academic indicators were considered by a multi-institutional committee. We sought to analyze the outcomes and describe the perspectives regarding the process and results of CHAP student selection.

Portfolio application. Participants were asked for their thoughts regarding the effectiveness of the extensive application and selection process. Janet described other nearby districts with an application process that consisted solely of a parent permission form and college entrance exam scores. She shared that "they have a huge dropout rate." Pat agreed that it was appropriate to require more than a form application because the portfolio meant that faculty were

"already trying to put a little more on the student." Not all students were willing to expend the

effort required for such an application. In Karen's view, "the process of having to put that

together limited a lot of folk because they did not want to put forth the effort. I think that was

really good." Students also felt the process was beneficial, although some didn't realize the

benefit until later years. Josh explained, "It's very much what you need to do a resume…. I had

to build a resume for a potential internship." He felt that the process of compiling a portfolio of

work as a younger student gave him an advantage when he needed to complete similar tasks in

later years.

Although qualitative descriptions of the portfolio indicated its value for selection of

students, quantitative analysis did not support a relationship between the portfolio score and

degree attainment. We conducted an independent samples t-test to investigate whether there was

a statistically significant difference in eighth grade student data between students who later

completed the associate degree and those who did not. Student data included the overall rubric

score as well as data within the portfolio regarding academic core courses at the time of CHAP

application: language arts, mathematics, science, and social studies. Course data included the

number of advanced academic courses (Pre-AP or above-grade-level courses), the number of

courses with a semester grade of 90 ("A") or higher, and the core academic grade average. No

significant relationships were found for the student portfolio or course data. Table 2 summarizes

the results.

Table 2

Comparison of Eighth Grade Data for Associate-completing and non-completing CHAP students (n = 17 completing and 5 non-completing)

Student data	M	SD	*t*	*df*	*p*

Portfolio score[a]			.84	5.57	.438
Completing	207.50	40.70			
Non-completing	186.00	52.91			
Number of advanced courses			.11	5.04	.916
Completing	3.47	0.87			
Non-completing	3.40	1.34			
Number of "A" semester grades			-.09	6.01	.929
Completing	5.53	1.38			
Non-completing	5.60	1.52			
Core academic average			.80	5.04	.459
Completing	91.38	2.55			
Non-completing	89.90	3.90			

Note. [a]One student's portfolio score was unavailable, and was therefore excluded from that analysis.

Participants discussed areas of possible refinement in the portfolio components. Susie questioned the "authenticity" and thoughtfulness of ratings on the teacher reference forms because in her experience a student could have one reference that was "critical" and another that was "happy, syrupy." She also recommended possible in-person writing tasks rather than a pre-written sample that she suspected was "parent-driven" for some applicants. Greg remembered that as an eighth grader he wanted more guidance about artifacts to incorporate in his portfolio because he felt unsure of what awards to include; he said, "I mean, what awards did I have in eighth grade?" Despite areas recommended for improvement, the portfolio submission was preferred by all participants to a simple application form. However, quantitative analysis did not support the portfolio as an adequate stand-alone selection tool.

College entrance exam attempt. Although eighth grade applicants must attempt a college entrance exam to apply to the CHAP, they are not required to meet the minimum score requirement on the first attempt. As a result, some students were only conditionally accepted to the CHAP until they re-tested to meet TSI requirements and were able to begin coursework. The TSI is typically administered on college campuses, so Karen explained that ROISD worked to

have both the middle and high school campuses approved as testing sites to prevent the location

from being "a barrier" to students.

Every participant agreed that the requirement for a TSI attempt was appropriate, although

most of them emphasized that it was insufficient on its own as a program selection tool.

Although Janet felt "you have to be fairly smart to get past the TSI," Greg believed that the TSI

was too low of an academic bar, describing the test as "above average, but still medium-level

education;" he felt that meeting the standard on the PSAT would be a more effective measure of

readiness. Alumni and faculty noted that sometimes a student's test-taking ability is not a full

picture of readiness for college work. Pat explained, "some people just may be good test takers."

Similarly, Josh echoed, "you may have a very smart student, but they are very apathetic towards

everything. They don't care about anything." Greg pointed out that sole reliance on a test could

hide potential in other students. He said, "It just doesn't seem fair to leave it all up to a test to

determine how well you can do for college." Alumni and faculty believed that determination of

readiness required more than a standardized test measure.

Panel interview. The final step in application to the CHAP involved a panel interview

with representatives from the district, the community college, and the university. Karen

explained that with this step, the committee "worked really hard to get to know the kids as kids."

Although Beth described the interview as "scary," and Ashley said it was "the most stressful

moment of [her] 13-year old life," upon reflecting, the alumni saw that it was a beneficial

experience. Greg commented, "I think the interview provides a good holistic view of people."

Josh said, "You can have an excellent GPA, you can show you have perfect grades, but this

interview showed the character of the person." In addition to providing insight in the application

process, the interview prepared students for future situations. Ashley described, "I had something

very similar in a scholarship interview a couple of months ago…. I was a lot more prepared for it." Through this part of the application, students gained useful experience in a supportive environment.

"Holistic" selection is preferred. Alumni and faculty referred repeatedly to the multi-step application process selecting for well-rounded. Pat summarized, "we're looking at the holistic student." Although it required significant work on the part of all three educational entities, Susie felt the requirements were critical to learn more about levels of student commitment to work later. She explained, "What you can't test is perseverance." Referring to following application directions and meeting deadlines, she said, "If you're not even doing it in eighth grade, chances are… you're not going to be able to do it in high school." Wendy also felt the process was "right on the money, because… retention rates and everything have been really, really good." She later added, "We want to set them up for success and not failure." The colleges were integrally involved, which Pat felt was important as "a sort of blessing" to the cohort selection. Faculty believed that the multidimensional application allowed for evaluation of important personal attributes that were difficult to measure.

Alumni felt that the application process allowed them to be appreciated as individuals rather than scores on a page. Ashley described, "The people who were selecting got to see a lot more about me as opposed to just my few grades that I had on my transcript…. Potential is so important. You're dealing with 13-year-olds." Beth felt that the holistic approach made CHAP membership "more honorable" and that it better mirrored what colleges would later want:

> You should be a well-rounded person. It's not all about grades. They want to know that you can be successful in life.... You have to a well-rounded person, learn how to network, learn how to step your way up versus being perfect on paper.

Greg also spoke to the importance of encouraging students to do "things that help the community, things that help others, things that just make you a better person.... That is more appealing to people for higher education than you having a 4.0." The holistic view of applicants was a strength of the CHAP according to both faculty and alumni.

Results of cohort selection. We utilized descriptive statistics to analyze demographics of the resulting student cohorts following the holistic selection process. Table 3 displays the number of students by gender per cohort that began coursework in the CHAP through the fall of 2018. Notably, nearly twice as many female students were in the program than males.

Table 3

CHAP Cohort Sizes and Gender Composition

Graduation Cohort	Number of students	Number of male students	Percentage male	Number of female students	Percentage female
Class of 2018	22	8	36.4%	14	63.6%
Class of 2019	19	6	31.6%	13	68.4%
Class of 2020	21	9	42.9%	12	57.1%
Class of 2021	22	5	22.7%	17	77.3%
Class of 2022	20	7	35.0%	13	65.0%
Total participants	104	35	33.7%	69	66.3%

Table 4 summarizes additional demographic characteristics of the CHAP participants. Because some student groups were small, data from all five cohorts were combined for student privacy.

Table 4

Demographic Information for ROISD CHAP participants (N = 104)

Student Characteristics	Number of CHAP students	Percentage of CHAP participants
Economically disadvantaged	18	17.3%
Limited English Proficiency	2	1.9%
Hispanic	22	21.2%
White, Hispanic	15	14.4%
White, Non-Hispanic	66	63.5%
African American	12	11.5%
Other or multiple races	11	10.6%

We suspected that the demographics summarized in Table 4 did not reflect the larger high school population. Therefore, we referenced state-reported demographics for ROHS from 2017-2018 (Texas Education Agency, 2018b). The choice of that school year ensured that four of the five CHAP cohorts were enrolled in ROISD at the time. However, we acknowledge that the use of one school year of data is not a precise comparative measure. We compared the results to Texas ECHS Blueprint requirements (Texas Education Agency, 2017b) for Provisional ECHSs and ECHSs. Table 5 summarizes CHAP demographics in reference to ECHS state requirements.

Table 5

Comparison of the CHAP Demographics to Texas ECHS Requirements

Data Indicator	CHAP population	ROHS population	Provisional ECHS Indicator	Met Provisional indicator	ECHS Indicator	Met ECHS indicator
Economically disadvantaged	17.3%	37.3%	$\leq 20\%$ under district	Yes	$\leq 15\%$ under district	No

Limited English Proficiency	1.9%	5.1%	≤ 10% under district	Yes	≤ 5% under district	Yes
Hispanic	21.2%	33.5%	≤ 10% under district	No	≤ 5% under district	No
African American	11.5%	24.6%	≤ 10% under district	No	≤ 5% under district	No
Male	33.7%	49.7%[a]	≤ 10% under district	No	≤ 5% under district	No

Note. [a]State reports do not include gender percentages; therefore, ROISD data were utilized.

The demographics of the CHAP did not mirror the high school population to the degree required of an ECHS. Participation of economically disadvantaged, Hispanic, African American, and male students were disproportionately low. However, faculty and alumni expressed general satisfaction with the selection process and appreciation for the holistic consideration. Once students were admitted, they began in a program with both firm parameters and areas of flexibility.

Structure and Choice

The CHAP program is more structured than *a la carte* dual credit due to the goal of associate degree completion. Structures were designed in an attempt to prevent the inefficiency and unnecessary financial burden of what Karen described as "randomly taking dual credit courses of interest without proper guidance... without an articulated plan, and then finding that the courses wouldn't count." Participants provided insight about the benefits of structures and choices, as well as recommendations for future cohorts.

Structures for support. The program structure most discussed by faculty and alumni was the cohort model of scheduling. Each group of new freshmen CHAP students were

scheduled in one period per day that Karen described as "together and alone." Susie remembered

that the results of the cohort for the first year were so positive, so they became committed to

"[keeping] those kids all together, for at least one class, for as long as we could." Wendy referred

to the cohort as "a little family" that "had each other on speed dial," and Pat described the

"community" formed with the "tight-knit group of students helping work their way through."

Faculty needed strong commitment to make the individual scheduling work within a large,

comprehensive setting. Janet admitted, "scheduling's hard," but Wendy felt that "it's work, but

it's paid off." Alumni reflected upon the cohort experience as supportive and important. Ashley

described her group as "almost a blanket of people to just love and support you." Beth

remembered the camaraderie: "It was like us against this challenge. Like we're all doing it

together." Greg placed less importance on the cohort than his classmates, pointing out that many

of the CHAP students would have taken similar classes without the special scheduling; he felt he

"was going to see them in class anyway." Josh agreed that he saw members of his cohort in other

classes during the day, but he said it was still "nice to have a familiarity" in the cohort because

then "we had people reach out." By building in face-to-face time together, the cohort scheduling

provided peer support.

The course sequence of the CHAP began in a prescriptive fashion to structure the entry

process. Freshmen took only one non-academic dual credit course per semester: a

communications course in the fall, and a fine arts course in the spring (R.E. Jones, personal

communication, April 28, 2014). Janet described the controlled start as "getting their feet wet."

Similarly, Pat found the pace helpful when "trying to ease them into the program." By the third

year of high school, students took many dual credit courses, and all faculty participants discussed

this as a critical point in the program. Table 6 summarizes the numbers of hours completed at the end of spring 2018 by the first four cohorts.

Table 6

College Credits Earned Per Year in CHAP (N = 104)

| Year of high school | n | College credit hours completed | | | |
		Minimum	Maximum	M	SD
Cohort 2018 (12th grade seniors)	22	6	62	43.09	17.46
Cohort 2019 (11th grade juniors)	19	0	47	31.11	12.01
Cohort 2020 (10th grade sophomores)	21	6	21	16.43	3.46
Cohort 2021 (9th grade freshmen)	22	6	6	6.00	0

Wendy commented, "Once they get into the junior and senior year it does kind of separate the men from the boys," and Janet said, "That's when we really find out if they're ready." Supports from adult mentors were therefore built-in to help students accomplish the heavy load of college work.

Each cohort of the CHAP was assigned both a high school counselor and a faculty sponsor who each stayed with the group for the four years of the program. Susie described the mentoring work of the assigned adults as a "bridge between high school and college." Pat pointed out, "it's hard to get them all before school or after school," but according to Wendy, they still committed to meet with the group "about every six weeks." The periodic meetings were remembered by alumni as helpful. Ashley said the mentorship was especially "helpful for the people that were struggling in the program." She said they provided a sort of "intervention"

when students started to drift. Greg described the faculty sponsor as a "second mom," and the counselors as "amazing." He said, "I love them so much." By scheduling students together once per day, the cohort experienced increased peer and faculty support. It also provided the added convenience for efficient communication with higher education partners.

The CHAP in Red Oak included joint advising nights with both the two-year and four-year institutions. Students worked with the community college prior to each semester of freshman and sophomore years, then they worked with both the two-year and four-year partners prior to each semester of the junior and senior years. Students then ended each advising night with the high school counselor so that scheduling decisions at the high school could be made according to the college advising. Janet said, "the advising is a big benefit," and Susie described that it benefitted parents as well: "The parents got to have interaction with the college, and then the parent had interaction with the high school all on the same night, so I do think that was helpful." One evening with all parties in the same location served as a positive support for families, but participants believed improvements were needed.

Sometimes the advising from higher education partners did not match each other, or did not match options available within the high school setting. Pat said, "I always think it's difficult when you've got sort of two heads that are trying to tell you differing things." Susie was frustrated when the advisors from the two higher education partners gave conflicting messages to families, saying, "Those two people need to work better together... need to make a commitment to get their stuff together perfectly… have a united front." Although the process was at times frustrating, the joint advising nights were generally seen as beneficial, if for no other reason than to bring forward the questions that would inevitably surface as the two-year college served as what Karen described as the "flow-through" from high school to university.

Flexibility within the program. Because of its general studies focus, the CHAP had some flexibility with the elective courses used to fulfill the degree. For example, the school district and community college began providing dual credit Pre-Calculus as an alternative to the existing dual credit Statistics class for students interested in future science majors (R.E. Jones, personal communication, March 1, 2016). The first cohort of students utilized a variety of courses for electives, including workforce dual credit accepted by the community college, AP test scores, additional humanities credits, or additional science credits ("Susie," personal communication, May 25, 2017). They also utilized summer sections, evening coursework, and online classes to access the electives that could both complete the associate degree and also transfer for use in the four-year degree. Janet commented, "There's so many options…." But not every student felt the options were sufficient for future success.

More choice needed. Although some options for customization were available, alumni felt that additional choice and flexibility would ensure that credits were useful for future four-year endeavors. Greg felt that "it is not very advantageous" for students going to a different university than the CHAP partner to attend advising nights. Similarly, Ashley felt that although she "really liked" the advising nights, they were "really beneficial at the beginning, less so at the end" because she attended a different university. Josh explained that because "every degree is its own beast," the advising nights are only helpful when the college advisor is knowledgeable about the details of the student's degree, and that level of detail of four-year advising would be hard for one person to know. He shared that he and his family were "desperate for information," but because the advisor could not direct them to the appropriate departmental advising, they were left "dead in the water." The alumni acknowledged that no high school program could reasonably work with all possible university degrees chosen by students, but they advised that the district

consider changes such as Greg's idea of "another advising night specifically tailored… for people who knew what they wanted." Even if video or telephone conferencing were utilized, students felt that facilitation of advisement with other universities would be helpful.

In addition to flexibility in advising, the alumni suggested that the CHAP provide more choice in credit offerings. In reference to a particular course that transferred to his university only as an elective, Greg said, "I spent so much time and effort making an 'A' in that class, for that to not even count." He suggested making a different "track" of courses for students with different four-year interests, and to strategically encourage "AP in addition to dual credit" classes rather than all dual credit towards the associate degree. However, Ashley was working towards a similar degree at a different university than Greg and found that courses taken in the CHAP did transfer to her degree, which underscored the variability in transfer policies between schools. She said, "those classes helped me so much" and that the two-year college "had outlined the content that I needed to know." In Josh's case, even though he wished he "could have tweaked it and personalized it a bit more," he said that the CHAP "helped [him] get [his] basics out of the way." He elaborated, "I am technically a junior on academic coursework with my associate, but I'm technically a freshman because I need to get some prerequisite classes for my [major] degree." He felt this issue was due to a lack of degree-specific advising. Alumni felt that although the CHAP was beneficial, additional choice and flexibility in advising and course options would better serve future cohorts of students.

Readiness through Resilience

By persevering through progressive challenges, students cultivated readiness for college. Not only did they grow intellectually, but they also developed greater postsecondary awareness

and self-management. We organized participants' descriptions using Conley's (2013) college

readiness framework.

Cognitive and content skill development. Pat described that students gained cognitive

skills when they "sort of re-wire their brains" to focus on "the depth of the learning" rather than

the test-driven learning typical of high school. The dual credit expectations were substantially

different from high school courses. Greg described that teachers "upped the ante" and required

students to "think outside of the box." Josh said he remembered going "from sophomore level

high school writing to sophomore level college writing." But the rigorous work prepared students

for later success. Beth stated, "I was not worried for myself to sit in a college course" because of

her experience in the CHAP.

In addition to deep academic work, students practiced technical content skills that Conley

(2013) referred to as "challenge-level," "attribution," and "effort" (p.54). Greg recalled,

"whether you like [the teacher] or not, you suck it up, you do what you got to do." He believed

his dual credit teachers "made their classes as hard as they could" to help students be ready for

future college endeavors. Ashley also remembered the rigor, saying, "You will make 'B's." She

recollected, "[I was] beating myself up for making an 89." Janet confirmed that many students

were upset when "getting grades that are lower than what they were used to because it is much

harder." Through the process, students believed that their efforts made a difference in learning

outcomes. To Ashley, success was a result of "how hard you decided to work in that class," and

Beth asserted, "You have to put in work to achieve this goal." Although students had to adjust

their expectations, they gained both cognitive strategies and content skill through rigorous

coursework.

Transitional knowledge. The CHAP provided opportunities for students to learn about

transition to postsecondary institutions. Conley (2013) described that transitional knowledge involves understanding a personal fit among postsecondary options, working through college procedures, keeping up with financial requirements, learning to operate within postsecondary norms, and becoming a self-advocate in a new environment. Because Ashley was the first in her family to earn a degree, simply learning new terminology such as "syllabi" and "recognizing the importance of scholarships" were examples of her early introduction to the college world. For Josh, the contextual knowledge he gained was important. While in the CHAP, he wondered, "Do I want to try to go to trade school, or do I want to go actually pursue a degree?" He also found that after the first few semesters in the program, he better understood the college financial procedures, saying, "Now I don't need to call every time…" The students learned to independently handle the institutional business of their college life rather than relying on adults to prompt them as a typical high school student would. Beth shared, "I'm more of an adult than other people that are in college." Ashley described,

> I have to do everything on my own in college. I have to go talk to the staff members, I have to go meet with these people, I have to write important emails. The program I feel like really prepared me for that versus if I were to not be in the program, because then you just get blindsided by actually how much responsibility you have as an adult and as a new college student.

Janet felt that the college transition was "a big learning curve for so many students that [CHAP students] are ahead on" because they had early exposure to postsecondary norms. Karen explained that "some of the kids were first-time college-goers…. They didn't know what it meant." Gaining transitional understanding at an early age gave students additional readiness.

        Learning how to learn. In addition to academic, thinking, and transition skills, students

became proficient in what Conley (2013) called "key learning skills and techniques" (p. 54)

Students had to prioritize their tasks and manage their time. Because students were also typically

involved in additional high school activities, Pat shared, "there's sort of a balancing act." Ashley

agreed that "the hardest thing was time management." Students also learned to study, take notes,

and collaborate. Josh found that "knowing how to study" took time to learn because "studying in

high school is very different." Janet explained that prior to the CHAP, many students "didn't

study. [They] never had to, and still made awesome grades." Some students struggled to study

because they had not taken adequate notes in class. Ashley shared that she had to learn "how to

pay attention to lectures and listen to what was important" and that "writing down what you

might not remember later" was critical for her success. Remembering a CHAP teacher, Greg

said, "if you don't know notes, she will teach you how to take notes." Cohorts learned to

collaborate and "get together for study groups," as Wendy described, to help each other review

for tests and projects.

By utilizing appropriate learning techniques, students showed a high degree of ownership

in the learning process with persistent, intentional work towards goals (Conley, 2013). As Ashley

commented, "You have to have the motivation to do the program." Tenacity was required of

students to continue to push through the difficult adjustment to college work at young ages. Susie

noted that occasionally the faculty helped "crying kids" as they "really freaked out" with the

intensity work. Similarly, Pat saw that at first the experience was "kind of overwhelming" for

underclassmen. But the faculty were aware and responsive to provide support to students, which

according to Beth, "made it easier… to ask for help and for resources." Janet said the program

taught students to "mature not just academically, but socially, [and] emotionally." Greg echoed

that the program required "so much maturity" of him. Such self-awareness of progress towards

personal goals indicates a high level of student ownership (Conley & French, 2014). Students

believed that because of the CHAP, they were more college-ready and as Ashley described,

"composed," when they faced challenges in college.

       More ready, but not fully ready. The students and faculty believed that the program did

increase participants' general readiness for college. Susie explained that with the variety of

aptitude levels students had upon entering the program, middle-achieving students may have

benefitted even more than top achievers. She described that "those kids at the bottom of that

rung, I think it pulled them up. They would have never… pushed to do all those extra classes."

She later added, "I feel like that a lot of them would have taken regular classes in the end, which

is not as preparatory for college." Beth felt that she was one such student. Although she believed

herself to be somewhat self-motivated, she shared that she took more rigorous work because

"when you surround yourself with people that are doing those things, you want to do that as

well." Some participants believed that belonging to a peer group with high academic

expectations increased the exposure to postsecondary norms that some students may not have

attempted individually.

       However, some aspects of college life were beyond the ability of a CHAP to introduce.

Ashley said, "I feel like the program ultimately achieved the college readiness aspect," but she

also added "the only thing it didn't prepare me for I would say is the social aspect of college…

the life management." Beth reflected that she "moved three hours away from home" and added,

"I don't know how you could prepare for that." Greg shared that the program "definitely

prepared me for higher level thinking and conceptual thinking," but that when he entered a

college class with nearly 300 students, "there's no way to prepare for that." He also discussed the

variety of grading procedures between professors, where "everyone is doing their own thing,"

which sharply contrasted the more uniform requirements of his dual credit instructors. Josh also

said, "We know how to pass classes, but we don't know how to survive a college environment."

He added, "In some ways I'm very far ahead.... Other places, I'm lacking." Deficiencies voiced

by students in their college preparation seemed to revolve around the personal aspect of

transitional knowledge described by Conley (2013). Besides this area of additional need, students

and faculty described the CHAP in ways that aligned to Conley's (2013) four keys model of

college readiness.

Discussion and Implications

Alumni and faculty from the CHAP in ROISD indicated generally positive perceptions of

the program. This section discusses the study's results in light of current research. Some findings

were aligned to those from other studies, and others contributed new insight to the field.

CHAP Processes Develop College Readiness

Our first research question concerned the CHAP's promotion of college readiness. All

four of Conley's (2013) keys were represented in the qualitative data. From a content and

cognitive standpoint, alumni felt they had been prepared for the challenge of upper-level

coursework that followed their dual credit beginnings. They believed that the dual credit teachers

were deliberate to provide college rigor while still supporting their growth. Successful college

students need to be proficient at thinking skills that cross content areas and are used in multiple

ways (Conley, 2013). The alumni descriptions also align to Conley's (2013) claim that when

students believe in an "effort-based approach to learning" (p. 67), they are more likely to actively

engage in the content. Although these were important aspects of readiness, most of the interview

time with both alumni and faculty gravitated towards discussions about the program's promotion

of the other two areas of Conley's (2013) framework: learning skills and transitional knowledge.

Support for learning how to learn. The program in Red Oak included supports such as cohort scheduling, advising, and adult mentorship which were similar to those required of ECHS models in the state of Texas (Texas Education Agency, 2017b). Alumni and faculty expressed that each of those components contributed to college readiness. The CHAP students initially struggled with the rigorous work and their new identities as college students. Their needs for resilience and stress-management aligned to prior study of ECHS students (Calhoun et al., 2018). One interesting finding referred to by two faculty members and one alumnus was their view of middle-achieving students being pushed to higher levels of attainment than they would have achieved outside the CHAP cohort if they had taken dual credit *a la carte*. Similarly, Calhoun et al. (2018) found that peer relationships within an ECHS were influential to academic decision-making. Also consistent with ECHS research, students repeatedly spoke of the need for social and emotional maturity to persist in the program (Calhoun et al., 2018; Fischetti et al., 2011). Some needed to juggle their personal schedule in ways distinct from ECHS students because they were also involved in multiple comprehensive high school activities. However, they were satisfied with their choice to remain in the comprehensive setting, and all four participants were adamant that if forced to choose, they would have remained in the comprehensive high school even if the district had created an ECHS instead of a CHAP. Students exhibited high levels of ownership in their learning as well as in the process of degree acquisition. Such awareness and motivation is critical to success in a college context where independent self-management is required (Conley & French, 2014). They learned to take notes, gauge their own progress, and adjust study habits. Cohort scheduling and strong relationships with faculty mentors was discussed as helpful for students grappling with personal management learning skills. Despite growing pains, students found comfort, encouragement, and at times practical help through their

relationships within the cohort and with faculty members. In this way, the CHAP provided

sufficient support for students to gain college-level learning proficiencies.

These finding have implications for practice in secondary schools. Deliberate instruction

and low-stakes practice with learning strategies is beneficial to students' college readiness. High

schools can work to integrate such learning opportunities for a wide variety of students, not just

those in advanced work. Additionally, strong teacher relationships promote students' help-

seeking behaviors. Schools can provide training to teachers on ways to invite students to more

fully own their learning by finding gaps in their learning and seeking assistance.

Preparation for transitions. Students also gained general transitional knowledge

through the program. Because they managed tuition payments and interacted with college staff

independent of the high school, alumni felt better-prepared to advocate for themselves and

navigate college systems. However, they felt they lacked exposure to some personal aspects of

transitional knowledge. When procedural issues arise, especially in the first year, students must

be prepared to strategically and appropriately seek help and communicate needs through proper

channels (Conley, 2013). Participants shared that they struggled, not with course expectations or

knowing to seek help, but with adjusting to huge class sizes and impersonal systems. Although

they had experience seeking help as dual credit students, they found it even more difficult in the

less-nurturing college atmosphere. In addition, the shock of living apart from parents in a new

place was unnerving to students. Experiences of first-year college are difficult to replicate in the

high school setting because of the developmental stage of students and contextual factors of the

campus (Fischetti et al., 2011). But perhaps cohort sponsors could discuss these possibilities so

that students are aware of the types of change that come with full-time college. Such discussions

would likely be beneficial for the entire high school population, not just those in the CHAP.

These findings are also important to communicate with higher education partners. Perhaps advising meetings in the final semesters of high school could also address some personal transition concerns.

Increased professional coherence. Faculty spoke about the importance of their own learning through the work of designing and implementing the CHAP. They described that frequent and intentional collaboration, including that of executive decision-makers, was required to bridge the disconnects between secondary and postsecondary organizations, and this aligns to existing research (Bayerl, 2018; Bush, 2017; Howley et al., 2013; McWain, 2018). Descriptions of key faculty members working in the CHAP were similar to those of "border crossers" described by Howley, Howley, Howley, and Duncan (2013, p. 92); they served as liaisons to work through barriers for the benefit of all institutions involved. Similar to ECHS research by Bush (2017), a consistent focus on shared goals was important during times of challenge, and authentic, trusting relationships were necessary to do the difficult work. Had one organization put their needs above the others, the program would not be sustainable. This finding is consistent with other studies that noted the importance of balanced power dynamics and collegial learning in secondary and postsecondary partnerships (Bush, 2017; Howley et al., 2013; Karp, 2015). The effect of collegial support was felt at the student level; alumni remembered how quickly adults from high school and college would call each other to find solutions to new challenges. Not only were adult relationships important to the functionality of the program, but they also modeled collaborative behavior to young adults. The CHAP program furthered college readiness through program design elements that promoted key readiness behaviors and through tight connections between the secondary and postsecondary partners.

This finding has important implications, especially due to the descriptions from CHAP

faculty of disrupted collaboration with personnel change. Organizations should be intentional in the hiring and retention of key staff members, and they should ensure that multiple people in their organization are familiar with partnerships at any given time. By taking steps to support employees, and by ensuring that collaborations do not rely on too few individuals, organizations can reduce the risk of a failed partnership.

Selecting for Success

The second research question guiding this study was whether the CHAP application process effectively selected students that were ready to succeed in extensive dual credit coursework and later attain degrees. We found that the multi-faceted process resulted in cohorts of highly-motivated students with a history of above-average academic performance. Most students that began coursework in the program were successful, and both faculty and alumni deeply appreciated the holistic approach taken.

Racial-ethnic groups and socioeconomic status were not considerations in the application process, and CHAP cohorts did not reflect the diversity of the school district as is common for dual credit enrollment statewide (Miller et al., 2018). In contrast, ECHSs in Texas are required to strategically admit underrepresented groups, males, and students at risk of not graduating high school so that enrollment closely resembles that of the entire school district (Texas Education Agency, 2017b). Therefore, this aspect of the CHAP model differs from that of ECHS. Perhaps students from underrepresented groups were less likely to apply to the program because they didn't see a personal fit due to the lack the contextual knowledge of postsecondary options (Conley, 2013). Or perhaps as previous research suggests, talented socioeconomically disadvantaged students decide that participation in the CHAP is cost-prohibitive because the dual credit tuition was not waived (Miller et al., 2018). An implication for fiscal policy consideration

is to scholarship or waive portions of dual credit tuition, or to perhaps to provide assistance in textbook purchase or require that colleges utilize open-sourced texts for dual credit. Additionally, the TSI test serves as the gatekeeper to enter any dual credit coursework in Texas (Texas Education Agency, 2017b), and performance on the exam is not equivalent across demographic groups (Miller et al., 2018). Because it is a state-requirement, secondary school administrators could provide test preparation materials to students who are interested in the CHAP, but struggle to pass the college entrance without additional preparation. The disparity between student groups in the CHAP could potentially originate at the information, application, or selection phase of the program cycle. Because multiple points of the process could be involved, administrators should examine program data deeply to learn about ways to reach or assist uninformed or reluctant students who are potential fits for the CHAP.

Findings also indicate that the current selection process should consider additional or different applicant data. Because neither the portfolio score nor the eighth-grade course performance were associated with future degree attainment, perhaps the current criteria are more restrictive than necessary for entrance to the program. The current application process already includes an attempt at the TSI test, which presents a statutorily-required barrier for some students to begin dual credit (Miller et al., 2017). Therefore, a relaxed or altered rubric for other parts of the process could allow conditional consideration of additional applicants. However, alumni and faculty responded negatively to the idea of a simple application form with entrance exam. They felt strongly that a portfolio and interview were appropriate requirements to gauge readiness for the level of work required by the CHAP. The sentiment of alumni and faculty resonates with Conley's (2018) idea that admissibility for college through grades and scores does not equate to full readiness for college success, and other measures should be considered.

Opportunities Can Be Obstacles

Alumni felt that the CHAP was an opportunity that set them apart from college freshman peers. They expressed pride in their accomplishment and some even alluded to the competitive edge they had when applying for selective programs. However, the CHAP opportunity presented new obstacles. Classification as an upperclassman in some academic areas, but as a freshman in others complicated college entry. This calls for strategic conversations between institutional partners and informing students on how to communicate their unique status with housing, meal plans, and advisors.

Additionally, the close partnership and frequent advising with one university partner was intended to provide a seamless transition, much like Karp (2015) described. But students that chose to attend a different university were left to seek advising independently or with the assistance of their high school counselor instead of college advisors. Although some students opted to not attend, even those that did attend advising events expressed occasional conflicting information and frustration when their specific degree requirements were not addressed by college advisors. The reflections of participants highlight the wide variety of degree requirements in higher education. Variance from university to university and even from department to department within the same school complicates the advisement of high schoolers who are still four years out from declaring a major. Yet general advisors for incoming college students and underclassmen are the usual ambassadors sent to high school campuses or manning the telephone to answer questions. Perhaps when college advising staff visits with students who have already obtained a substantial number of dual credit hours, they should point them to departmental advisors specific to the degree of interest rather than assuming that general advice is sufficient.

Another opportunity with an unfortunate side effect was that of the structured course

scheduling. Although the plan worked well for most students, for others the degree of

customization was not sufficient, and they felt the lack of elective options was an obstacle

efficient progress to degree. An implication for school district leaders that facilitate CHAPs is

that high school faculty need training and information about permissible options for students to

complete degree requirements. For example, counselors need to be familiar with whether AP

exams can substitute for some associate degree requirements, and they need to have procedures

available to use if a student wishes to take a dual credit class not offered at the high school at the

college campus or online. If districts do not equip key faculty with such training, then students

may not be allowed to exercise choices available to personalize their educational experience.

Although this study involved only one CHAP, the findings have multiple implications for future

work.

Future Research

Our study of the Red Oak CHAP provided rich information that is useful to inform the

future work of researchers. Future dual credit students in a variety of settings may benefit if

research connects to praxis in useful ways. Quantitative research aimed at predicting ECHS or

CHAP success using middle school student characteristics could prove valuable for identifying

talented students who may be unaware of their fit for the opportunity of early college credit.

College entrance exam scores, state assessment scores, and grades in particular courses could be

reviewed in a larger context to find possible predictors for CHAP success. This could facilitate

recruitment of students from underrepresented groups that could benefit from the opportunity but

would otherwise not apply.

Additionally, few dual credit studies use qualitative methods to understand the

mechanisms at work behind the measurable outcomes (Miller et al., 2017). This means that

although dual credit programs, including ECHSs and CHAPs, are known to have beneficial influences on students' future college endeavors, practitioners do not know the reasons for the benefits, and therefore cannot focus their efforts to refine or replicate the benefits. This study presented multiple questions that warrant qualitative exploration in larger contexts. For example, do middle-achievers truly benefit more than high-achievers from membership in a cohort rather than taking *a la carte* advanced coursework? Are ECHS students, or other students with significant dual credit, often frustrated with non-academic concerns upon entry to college? Do ECHS or CHAP students feel that their credits taken in high school transferred as expected?

Finally, the partnership described between institutions could inform future research focused on effective collaborative practices, perhaps through survey methods. Questions could focus on the important behaviors and relationships described in this case, thereby facilitating a wider examination of current partnerships across the region or state. The information could be used to plan professional growth opportunities. In short, future research could benefit future students as well as professionals.

The CHAP in Red Oak provided students with the benefits of both an ECHS and a comprehensive high school. Because of its setting, the program appealed to students who otherwise would not have entered or completed an associate degree program. By offering the best of both worlds with the CHAP, Red Oak ISD provided an innovative opportunity to enhance student's education.

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Appendix A: Faculty Interview Protocol

1. Please tell me a little about yourself and your work in the Hawk Scholars Program.

2. How would you describe the goals of Hawk Scholars Academy?

3. Have you encountered any challenges in meeting those goals? Please explain.

4. What experiences do you think students have when they begin the program?

   → What elements do you feel are helpful to students?

   → What elements do you feel are obstacles to students?

5. Do you think the experiences of the students change as they progress through the program, and if so, how?

6. Please tell me your thoughts about the selection process that takes place with eighth graders.

   → What are your thoughts about the portfolio application?

   → The interview process?

   → The joint selection of the cohort with colleges?

7. What are your feelings about the TSI assessment as a college requirement to start the program?

8. Are there characteristics that you think some eighth graders display that indicate more readiness for the Hawk Scholars program?

9. Do you feel that Hawk Scholars students gain more college readiness through the program? How?

10. What subject-specific skills do you think Hawk Scholars gain?

11. What kinds of cognitive or thinking skills do you think Hawk Scholars gain?

12. Do you feel students gain proficiency in learning skills and techniques?

13. Does Hawk Scholars impact students' transition knowledge, or make them more ready for an institution of higher education?

14. Have there been administrative practices that have hindered or helped the program be more beneficial to students? Please describe.

    → Cohort scheduling

    → Advising nights with both colleges

    → Faculty and Counselor advisors

15. What elements of the partnership between ROISD, Navarro College, and UTA have stood out to you?

16. What additional things about this topic would you like to share, if any?

If later I need to contact you, would it be okay to contact you by phone or email?

Appendix 2: Alumni Interview Protocol

1. Please tell me a little about yourself and your experience in the Hawk Scholars Program.

2. How would you describe the goals of Hawk Scholars Academy?

3. Did you encounter any challenges in meeting those goals? Please explain.

4. What experiences did you and your cohort members have when they began the program?

    → What program elements do you feel were helpful?

    → What program elements do you feel were obstacles?

5. Do you think the experiences of most Hawk Scholars students change as they progress through the program, and if so, how?

6. Please tell me your thoughts about the selection process you experienced as an eighth grader.

    → What are your thoughts about the portfolio application?

    → The interview process?

7. What were your feelings about the TSI assessment as a college requirement to start the program?

8. Do you feel that you gained more college readiness through Hawk Scholars than you would have through general dual credit coursework? How?

9. What subject-specific skills do you think you gained?

10. What kinds of cognitive or thinking skills do you think you gained in your dual credit classes?

11. Do you feel that you got more proficient in learning skills and techniques?

12. Did Hawk Scholars impact your knowledge about interacting with a higher education institution?

13. Were there administrative practices that hindered or helped you? Please describe.

    → Cohort scheduling

    → Advising nights with both colleges

    → Faculty and Counselor advisors

14. What elements of the partnership between ROISD, Navarro College, and UTA have stood out to you?

15. What additional things about this topic would you like to share, if any?

Chapter 5: Summary of Studies on Dual Credit as a Key College Preparation

In today's credential-driven educational marketplace (Baldwin et al., 2017), dual credit is an option that is expanding and is likely to become even more commonplace in the coming years. Through this three-article dissertation, I have connected dual credit to college readiness in multiple ways. The purpose of this final chapter is to review the purpose of the work, summarize the findings of the studies, and provide implications for policy and practice.

Central Problem and Purpose

Significant public resources are committed to expanding enrollments in the name of college readiness with the expectation that such readiness will lead to postsecondary degrees (Malin et al., 2017). Existing research on the postsecondary benefits of dual credit is complicated by the variety of variables in students' educational journeys (Lile et al., 2017; Miller et al., 2017). Some also dismiss the idea that coursework benefits in meaningful ways; they see accumulation of college credit rather than true learning (Humphreys, 2012; Miller et al., 2017; Rhoades, 2012). Because of school accountability and resource commitment (Darling-Hammond et al., 2014; Malin et al., 2017), an understanding of how dual credit is connected to readiness is important.

The purpose of this dissertation was to contribute to the field of dual credit research by connecting student participation to increased college readiness. By using a variety of methods in three empirical studies, I arrived at findings that could be useful to inform the decision-making of administrators and policy-makers. In the following section, I will summarize each study.

Summary of Studies Relating Dual Credit to College Readiness

I utilized statistical, phenomenological, and case study methods to explore dual credit and college readiness. By utilizing Conley's (2013) four keys to college and career readiness as a conceptual framework, I investigated links to areas of proficiency that are not easily measured by

standardized assessment. Taken together, the studies paint a picture of how dual credit builds

postsecondary readiness in multiple ways.

Quantitative Analysis of Content-Specific Success Following Dual Credit

In the first article (Chapter 2), I analyzed college follow-on course grades to determine

whether prerequisite credit methods differed in their level of student preparation for future work

within the same academic discipline. Students need to master prerequisite skills if they are to

accomplish difficult learning later in coursework (Schunk, 2012). This study evaluated

prerequisite skill mastery using achievement in a follow-on course as a proxy. I analyzed follow-

on courses for differences in achievement when prior prerequisite was earned through either high

school method. Research questions were: 1.) Is follow-on course achievement significantly

different for students who earned prerequisite credit through dual credit, AP, or at the university?

2.) Is follow-on course achievement significantly different for students with similar academic

achievement history who earned prerequisite credit through dual credit, AP, or at the university?

Design. Credit in the subject area of English for Rhetoric and Composition I (ENGL

1301) and Rhetoric and Composition II (ENGL 1302) are those most attempted by both dual

credit and AP participants in Texas (College Board, 2017; Miller et al., 2017). I identified a large,

public, Research university as the study's site. By reviewing university course catalogs and state

requirements I selected follow-on courses in the subject area of English that required either

Rhetoric and Composition I or II as the prerequisite credit (Texas Higher Education Coordinating

Board, 2017). I then obtained de-identified data for follow-on grades and overall academic

achievement in the form of cumulative college GPA from the term prior to the course attempt.

Results. A Welch test indicated that considered in isolation, grades for AP students were

significantly higher in some follow-on courses than for dual credit students or those who took

prerequisites at the university. However, when I utilized a multiple regression model that accounted for differences in students' academic achievement by controlling for cumulative college GPA, there were no significance differences between groups. This suggested that as indicated by follow-on course grades, the dual credit coursework prepared students for more advanced work in the discipline just as well as AP coursework.

Connection to theoretical framework. Conley's (2013) keys to readiness include competencies regarding foundational content knowledge. Although state and national standards may drive particular course goals, additional mastery of major concepts, terminology, and organizational structures of an academic discipline are necessary for postsecondary success (Conley, 2013). This study demonstrated that students gained key content and cognitive skill.

Significance and Implications. Because many of the nation's high schools offer both dual credit and AP coursework, often in the same subject areas, students are left to decide between the two options with little research-based guidance. This study was significant because it found that either method of prerequisite done in high school will prepare students for future coursework. Furthermore, it showed that when academic achievement is controlled, the method of English prerequisite is not significant. Future study is warranted to discover whether this finding holds for other academic disciplines as well. Research on other student factors such as the location of the dual credit (high school campus versus college, for example) would also benefit the field and could inform decisions. Results of this study are encouraging for those who rely upon dual credit as a means to complete introductory credits; students gain foundational content to support success in future work.

Qualitative Analysis of Dual Credit Teacher Perspectives on College Readiness

The second of three articles (Chapter 3) was a qualitative study of embedded dual credit

teacher perspectives. Instructors employed by both college and high school have unique perspective regarding college readiness through dual credit. The purpose of this study was to examine embedded teachers' lived experiences and to describe the meaning they ascribed to their work to increase college readiness. Both school- and classroom-level issues are influential in developing college readiness (Conley, 2013), so teacher perspective is important and appropriate to understand such issues. Conley's (2013) four keys model shaped interview protocol design and provided a lens for analysis. Research questions were: 1.) What is the experience of embedded dual credit teachers when navigating the professional expectations of employment at both high school and college? 2.) What meaning do embedded dual credit teachers ascribe to student college-readiness, and their role as an instructor in promoting college-readiness? 3.) What noteworthy opportunities and obstacles do teachers perceive in dual credit program design and implementation?

Design. I utilized phenomenological methods (Creswell & Poth, 2017; Moustakas, 1994) in efforts to capture the essence of the experience of embedded dual credit teaching. Through in-depth interviews and initial *horizontalization* (Moustakas, 1994) of transcripts, I worked to discover the teachers' perspectives with no agenda of my own. Then I coded a second time with *a priori* codes based upon the college readiness competencies outlined in Conley's (2013) framework. Through member checking by participants, I ensured that I accurately captured the experience of embedded dual credit teaching for my participants.

Results. Embedded instructors provided their perspective on factors that influence students directly, as well as those that influence their work as teachers. I found that they were intentional to build college readiness proficiencies in students beyond the academic content of courses. Additionally, the teachers discussed their contribution to institutional communication

and how they often provide information needed to inform administrators about partnership

needs. They desired additional time to collaborate with colleagues as well as professional

learning opportunities that were not in conflict with K-12 responsibilities. Importantly,

instructors also described a mechanism behind dual credit's benefit: the high school calendar and

schedule provided them with the additional time needed to build skills in young students.

Because embedded instructors directly interact with students and faculty from both secondary

and postsecondary institutions, they provided new insight regarding dual credit programs.

Connection to theoretical framework. Teachers spoke to all areas of Conley's (2013)

framework. They were conscious to teach the academic content to the thoroughness required, and

taught students how to access the level of rigor. They also taught students how to study, how to

take notes, and guided them to self-manage their progress. Some teachers also spoke to the

intentionality they took introducing college systems and procedures to students to ensure that

they were informed when the time came to make the transition to postsecondary education. It

was evident that teachers had a clear understanding of competencies that students would need to

succeed in college, and they took personal satisfaction in preparing them.

Significance and Implications. Although dual credit is a growing educational sector,

few quantitative studies have been done, and studies involving instructors embedded in the high

school setting are rare. Furthermore, since doubt has been cast upon dual credit as a tool to

college readiness, this study was important because it revealed the actions undertaken by

instructors to deliberately build the college readiness of students. Because of this intentionality,

one implication is that K-12 administrators should consider ways to increase the numbers of

embedded dual credit teachers from within experienced high school teaching staff rather than

reliance upon the college to send adjuncts to campuses. Another recommendation from the study

is that dual credit teachers need ways to collaborate and grow professionally. College

administrators should consider ways to support them in their endeavors by providing meaningful

time and structures for accomplishing collaboration and learning. Because they worked in both

contexts, the embedded instructors provided valuable insight to the college readiness work done

in dual credit classrooms.

Mixed Methods Case Study of a Dual Credit Program

The final article, Chapter 4 of this dissertation, was a case study of a program that led to

an associate degree within a comprehensive high school through dual credit (a CHAP). I

explored the program structures and selection process, and I examined the college readiness

competencies that were built through participation in the program. By blending the benefits of a

traditional high school with those usually found only in early college settings, the program

presented an innovative approach to facilitate early degree completion. Research questions were:

1.) What elements of the program are viewed by alumni and faculty as most helpful to promote

college readiness and success, and why? 2.) How effectively does the program selection process

identify college-ready students who later succeed in dual credit courses and degree completion?

3.) What obstacles and opportunities within the program do alumni and faculty perceive?

Design. I utilized mixed methods in this intrinsic case study (Yin, 2017). I interviewed

current and former faculty, interviewed alumni, examined program documents, and performed

quantitative analysis of student data. Through multiple methods, I provided an extensive

description of the elements that were perceived to most influence college readiness and degree

completion in high school.

Results. Study of the CHAP revealed that students gained college readiness in important

ways, largely due to the strong commitments and collaborations of faculty and staff. Students

also completed associate degrees at a higher rate than most early college settings. However,

descriptive statistics revealed that the demographic makeup of the program did not match that of

the high school. Additionally, analysis of the portfolio application showed no significant link

between rubric scores and advanced coursework attempted to completion of the associate degree.

Although refinement may be warranted, faculty and alumni believed the program provided

students with an excellent opportunity to not only gain early credit, but to also be more prepared

for postsecondary settings.

Connection to theoretical framework. All aspects of Conley's (2013) four keys were

discussed by participants or revealed in analysis of the program. However, key learning skills

and techniques as well as key institutional knowledge were the most discussed areas of

proficiency gained. Conley's (2013) keys were used to frame the interview protocol as well as

inform our second round of transcript coding. Although participants may have been unaware of

the formal framework, they most certainly had a well-rounded idea of college readiness and the

part that the CHAP played for participants.

Significance and Implications. Because of the emphasis on degree attainment, college

readiness is important to schools for accountability (Malin et al., 2017). The CHAP program

provided students with an opportunity for a degree and exposure to postsecondary norms usually

seen only in early college campuses. Because the CHAP is substantially less expensive than an

early college, it serves as a model that could be useful in other school districts, especially those

not interested in opening an additional high school option. By blending secondary and

postsecondary expectations, high school students gained college readiness across multiple areas

of proficiency.

Conclusions

The three studies summarized in previous sections point to overall conclusions regarding dual credit and college readiness. In the following sections, I will discuss three themes that cut across my studies. First, I will argue that dual credit coursework aligns to college standards in content and cognitive demand, and that the immaturity of young students is an issue to be addressed rather than bemoaned. Then I will discuss the high school context of embedded dual credit as a potential mechanism that makes possible the increased college readiness observed. I will next describe the need for authentic professional relationships to make student pathways seamless between secondary and postsecondary organizations. The three themes together paint a picture of dual credit as having powerful potential to increase the college readiness of students if adults maximize the opportunities available. Finally, I describe that the professional collaborations, high school context, and comfortable relationships developed through dual credit on high school campuses enhances college readiness.

Content and Cognitive Demand Alignment

All three studies indicated that dual credit coursework generally promotes deep learning of content. The teachers I interviewed were highly intentional to make their syllabi and instruction match those of the college. They utilized the same books and assignments as college-only sections of the course, and in some cases, they provided even more content than in traditional classes. The dual credit students on the high school campus participated in the same formal assessments as students on the college campus. This provided accountability for both teachers and students to ensure the content was sufficiently learned. Sentiments from the CHAP alumni support this conclusion regarding content instruction; they felt well-prepared for upper-level work when they took the prerequisite in high school. One alumnus even wished he'd taken

a particularly difficult course in high school rather than waiting until college because he felt he

would have learned the content more thoroughly in a dual credit setting. Furthermore, my

quantitative study showed that dual credit students performed just as well or better in more

advanced English coursework than students who used traditional college or AP exams for

introductory credits. Taken together, evidence from my studies supports the conclusion that the

content and depth of student learning in dual credit is not reduced in a quest for fast and easy

credentials. Students actually learn academic content to an appropriate depth.

This theme is significant to the education community due to the history of accusations

that dual credit classes have lower rigor and cognitive demand than traditional college classes.

The higher education community has been particularly disdainful of dual credit replacing

traditional college coursework for introductory courses (Ferguson et al., 2015; Miller et al., 2018;

Tinberg & Nadeau, 2011). College instructors who contend that young students are too immature

to handle a postsecondary level of rigor (Ferguson et al., 2015) may be correct in their

assessment of the level of emotional and personal sophistication of high school students.

However, struggles with adolescent approaches to work should not be equated to a lack of

content knowledge. Furthermore, those sentiments should not lead to a negative perception of

dual credit instructors and their commitment to align courses to college standards. Perhaps the

real concerns behind the criticisms are not related to content.

While evidence points to the general academic alignment of dual credit, the persistent

concerns of the higher education community cannot be ignored. If the maturity level of high

schoolers prevents their appropriate engagement with the instructor and responsibility with

course assignments, then learning could indeed be jeopardized (Ferguson et al., 2015). However,

the fact that students do learn in dual credit classrooms despite their immaturity means that high

school teachers are likely leveraging different instructional methods and relationship-building to engage the students in work. Perhaps the misalignment felt by the college community is less about the content and cognition, but rather centered around the way the content and cognition are accessed and processed by younger students. Especially for students who gained credits through online dual credit or AP exams, they may have little to no exposure to college learning strategies and institutional systems. Immature students may fail to take initiative with classwork in a timely fashion or may avoid seeking help independently. However, these are developmental issues, not cognition or content concerns.

Accountability systems and the economics of college attendance will likely drive a continued increase in dual credit enrollment (Malin et al., 2017). Colleges and universities will continue to see younger students arrive and enroll in upper-level college work. Even if students are ready with content background and cognitive skill, their juvenile development might require that postsecondary faculty learn new teaching techniques and instructional practices. Holding on to traditional expectations for a nontraditional population is a recipe for frustration on all accounts. If the focus of college is to learn academic content with rigor, then college and university faculty may need to retool with strategies for working with younger students who are capable but immature. Although this idea may be distasteful to individuals who have no desire to change their practices or teach younger students, institutions should set aside anecdotal reports of faculty feelings and evaluate the purposes and goals of a college education. If independence and maturity are goals, then in truth younger students from dual credit are at a developmental disadvantage. But if academic learning and cognition are goals, then dual credit courses have a legitimate place within aligned pathways of study.

The High School Setting as a Mechanism to Increased Readiness

Beyond academic skills, my studies support the idea that embedded dual credit teachers deliberately build multiple aspects of college readiness in students. All elements of Conley's (2013) keys were discussed between my three studies. Although this conclusion aligns with existing research, what has not been determined in past studies is the mechanism behind the increased readiness of dual credit students (Lile et al., 2017; Miller et al., 2017). Based upon my findings, I propose that the mechanism making such explicit preparation possible is the high school campus setting itself. When students take dual credit coursework online, they likely receive the academic content necessary. And when on a college campus, they are additionally immersed in postsecondary culture. But when taught by an embedded high school instructor, dual credit students have the added benefit of a familiar and supportive environment for learning readiness skills. The comfortable context can cause them to be more likely to take risks and meet new challenges that deeply engage them in coursework. Embedded teachers are familiar with teenage learners as well as the culture of the high school. As such, they are able to help students to own their learning journey by teaching them to discover and close the gaps between learning as a high schooler and the expectations of college.

Embedded dual credit instructors also have significantly more time with students due to the K-12 district calendar and school day length. Teachers spoke about their explicit emphasis on the non-academic components of preparing students for college. Although it was not required by either employer, instructors helped students navigate college financial and reporting systems, they taught them about how college credits work, and they spent time helping students discover different ways of studying and working for future success. Such endeavors take additional hours to accomplish. Dual credit alumni reported that their embedded instructors spent class time

teaching them to be ready for college emotionally as well as cognitively. They spoke about the stress of being pushed to difficult levels of expectation, but feeling more supported and guided through the growth process than they did in their later college setting. They also benefitted from the ease of access to their embedded instructor for conferencing and tutoring compared to their later college instructors. Students in an embedded dual credit setting have more face time with their teacher and more seat time in the classroom than in a college setting.

Based upon my findings, I conclude that students taught by embedded dual credit teachers gain substantial college readiness due in large part to the context of the high school. When situated within a high school, young college students gain extra instructional time and experience a nonthreatening environment that can support the difficult process of growing into college expectations. Education stakeholders who are concerned with the preparation of students from dual credit backgrounds could consider championing the embedded setting. Providing such a scaffold to postsecondary life is not a crutch that encourages low expectations. Rather, meeting the non-academic growth needs of students through the embedded dual credit setting allows their personal maturity to catch up to their academic skill. Facilitation of college success should not be an elite opportunity reserved only for the high schooler who is ahead of developmental norms. By leveraging extra time and a familiar context, embedded dual credit settings convey college readiness skills to students.

Collaborate Instead of Criticize

A final conclusion supported by my studies is that high schools and colleges must be intentional to collaborate between and within institutions regarding practices that affect dual credit classroom-level issues. This conclusion complements Karp's (2015) assertions that strong partnerships make the student transition from secondary to postsecondary seamless. However,

my findings show that in order for organizations to provide such benefit to students, they must address the professional needs of adults.

In both the phenomenological and case study, strong personal relationships between the faculty and staff of institutions facilitated an open, point-of-need dialog as issues arose. Collaboration at executive levels beyond campus and teacher levels was also seen as essential to align program goals and to ensure that proactive decisions were made where misalignment existed. More than simply agreeing to processes and curricular maps, functional partners were those that knew and trusted one another, and that fostered a feeling of safety to ask questions and learn from one another. Without such a feeling of security, faculty expressed that they would have learned less about their partner institution. If staff members are not familiar enough with each other to have genuine collegiality, the student experience can be compromised. For example, traditional high school counselors are not trained regarding credit transfer issues and the location of degree plan information. If they do not learn where to access and how to use such information, then dual credit students may be encouraged to take and pay for courses that do not fit in their future college plans. College staff may later criticize the dual credit choices of students, but that is not a productive response. Rather than passing blame between secondary and postsecondary institutions, faculty and staff need to unite in trusting, collegial relationships and learn with and from each other. The barriers of geography and busy schedules can crowd out collegial relationship-building unless faculty and staff are committed to the endeavor. In addition, turnover in personnel slows down collaboration because each new hire must be brought up to speed and integrated with the group. Cross-institutional collaboration will not occur without intentionality, but I believe the effort is worthwhile to provide smooth student pathways.

Collaboration at the teacher level is also important. Dual credit teachers spoke of the importance of their limited relationships with other dual credit teachers. Their work was sometimes isolating because they tended to be the only person in the building who taught a particular course. Additionally, they were unable to take advantage of the few options provided by the college because those opportunities were scheduled during school days. As high school teachers, they were accustomed to meeting frequently with subject area teams, and they knew the benefit of professional growth through sharing practices. They looked forward to rare opportunities for comparing ideas with their counterparts on other campuses.

If the education community is to improve transitions from secondary to postsecondary education, institutional collaboration must move beyond email and document exchanges focused solely on procedures and policy compliance. Evidence points to a desire for authentic collegiality that promotes discussion of real issues such as instructional strategy, program goals, and student needs. Adult professional relationships in dual credit partnerships make a difference in institutional decisions, and therefore shape the student experience. The three conclusions summarized above are important additions to the field of dual credit research. They also provide a starting point for future research and policy refinement that would benefit future dual credit students.

Behind the Four Keys

Conley's (2013) framework served as a conceptual grounding and definition for college readiness in my studies. However, the findings taken together revealed that elements of dual credit embedded in the high school setting influences student readiness. Rather than the solely the dual credit coursework itself, the context of the program allows students to gain postsecondary preparation. Evidence supports that the professional collaborations between

institutions, the secondary calendar, and the relationships formed between students and teachers serve as mechanisms behind the college benefits of programs. These appear to be important contributors to the mechanisms at work behind the success of dual credit programs, and as such, warrant future research for practical application.

<div align="center">**Implications and Future Research**</div>

Dual credit enrollments have grown substantially, and programs are likely to continue growing with infusions of public dollars (Malin et al., 2017). The previous sections have implications for practitioners and policymakers to consider as they work in expanding course offerings. The findings also lead to future research needed to better inform decision-makers. By connecting research to practice, improvements to student services may be realized.

Commit Resources to Embedded Dual Credit Settings

Embedded dual credit instructors are able to spend more time with students than their college-only instructors due to K-12 calendars and schedules. This makes them far more accessible to students than a typical college instructor, and the students can receive support and assistance. As high school teachers, they are also familiar with secondary norms and can meet students where they are, then push them to postsecondary readiness. Teachers and administrators in my phenomenological and case studies spoke to the desire for more embedded instructors. Because of these student benefits, state and district leaders should consider assisting existing high school teachers to complete the education requirements to become college adjunct instructors. Assistance would involve funding graduate hours or master's degrees, which involves fiscal policy and budgetary considerations. Miller (2018) found that in Texas, both fiscal and societal benefits to dual credit education outweighed its costs. It is possible that the costs to taxpayers of supporting high school teachers to earn credentials to be embedded

instructors could be balanced with this cost savings. However, funding structures for dual credit vary widely from state to state and district to district (Hunt, 2007; Miller et al., 2018). Study of the financial feasibility of funding high school teachers to work towards adjunct credentials is an area worthy of future research so that wise use of resources can provide the greatest student benefits possible.

A second way to commit resources to embedded teachers would be to carve out time to allow them to collaborate with each other and engage in professional development. Unlike on-campus adjuncts, embedded teachers may be the only member of a college department at the high school location. This leaves them unable to regularly communicate with colleagues. Professional development opportunities should also be scheduled by the college at times that embedded instructors can participate, meaning outside of the K-12 school day hours. If higher education entities are truly concerned with uniform rigor of courses regardless of the location of instruction, then providing time for instructors to learn and collaborate should be a priority. Future research is warranted to better understand best practices for meeting the professional needs of this unique population because they have the content expertise of college professors but the instructional toolkit of a high school teacher. Such research should include the voices of teachers and would likely involve qualitative or survey studies.

Commit to Understand Each Other

Collegial interactions between school districts and higher education are critical to a functional partnership (Bayerl, 2018; Bush, 2017; Howley et al., 2013). Findings from my studies support the idea that personal connections encourage important professional growth. When faculty and staff respected and trusted each other personally, they asked questions and learned from each other professionally in ways that would not have been possible with a

structured but impersonal partnership. Future research could focus around a deeper understanding of the factors that make partner relationships most meaningful. For example, perhaps survey questions could ask faculty about the level of importance they place on face-to-face versus virtual conversation. Or perhaps voices from the field could clarify what types of information sharing between institutions are most helpful, and therefore should become a standard.

Furthermore, to make such personal connections possible, administrators should turn a critical eye to staffing and retention practices for vital members of partnerships. When hiring for a position involved in cross-institutional work, leaders should look for individuals who are collaborative and who desire to understand the systems of both secondary and postsecondary organizations, not someone with a compliance officer mentality. Additionally, turnover in partnership staff requires relationship-building to begin again and again, and valuable collaboration and learning may be delayed or lost. Staff with valuable expertise should be fairly compensated and supported so that they are content and more likely to stay and facilitate stable partner relationships. Additional research about professional development needs or supports may be able to inform practices that help retain key individuals in the education continuum.

Finally, secondary and postsecondary faculty must unite rather than divide on the issue of content alignment and course expectations. Although multiple studies in addition to my own provide evidence for the alignment of content in dual credit (Ferguson et al., 2015; Miller et al., 2018), criticisms continue. I propose that the real issue at hand is a misalignment in expectations for behaviors involved with student learning, not the content itself, and that the disconnect is due to the developmental stage of younger students. If this is the case, then further research is warranted to clarify those expectations between educational entities and to learn what actions are

seen as possibilities to bridge the gaps. With expansion of dual credit programs, younger students will continue to enroll in upper-level college work, and college faculty must be equipped to reach such students. This may involve trainings on effective instructional practices and student relationship-building, which would require commitments of time and resources to professional growth. The alternative is to continue complaining but change nothing while capable but immature students are left to struggle with the transition alone.

As policymakers examine the financial and societal benefits of dual credit expansion, it is important to remember the humans who make programs work. Investments in instructional settings proven to help students should be considered. Personal and professional needs of adults working in dual credit programs must also be considered to collaborate most effectively. The educational community must listen to each other and take seriously the concerns and needs of our partners in other organizations so that common understandings of problems can lead to solution-seeking for betterment of future dual credit students.

Dissertation Summary

This article-based dissertation presented three studies regarding dual credit and college readiness. In one study, I utilized statistical analysis to demonstrate that dual credit students gain necessary prerequisite learning for future success in the subject area. This aligned to the idea of dual credit providing ample experience in both the content and necessary rigor. In the second study, I found through phenomenological methods that embedded dual credit teachers in high schools feel responsible to build many elements of college readiness and that they personally desire to see students learn college-level content and be ready for future success. They acknowledged the importance of the foundational content, they required and coached for deep thinking and processing skills, they led students to gain self-management and ownership, and the

they introduced postsecondary norms in the classroom. The high school setting allowed them the time and environment to address student needs effectively. In the final study, I used mixed methods to explore one case of a comprehensive high school's dual credit program that provided benefits to students similar to that of an early college high school, while still maintaining the traditional high school experience. Students gained experience with college expectations in a supportive environment and felt more ready than their peers when they entered higher education full-time. Such an experience was gained through the professional collaborations and commitments of leaders and teachers in addition to the supportive context of the high school.

Taken together, the three articles support the idea that dual credit, especially when situated in a high school, builds college readiness in ways beyond simple exposure to above-level work. However, to fully leverage the opportunity, decision-makers must commit to support the growth and collaboration of faculty and staff involved in partnerships. Additional work is warranted to conceptually link the mechanisms of professional collaboration, secondary context, and student relationships to the success of dual credit. As programs expand, they should be designed with consideration for helpful influences. By leveraging the potential of both secondary and postsecondary elements, dual credit puts keys in students' hands to unlock greater postsecondary success potential.

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Appendix B: Co-Author Written Permission

UNIVERSITY OF **TEXAS** ARLINGTON | **OFFICE** OF **GRADUATE STUDIES**

Multiple Author Release for Master's Thesis or Doctoral Dissertation

Thesis / Dissertation Writer Name: Rachel E. Jones

Co-Author Name: Lindsay Cadenhead

Title(s) of Co-Authored Work(s):

The Best of Both Worlds:

Exploring a Comprehensive

High School

Associate Degree Program

Co-Author Statement of Consent:

As the co-author of the above named work(s), I acknowledge the above-named thesis / dissertation writer as the primary author of the work(s) listed above. I authorize the thesis / dissertation writer named above to use the listed work(s) in their thesis / dissertation. I further agree that the thesis / dissertation writer may use this work to comply with requirements for graduation.

Co-Author Signature: *Lindsay Cadenhead*

Date: April 22, 2019

Please maintain a copy of this completed form for your records.

You may be entitled to know what information The University of Texas at Arlington (UT Arlington) collects concerning you. You may review and have UT Arlington correct this information according to procedures set forth in UTS 139. The law is found in sections 552.021, 552.023 and 559.004 of the Texas Government Code.

Appendix C: Nondisclosure Agreement for Use of Confidential Student Data

NON-DISCLOSURE AGREEMENT

THIS NON DISCLOSURE AGREEMENT ("Agreement") is entered into as of the last date signed below by and between **The University of Texas at Arlington** ("UTA" or "University"), a State Institution of Higher Education established under the laws of the State of Texas as an institution of The University of Texas System and the Red Oak Independent School District ("**ROISD**"), a school district accredited by the State of Texas under Texas Education Code Section 11, and Rachel Elizabeth Jones ("**Student**") a current University student enrolled in a Ph.D. program, and a ROISD employee, for the Project and to define the manner in which ROISD data may be used hereunder. Student, UTA, and ROISD may each be referred to as a "Party" or collectively as the "Parties". UTA and Student may each be referred to as a "Receiving Party" or collectively as the "Receiving Parties".

BACKGROUND

Student, as part of her Ph.D. dissertation, and independent research project at UTA, desires to use data obtained from ROISD, in regard to the project identified on **Exhibit A,** attached hereto and included herein, ("Project"). Under the regulations interpreting Family Education Rights & Privacy Act (FERPA), 34 CFR 99.31(a)(1), an institution may disclose educational records to a school official with a legitimate educational interest in the educational record. Student is an ROISD employee and as ROISD wants Student to perform the study for the benefit of ROISD, Student is a "school official" with a "legitimate educational interest in the educational records". Therefore, ROISD agrees to allow UTA and Student the use of ROISD data, in accordance with the terms set forth herein, which are intended to keep confidential ROISD's confidential information, while also permitting Student to conduct necessary research and not unnecessarily restrict Student's publishing of her research in a Ph.D. dissertation.

AGREEMENT

Therefore, University, Student and ROISD agree, as follows:

1. "Confidential Information" is all information (with the exception of the information identified in Section 4. of this Agreement) owned or controlled by the ROISD and which is discussed or disclosed during any meeting or discussions regarding the Project or otherwise disclosed in connection with the Project. Confidential Information includes, but is not limited to, all communications by ROISD with the Receiving Party in any form whatsoever including oral, written and machine-readable form, video, audio, phonorecord, recorded media, drawings, schematics, samples, devices, software, formulas, biological materials, applications for intellectual property protection, services, processes, procedures, trade secrets, intellectual property, pricing, costs, business or strategic plans, and marketing or advertising strategies.

2. The Receiving Party shall only use Confidential Information for the Project. Specifically, but without limitation, the Receiving Party agrees to maintain the confidentiality of all Confidential Information and not to disclose it to any third parties, except as allowed herein. Recipient agrees to not divulge, furnish, disclose or make accessible in any way Confidential

Information to any third party, provided that Student shall have the opportunity to include Confidential Information in her Ph.D. Dissertation, which will be presented to a UTA Ph.D. Dissertation committee for evaluation, and UTA shall ensure the compliance of such committee to the terms and conditions of this Agreement. The Ph.D. Dissertation committee will be closed to the public, with the exception of attendees who are previously-approved by ROISD.

ROISD realizes that favorable publication of ROISD data would be of benefit to ROISD and consequently does not wish to unduly restrict Student from publishing results from Student's research and Ph.D. dissertation as per usual and customary academic practice, including placing the Ph.D. dissertation in the UTA library under appropriate confidentiality embargo. In order to prevent improper disclosure of Confidential Information prior to placing in the UTA library, publishing, or otherwise making public Student's Ph.D. Dissertation ("**Public Access**"), Student will submit any prepublication materials to ROISD for review and comment at least sixty (60) days prior to the planned Public Access. ROISD shall notify Student and University within sixty (60) days of receipt of such materials whether the materials include any Confidential Information that it objects to inclusion for Public Access. All data and student theses developed by Student will be delivered to ROISD via electronic file transfer. In its response ROISD shall indicate with specificity ROISD's claimed Confidential Information and to what manner and degree ROISD suggests that Student may disclose ROISD's Confidential Information or substitute as is academically appropriate, de-identified or non-confidential data. If the Parties are unable to come to an agreement regarding disclosure, the Receiving Party shall not allow Public Access to the Ph.D. Dissertation, including the Confidential Information, for a period of one (1) year.

ROISD understands that University's primary mission is education and advancement of knowledge and Student Ph.D. Dissertation will be designed, monitored and evaluated to carry out that mission, under the sole control of University. The manner of actual performance of Student Ph.D. Dissertation shall be determined solely by the Student, subject to grading and evaluation of Student Ph.D. Dissertation determined solely by responsible University faculty. Responsible University departments will maintain continual evaluation of the quality of educational and research activities of Student, and will have sole control over all University course and educational content.

University agrees that it will not assert any rights to the work product of Student, to which University does not have rights that pre-exist Student's performance under this Agreement, where the work product is made on behalf of ROISD at ROISD's premises in performance of the Agreement; except in the event faculty collaborate with Student in any research or analysis in which case it would be customary for said faculty to be listed as co-authors of any published publication, subject to approval by ROISD as noted above, which will not be unreasonably withheld or delayed. Except as expressly provided for herein, Student shall not release to University any information developed and produced on behalf of ROISD under this Agreement without prior express written approval of ROISD.

3. The Confidential Information shall remain the sole property of the ROISD.

4. Since the disclosure of Confidential Information by ROISD is in strictest confidence, the Receiving Party covenants and agrees to:

    a. Not disclose to any other person the Confidential Information of ROISD, except as permitted herein, and use at least the same degree of care and discretion to maintain the Confidential Information secret as the Receiving Party uses in maintaining as secret its own Confidential Information, but always at least a reasonable degree of care and discretion;

    b. Not disclose such Confidential Information to any third parties or use, duplicate, reproduce, copy, distribute, or otherwise disseminate such Confidential Information, except as permitted pursuant to this Agreement;

    c. Within thirty (30) days following request of ROISD, return to ROISD all documentation, copies, notes, diagrams, computer memory media and other materials containing any portion of the Confidential Information, or confirm to ROISD, in writing, the destruction of such materials.

5. Nothing in this Agreement shall be interpreted as placing any obligation or expectation of confidentiality or non-use on the part of the Receiving Party with respect to any portion of the Confidential Information received from ROISD that:

    (a) can be demonstrated to have been in the public domain as of the date of this Agreement, or comes into the public domain during the term of this Agreement through no fault of the Receiving Party;

    (b) can be demonstrated by tangible evidence to have been known to Receiving Party prior to disclosure by ROISD and as to which the Receiving Party has no obligation not to disclose or use it;

    (c) is lawfully obtained by Receiving Party from a third party under no obligation of confidentiality, and who did not acquire it, directly or indirectly, from the ROISD under a continuing obligation of confidentiality;

    (d) can be demonstrated by tangible evidence to have been independently developed by Receiving Party without a violation of this Agreement and without use of or reference to the ROISD's Confidential Information;

    (e) is generally disclosed by ROISD to third parties without a duty of confidentiality on the third parties; or

    (f) is disclosed as required by law.

6. In the event any Confidential Information is required to be disclosed pursuant to governmental law, regulation, or judicial or administrative proceeding, Receiving Party shall provide prompt notice of such request to the ROISD and shall cooperate fully in seeking a protective order or

other assurance that confidential treatment will be accorded to the Confidential Information required to be disclosed, should ROISD seek such order or assurance. In the event that such protective order or other remedy is not obtained, or that the ROISD waives compliance with the provisions hereof, Receiving Party and its employees and agents agree to furnish only that portion of the Confidential Information of ROISD which is legally required to be furnished. Furthermore, such Confidential Information shall continue to be considered and treated by the Receiving Party as Confidential Information for all other Projects. Confidential Information required to be so disclosed shall not be deemed part of the public domain by virtue of such disclosure.

7. ROISD MAKES NO REPRESENTATION WITH RESPECT TO AND DOES NOT WARRANT ANY INFORMATION PROVIDED UNDER THIS AGREEMENT, BUT SHALL FURNISH SUCH IN GOOD FAITH. WITHOUT RESTRICTING THE GENERALITY OF THE FOREGOING. ROISD MAKES NO REPRESENTATIONS OR WARRANTIES, WHETHER WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED WITH RESPECT TO THE INFORMATION WHICH MAY BE PROVIDED HEREUNDER, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PROJECT. NEITHER ROISD SHALL BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE WHATSOEVER RESULTING FROM RECEIPT OR USE OF THE INFORMATION BY THE RECEIVING PARTY.

8. The Receiving Party shall comply with all applicable federal, state and local laws and regulations in connection with its activities pursuant to this Agreement, including United States laws and regulations controlling the export of materials and information including technical data, drawings, know-how, computer software, laboratory prototypes and other items.

9. In the event of a breach or threatened breach or intended breach of this Agreement by either Party, the other Party, in addition to any other rights and remedies available to it at law or in equity, shall be entitled to seek preliminary and final injunctions, enjoining and restraining such breach or threatened breach or intended breach, or requiring specific performance of the Party's obligations hereunder, even if monetary damages are available and readily quantifiable and without proof of actual damage.

10. The validity, construction, and performance of this Agreement are governed by the laws of the State of Texas. The Texas state courts of Tarrant County, Texas (or, if there is exclusive federal jurisdiction, the United States District Court for the Northern District of Texas) shall have exclusive jurisdiction and venue over any dispute arising out of this Agreement, and the Parties hereby consent to jurisdiction in such courts.

11. If any mediation, litigation or other legal proceeding relating to this Agreement occurs, the prevailing party shall be entitled to recover from the other party (in addition to any other relief awarded or granted) its reasonable costs and expenses, including attorney's fees, incurred in the proceeding.

17. This Agreement constitutes the entire and only agreement between the Parties for the confidentiality of Confidential Information related to the Project. Nothing herein requires either Party to proceed with any proposed transaction or relationship in connection with which the Confidential Information may be disclosed.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

The University of Texas at Arlington

By: _____

Name: Dr. Duane Dimos

Title: Vice President for Research

Date: _____November 7, 2018_____

ROISD

By: _____

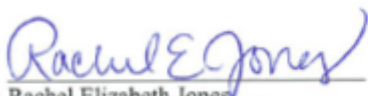Name: Dr. Michael Goddard

Title: Superintendent, Red Oak ISD

Date: _____10-30-18_____

Student

By: _____

Name: Rachel Elizabeth Jones

Date: _____10-29-2018_____

Exhibit A

Proposal for Program Evaluation of Hawk Scholars Academy
as a Mixed-Method Case Study Analysis

Principal Investigator: Rachel Jones, in the dual capacity of a UTA doctoral student and ROISD admin
Collaborator: Lindsay Cadenhead, listed as collaborator with UTA, serving as an ROISD admin

The study would describe and explore the effectiveness of Hawk Scholars Academy.

Guiding questions:
How effectively does the program selection process for middle school applicants identify college-ready students who later succeed in dual credit course loads and associate degree completion?
What elements of the program are viewed by alumni and faculty as most helpful to student college readiness and success?
What obstacles and opportunities within the program do alumni and faculty perceive?

Quantitative Data Collection:
Data would include application portfolio scores, interview scores, standardized test scores, course grades, college credit acquisition, program continuation, and demographic info. Because this information is FERPA-protected, an institutional partnership agreement would be necessary to allow the UTA researcher to access and use de-identified data sets for the purpose of evaluating the program on ROISD's behalf.

Qualitative Data Collection:
Interviews with present and former faculty, as well as student alumni of the program would be conducted to determine perspectives regarding the program.

Publication of Results:
Results of the mixed methods case study would be published in a research journal or presented at a research conference, or in a Ph.D. dissertation. If the district wants to be identifiable for program promotional purposes, information would need to be included in informed consent agreements for interview participation. Because of the small size of the program, participants would not have a typical level of anonymity. All ROISD identification is subject to applicable law.