

Examining College Readiness in an Early College Program that Focuses on Health Careers:

Perceptions of Graduating Students

By

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Table of Contents

Acknowledgements.....	i
List of Tables	viii
List of Appendices	ix
Abstract.....	1
Chapter 1: Introduction.....	2
Statement of the Problem.....	5
Theoretical Framework.....	7
The overarching need for college readiness.....	7
Definition of college readiness	8
Remedial education.....	9
Measures of college readiness	10
Conley’s four facets of college readiness	14
Purpose of the Study	17
Research Question and Sub-Questions	18
Delimitations.....	19
Chapter 2: Literature Review.....	20
Common Themes across Dual Credit Programs.....	20
Rigorous work.....	21
Socioeconomic status.....	21

Student academic achievement	23
Changes in student perceptions.....	24
Dual Enrollment Programs	25
Definition and purpose.....	25
Dual enrollment and under-represented students.....	26
Dual enrollment and student academic achievement.....	27
The Early College High School	29
Definition of the early college high school (ECHS).....	29
History of the early college high school	30
Early colleges and underrepresented students	31
Funding for early colleges	32
Differentiating between early college and middle college high schools	33
Framework and core principles of ECHS	35
Positive Outcomes of the early college high school	38
Negative outcomes.....	41
College Readiness	42
Conley’s fourth facet: College knowledge	46
Critique of Conley’s framework	48
Aligning dual credit programs with the college readiness framework	49
Conclusion	54
Chapter 3: Methodology	56
Description of the School.....	57
School mission.....	59

School vision.....	59
Belief statements.....	59
Proposed Method	60
The Qualitative Research Paradigm.....	60
Study Design.....	61
Sample.....	62
Data Collection Procedures.....	63
Connecting Method to Research Questions	65
Data Analysis	67
Validity Approaches	68
Reliability Approaches.....	69
Transferability.....	69
Ethical Considerations	70
Critical Self-Narrative.....	71
Chapter 4: Analysis of Data from Student and Teacher Interviews	73
Description of the Curriculum	74
Student Demographic Data.....	76
Student Academic Achievement Data	78
Teacher Data.....	81
Factors Determining Early College Enrollment	82
Family guidance.....	82
Sibling connections.....	83
Personal decision	83

Professional interests	84
Financial/time incentives	84
School structure	85
The Three R's Framework of the Early College.....	85
Student perceptions of the rigor	85
The rigor from teacher perspectives	89
Student perceptions of the relevance	92
The relevance from teacher perspectives	98
Student perceptions of the relationships	101
The relationships from teacher perspectives.....	105
The Four Facets of College Readiness.....	109
Student perceptions of key cognitive strategies.....	109
Key cognitive skills from teacher perspective	111
Student perceptions of key content knowledge and skills	113
Key content knowledge from teacher perspectives	118
Student perceptions of academic behaviors	122
Academic behaviors from teacher perspectives.....	129
Student perceptions of contextual skills and awareness	132
Contextual skills and awareness from teacher perspectives	137
Concluding Questions.....	139
Most liked and least liked aspects of the early college.....	140
Qualities of a college ready student	141
Conclusion	144

Chapter 5: Discussion	145
Organization of the Chapter	146
Research Sub-Question One	146
Getting over the bumps in 10th grade.....	147
The two sides of rigor	148
Focus on grades.....	149
Research Sub-Question Two.....	151
The program highlight	151
A sense of independence and self-confidence	152
Lack of interest in extracurricular activities	152
Research Sub-Question Three.....	154
Teachers as support system.....	155
Peers as support system	156
Parents and siblings as support system	157
Research Sub-Question Four	158
Student understanding of cognitive skills	158
Student development and cognitive growth.....	160
Research Sub-Question Five.....	161
Adequate preparation in science content	161
Teacher support in math courses.....	162
Passion for teaching content	163
Room for improvement in research and writing	164
Research Sub-Question Six.....	166

Persistence, self-efficacy, and motivation	166
Development of study skills.....	167
Effective student self-awareness and self-monitoring	168
Research Sub-Question Seven	170
Access to college knowledge	170
Aspiring for postsecondary degree completion	171
Negative perceptions of college culture.....	171
Aligning Student Perceptions within Conley’s College Readiness Framework.....	173
Interplay among the Three R’s Framework and the Four Facets of College Readiness.	175
The relationships among the 3 R’s.....	175
Rigor and the facets of college readiness.....	177
Relevance and the facets of college readiness	178
Relationships and the facets of college readiness	181
Conclusion	184
Study Implications	186
Recommendations for Future Research	190
References.....	193

List of Tables

Table 1 Demographic Data for Early College Students from the Class of 2016.....	76
Table 2 Demographic Data for Interviewed Students.....	78
Table 3 Academic Achievement Data for Early College Students from Class of 2016.....	79
Table 4 Academic Achievement Data for Interviewed Early College Students.....	80

List of Appendices

Appendix A: Conley's four facets of college readiness.....	205
Appendix B: Student Interview Questions	206
Appendix C: Interview Questions for Early College Teachers	209
Appendix D: Pre-Nursing Student Schedule	211
Appendix E: Surgical Technologist Student Schedule	212
Appendix F: Paramedic Student Schedule.....	213

Abstract

College readiness is the foundation for student success in college. Conley (2007a) offered an operational definition of college readiness with four interconnected facets including student acquisition of cognitive skills, comprehension of content knowledge, positive academic behaviors, and an understanding of contextual skills or college processes. The purpose of this qualitative phenomenological study is to analyze the perceptions of students graduating from an early college program regarding their experiences of rigor, relevance, and relationships within the program and how these experiences have impacted their college readiness skills using Conley's framework. The early college in this study focuses on health careers. Perception data were collected from a convenience sample of 15 graduating early college students using semi-structured interviews. Four early college teachers were also interviewed to provide triangulation. Students perceived that the early college program had prepared them to succeed in college courses through implementation of rigorous content and adequate preparation in high school courses. Students indicated that they effectively used cognitive skills in college and revealed that their interest in learning content knowledge was enhanced by their teacher's passion in facilitating content. Students perceived an ability to develop academic behaviors and to adjust to a college pace and apply for universities. However, student ability to adjust to the social demands of the college culture was limited. Implementing purposeful hands-on experience and building supportive relationships while providing rigor can be promising for developing meaningful experiences for high school students and may lead to reducing student attrition in health professions.

Chapter 1: Introduction

Post-secondary education has become increasingly essential by today's professional career standards. A predominant number of high school seniors plan to complete a post-secondary degree (Bailey, Hugh, & Karp, 2002), yet many do not finish their Bachelor's degree or obtain their associate's degrees. As of the year 2000, 66% of high school graduates finished some college classes but only 33% earned a post-secondary degree (Bailey et al., 2002). For successful transition from high school into college, students need to understand college requirements and expectations (Bailey & Karp, 2003). The lack of connection between K-12 and postsecondary education may contribute to the lack of student college readiness (Harnish & Lynch, 2005). This is particularly true for first-generation college students who are unfamiliar with college programs and admissions processes (Hugo, 2001).

While access to postsecondary education has increased over the last few decades, there continues to be large disparities in enrollment between students from low-income and high income families (Engberg & Allen, 2011). Only 40% of low-income students continue their education beyond high school as opposed to 84% of students with an annual family income of \$100,000 or more (Bozick & Lauff, 2007). Kim (2012) demonstrated similar variability in college enrollment for students from different races and ethnicities as well as SES between the years 1992 and 2000.

Over the past few decades, many programs were developed to increase student interest in postsecondary enrollment and degree completion, to improve student college readiness, or to offer college access for low-income students. Examples of these programs are accelerated

learning programs, including dual enrollment and early college programs (Hoffman, Santos, & Vargas, 2009). Dual enrollment programs offer high school students the chance to take college courses on a college campus, thus gaining credits that may transfer for a college degree. Early colleges are intensive technical or career-oriented high schools that represent another form of dual-credit programs. Students enrolled in early colleges complete their regular high school courses together with the requirements of the college (associate) degree that they are interested in pursuing. Upon graduation, most early college students receive both their associate degree and their high school diploma within five years thus benefiting from time and financial savings. The time savings are evident through graduating in five years as opposed to a minimum of the six years needed for traditional high school students to earn their high school diploma and an associate degree. The financial savings of this approach are a product of the “Hold Harmless” funding—where both the school districts and the partnering colleges receive funding for early college students.

The Early College High School (ECHS) model started in 2002 through funding from the Bill and Melinda Gates Foundation (McDonald & Farrell, 2012). The initiative was intended to increase the number of minorities, underserved students, and first generation college students graduating from high school and enrolling in college. The ECHS is built on the three predictors of success, also referred to as the three R’s framework: Rigor, Relevance, and Relationships. The three R’s framework has been examined in several studies that discuss the early college program (Kaniuka & Vickers 2010; Thompson & Ongaga, 2011; McDonald & Farrell, 2012). Rigor, as one element of the early college framework, implies that this program intends to provide a challenging curriculum that sets high expectations for enrolled students (Kaniuka & Vickers, 2010). McDonald and Farrell (2012) explained how the rigorous curriculum at the early college

works: “Students are acclimated to the rigor of college-level work through preparatory courses completed under the supervision of high school teachers and, then, transitioned to college courses taught by professors” (p. 220). Relevance is another element of the early college framework and is defined as providing connections between students’ learning and their future career interests. These connections are manifested through career training opportunities or service learning projects (Mc Donald & Farrell, 2012) and lead to increased student engagement and involvement in college (Zhao & Kuh, 2004). The third R of this framework refers to relationships represented in strong supportive teacher-student and peer relationships at the early college. Because these early college high schools are smaller than traditional high schools, students and teachers at the early college high school have greater opportunity to build strong positive relationships that help support learning. As a result, “ECHSs are organized around themes of caring that promote trust, support, sharing, cooperation and growth” (Thompson & Ongaga, 2011, p. 44). The combination of the 3 R’s (Rigor, Relevance, and Relationships) serves to make the early college high school a unique place for rigorous learning in a supportive environment that focuses on providing relevant education to underserved students. According to Shear, Means, House, Georges, Joshi, Smerdon, and Shkolnik (2008), the early colleges are “places that combine rigor in the academic program of every student with relevance to their interests and potential career choices, supported by positive relationships that can inspire students both academically and personally” (p. 1).

These accelerated learning programs are of particular importance for students enrolled in health care professions. According to Flores and Simonsson (2012), instructors in allied health programs are looking for ways to decrease the attrition of students enrolled in health careers given the need for more health care professionals in a larger than ever aging population. This

attrition problem is evident when recognizing that “students in professional health care programs are less likely to persist in their studies when compared with students in other postsecondary educational programs” (Flores & Simonsson, 2012, p. 325). The reason for this attrition may be attributed to the need for a more rigorous high school curriculum. In their study, Flores and Simonsson (2012) indicated that providing rigor in dual enrollment programs for students interested in allied health can impact the academic achievement of students enrolled in health professions. The study supported results of research that discussed rigor in high school courses (Adelman, 2006) and revealed that dual-credit programs may help facilitate student transfer into health professions—in particular the radiologic sciences programs which is experiencing the highest attrition rate of all health programs (Flores & Simonsson, 2012). Although there are no other studies that linked dual-credit programs to health careers, findings from the study by Flores and Simonsson (2012) suggest there is a crucial role for dual enrollment programs—such as the early college program—in assisting students to enroll and persist in programs that focus on health professions. However, research linking the effects of the early college programs to student enrollment and completion of postsecondary degrees in health sciences has yet to be conducted.

Statement of the Problem

Postsecondary degree enrollment and completion has become an increasing challenge for high school students due to a lack of necessary skills required to enroll and succeed in college courses and/or due to financial means (Bailey & Karp, 2003; Engberg & Allen, 2011). This is particularly true for low-income students and first generation college students. Accelerated learning or dual-credit programs provide a means for students to enroll in postsecondary institutions and/or to complete a college degree (Hoffman et al., 2009). The early college high school is a recent addition to these accelerated programs and thus may cause uncertainty

regarding the future of the students enrolled in it. The reviewed literature on early colleges does not extensively discuss student perceptions of their experiences within the program (Kisker, 2006; McDonald & Farrell, 2012; Woodcock & Olson Beal, 2013). Kisker (2006) indicated that there is minimal qualitative research that studies the experiences of early college students. Similarly, MacDonald and Farrell (2012) discussed the gap in literature regarding qualitative research capturing “student perceptions, motivation and knowledge about college as a result of participating in an ECHS” (p. 222). Woodcock and Olson Beal (2013) also pointed to the absence of student voice in research on early college programs. The value of student voice was illustrated by Flutter and Rudduck (2004): “The most important argument for listening to the pupil voice lies in its potential for providing schools with directions for constructing a better future” (p. 132). In order to bridge the existing gap in the literature, this study examines student perceptions of their experiences within the selected early college program. This study focuses on understanding the perceptions of students graduating from one early college program and who intend to pursue their postsecondary degrees in health professions by examining their experiences of rigor, relevance, and relationships within the program and the ways in which this experience has impacted their college readiness.

The concept of dual credit programs can be appealing and helpful for students in health careers who experience high attrition rates (Flores & Simonsson, 2012). In light of the need for more qualitative research on perceptions of early college students, the focus of this study is on the experiences of students graduating from an early college program that is implemented in collaboration within and resides on the grounds of one community college. The program is also part of one public school system in the Midwest of the United States. The early college program in the study offers students interested in health careers the opportunity to take college classes

required for related medical and allied health fields such as nursing, physical therapy, respiratory therapy, emergency medical technology, radiography, medical assisting, and surgical technology. In addition to contributing to the literature regarding student perceptions of their experiences within the early college, this study helps to fill the existing gap regarding the lack of data pertaining to the impact of early college programs on student enrollment in health careers. The study may also contribute to the sustainability and improvement of the program studied.

Theoretical Framework

College access is often difficult for at-risk and first-generation college students (Byrd & MacDonald, 2005). The early college program is intended to increase college enrollment for low-income, underserved, first generation college students as well as minority groups who have historically struggled to gain access to college (Edmunds, 2012). In order to succeed in their new and challenging college environment, students should be equipped with proper college readiness skills (Edmunds, 2012). The theoretical framework used for this study is college readiness. The concept of college readiness is discussed referring to the work of David Conley (Conley, 2005a, 2005b, 2007a, 2007b, 2008, 2010, 2011, 2012) as well as other scholars who researched college and career readiness.

The overarching need for college readiness. Conley (2005a) argued that graduating from high school and earning a grade point average (GPA) high enough to get admitted to college are not necessarily precursors for college success. Although about 80–90% of high school graduates express interest in going to college, many do not enroll in postsecondary institutions (Conley, 2005a). According to the National Center for Higher Education Management System (NCHEMS; 2015), the rate of students nationwide who enroll in college right after high school graduation was 62.5% in 2010; the rate of three-year graduation for

students with an associate degree was 29% in 2009; and successful student transition from 9th grade to college (college pipeline) was at a rate of 20.8% for the same year. The failure of high school students to enroll or succeed in postsecondary institutions can in part be attributed to lack of college readiness skills. One reason for lack of college readiness is that students are unable to differentiate and adapt to the differences between high school requirements and college requirements (Conley, 2010). For example, college students are required to do much more reading and writing than high school students. College students must also learn how to work in groups, deal with professors, and seek help when needed (Conley, 2005b).

Another reason students are not prepared for college is that the high school curriculum focuses more on completing requirements and courses rather than mastering skills for success in college classes—such as critical and analytic thinking, reasoning, problem solving, and skilled writing (Conley, 2005a). At least one third of high school students are not adequately challenged in their required high school courses (Conley, 2005a). To increase the percentage of college ready students, Conley (2007b) suggested aligning high school curriculum and instruction with college expectations, developing high quality syllabi for all high school courses, and implementing senior seminars that develop habits of the mind, such as problem solving, critical and analytic thinking, research, and inquiry. Conley (2005a) argued for standards that align high school and college courses, assignments, and grading criteria. Courses in high school should be challenging, connected to college courses, and properly paced. In addition to fulfilling requirements for exit standards, high school courses should develop student intellectual maturity and college success skills (Conley, 2005a).

Definition of college readiness. Although much of the literature agrees that college readiness is important, there is little consensus on what defines college readiness and how it can

be measured (Conley, 2011). The definition most commonly used in the literature of college readiness is provided by David Conley who defined it as “the level of preparation a student needs in order to enroll and succeed—without remediation—in a credit-bearing general education course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program” (Conley, 2010, p. 22). Conley (2007a) stated in his definition that a college ready student is one who not only enrolls but also “succeeds” in college courses. By succeeding, Conley indicated that a student must be able to complete entry level courses with enough proficiency to enroll in later courses. “Without remediation” refers to the ability to enroll in general education (credit-bearing) courses without having to take remedial courses. A student who fulfills this definition understands expectations of a college course and has a set of skills that allow him/her to cope with the content knowledge and learn the key intellectual concepts of the course. The student is also prepared to deal with the culture and experience of college by learning the norms of its academic and social environment (Conley, 2005b). In addition to being able to enroll in credit-bearing courses without remediation, college readiness is related to academic behaviors and factors such as motivation, engagement in learning, and study skills (Conley, 2007a; Robbins et al., 2004; Wiley, Wyatt, & Camara, 2010).

Remedial education. Many students graduating from high school come from diverse backgrounds including low-income and minority students. A high percentage of these students are obliged to take remediation college courses. Remediation rates are considerably related to student demographic characteristics, including socioeconomic status (SES), ethnicity, and parental education (Wiley et al., 2010). According to the NCES (2004), 40% of students enrolled in postsecondary education enroll in a minimum of one remedial course. Approximately 63% of college students coming from low SES enrolled in remedial courses as opposed to approximately

25% of students from high SES (NCES, 2004). Students who enroll in remedial education are more likely to drop out of college. NCES (2004) reported that 30–57% of students taking remediation courses graduate as opposed to 69% of non-remediation students. In addition, only 17% of students enrolled in a remedial class in reading attain a bachelor's degree and 20% of students enrolled in two remedial classes complete a similar degree (NCES, 2004). Conley (2007a) indicated that taking remedial courses has proven to reduce the probability of students graduating due to the longer time required to graduate from college.

Remediation is of particular concern for students from low socioeconomic backgrounds and for first generation college students. The projected rate of high school graduation of these students is only 60%. Of that percentage, only one third will enroll in postsecondary institutions, and only about 14% will earn a college degree (Conley, 2005b). Low-income and first generation college students are “particularly vulnerable to a system that does not send clear signals to students on how ready they are for college” (Conley, 2007a, p. 10). Such students are unable to depend on their parents to help them to be college ready and will most likely enroll in remedial courses. This concern of increased student enrollment in remedial courses led to Conley's emphasis on the importance of enrollment and success in general education courses as an indication of student college readiness. Conley (2007a) considered general education courses to be the “gateway” courses. By referring to general courses as “gateways,” Conley (2007a) explained that they restrict access to college by eliminating students who are unable to cope with their requirements. Being successful in these courses is the key to determining student college readiness (Conley, 2007a).

Measures of college readiness. It is not possible to discuss college readiness without referring to the ways the literature and current standards measure college readiness. Maruyama

(2012) described college readiness as “an accumulation of knowledge and experiences that prepare students for college...defined using measures available during high school that can act as proxies for how students perform in college courses (college success) and later in careers (career success)” (p. 253). The literature discusses the use of school grades or GPAs, college admission tests such as the American College Test (ACT) and the Scholastic Aptitude Test (SAT), state assessments, and college placement tests as measures of college and career readiness. Adelman (2006) pointed to the significance of high school grades and the rigor of completed courses in determining college success. Referring to rigor, Bloom (2011) also explained: “The foundation for college and career readiness is an aligned rigorous curriculum” (p. 13). Although grading varies from one school to another, school grades and GPAs are considered better indicators than ACT scores and standardized tests in predicting college outcomes (Atkinson & Geiser, 2009; Geiser & Santelices, 2007). In their critique of using college entrance exams as measures of college readiness, Atkinson and Geiser (2009) argued that sitting for a three to four hour test—as is the case in ACT and SAT—cannot be indicative of what a student learned in four years of high school. A study by Geiser and Santelices (2007) indicated that student grades in high school provided a more precise prediction of four year graduation and college GPA after tracking long term outcomes of high school grades.

Maruyama (2012) explained that the ACT releases a yearly report providing college readiness information for students taking the test. However, the thresholds provided by ACT and similar tests are not considered precise or fully indicative of college readiness (Conley, 2010; Maruyama, 2012). For example, the ACT (2011a) results indicated that students in the United States are not college ready: Only 25% of high school graduates who took the ACT met all four College Readiness Benchmarks (reading, math, science, and English), an increase of only 1%

from the percentage of students meeting the ACT threshold in 2010. Specifically, 66% of high school graduates who took the ACT in 2011 met the English College Readiness Benchmark, 52% of high school graduates met the Reading Benchmark, 45% met the Mathematics Benchmark, and 30% met the Science Benchmark. Although the ACT reports provide annual information regarding the percentage of college ready students and cut scores that indicate readiness, they are inconsistent and suggest that students should use other college readiness indicators together along with their test scores (Maruyama, 2012). The ACT also suggested that postsecondary institutions should perform validity studies to create a definition of readiness for each specific institution. Maruyama (2012) cautioned of the hidden political agenda behind the ACT report: “ACT’s results inevitably were picked up by the press and used to criticize public education” (p. 259). Consequently, multiple measures should be used to identify student college readiness rather than sole reliance on the ACT or college admission tests.

Another measure of college readiness discussed in the literature is student performance on state assessments. Camara (2013) indicated that, unlike admission and placement tests which are prediction tests that forecast student probability of being successful in college, state assessments test actual student mastery of content and skills according to state standards. Camara (2013) added that there are specific indicators that successful college students display while enrolling and completing a college degree. These include: a) exemption from remedial courses; b) placement into courses that provide college credit; c) persistence to second year of college; d) degree completion; e) time needed to complete a certification program or a degree; f) performance in college courses such as Math and English; and g) college grade-point average. Camara (2013) suggested that a proper definition of college and career readiness is needed before finding appropriate measures and validating them. Similar to Conley (2007a), Camara

(2013) also drew attention to personality and non-cognitive qualities in defining college and career readiness rather than solely focusing on academic qualifications.

In alignment with the literature regarding valid measures of college readiness, Conley (2007a) stated that college readiness does not purely depend on high school courses and grades or national test scores. Conley (2007a) indicated that the current measures used to determine college readiness—such as course titles and GPAs, performance on college admissions tests (ACT, SAT, Advanced Placement), and performance in college courses—are faulty and inaccurate measures of readiness for college. First, Conley (2007a) indicated that trends in high school GPAs have revealed inflation of grades over the years. Second, similar to Maruyama (2012) and Atkinson and Geiser (2009), Conley explained that scores on the ACT and SAT are not necessarily a measure of capabilities and skills required for college success (Conley, McGaughy, et al., 2010).

In conclusion, the reviewed literature on college and career readiness calls for a change to more accurate definitions and measures of college readiness. As definitions of college readiness that concentrate on student achievement vary, the literature argues for the need for new definitions and multiple measures (Camara, 2013; Conley, 2007a; Maruyama, 2012). Measures should not underestimate exhibited student behaviors and actions. Kuh (2007) indicated that it is necessary to understand the precollege experiences of the least engaged students in order to better help them succeed by involving them in effective programs and practices. Robbins et al. (2004) revealed three constructs that can best identify student academic achievement and success: motivation, academic related-skills, and social engagement. Conley and French (2014) discussed how student motivation, persistence, interest in reaching certain goals, and reflecting on one's learning allow students to overcome challenges in Math and English. In an attempt to

provide a more complete definition of college readiness, Conley (2007a) discussed four facets that define the skills needed for students to be college ready. These facets are used in the present study as a lens to better understand the experiences of students graduating from the dual credit program in connection with their college readiness skills.

Conley's four facets of college readiness. In a report prepared for the Bill and Melinda Gates Foundation, Conley (2007a) aimed to create an operational definition of college readiness that differs from what has been established in this domain for the past 20 years. Instead of primarily defining readiness based on the courses taken in high school and scores on national tests, Conley (2007a) redefined college readiness based on four facets that constitute the skills needed for students to be college ready. These skills are considered the tools that are required to produce the desired outcome of college readiness as specified by Conley earlier in this chapter. Conley's (2007a) comprehensive definition of college readiness presented four facets or components that are organized into four concentric levels, nested inside each other (see Appendix A). In practice, these facets are not mutually exclusive or perfectly nested as portrayed in the model; rather, they interact with each other and a deficiency in one facet will influence the other. The four facets are examined in section that follows:

Key cognitive strategies. These strategies are a set of cognitive and metacognitive skills that "have been consistently and emphatically identified by those who teach entry-level college courses as being as important or more important than any specific content knowledge taught in high school" (Conley, 2007a, p. 5). These strategies describe patterns of intellectual behaviors needed for students to be college ready and that can be developed over time so that they become dispositions. Examples of these strategies are: critical thinking, analysis, interpretation, inquisitiveness, precision and accuracy, problem solving, and reasoning.

Key content knowledge and skills. Key content knowledge and skills are embodied within the key cognitive strategies. Conley (2010) explained that “understanding and mastering key content knowledge is achieved by processing information so that its structure becomes more apparent and then probing, consolidating and applying that information by means of the key cognitive strategies” (p. 35). These skills are divided into two main areas: overarching academic skills and core academic subjects and knowledge skills.

Overarching academic skills are skills needed in writing and research. According to Conley (2010), writing “is the means by which students are evaluated to some degree in nearly every postsecondary course. It is the medium by which student thinking is expressed and assessed most frequently.” Students are required to do writing more extensively and more often in college than in high school. Research skills are equally important for college success:

The student identifies appropriate resources to help answer a question or solve a problem by identifying all possible sources; collecting information from a variety of locations and sources; and distinguishing among the credibility, utility and veracity of the information contained in the sources. (Conley, 2010, p. 34)

Core academic subjects and knowledge skills are needed in subject areas such as mathematics, English, social studies, art, and world languages. Content knowledge in entry level English college courses was emphasized by Conley (2010) because it “enable[s] students to engage texts critically and produce well-written, well-organized and well-supported work products in oral and written formats” (p. 36). Math content knowledge requires students to have a more than a basic understanding of algebra:

College ready students possess more than a formulaic understanding of mathematics.

They have the ability to apply conceptual understandings in order to extract a problem

from a context, use mathematics to solve a problem and then interpret the solution back into the context. They know how and when to estimate to determine the reasonableness of answers. (Conley, 2010, p. 37)

For college readiness in science content, Conley (2010) stressed all forms of scientific thinking:

College science courses emphasize scientific thinking in all its facets...students grasp that scientists think in terms of models and systems as ways to comprehend complex phenomena. This helps them make sense out of the flow of ideas and concepts they encounter in entry-level college courses and the overall structure of the scientific discipline they are studying. In their science courses, students master core concepts, principles, laws, and the vocabulary of the scientific discipline they are studying. (p. 38)

Conley (2010) also referred to the importance of the practical knowledge in science content:

“Laboratory settings are the environments where content knowledge and scientific key cognitive strategies converge to help students think scientifically and integrate learned content knowledge” (p. 38).

Academic behaviors. Academic behaviors are indicative of student self-awareness, self-monitoring, and study skills. Unlike key cognitive strategies that are developed within content knowledge, academic behaviors are independent of knowledge of content areas. Self-monitoring is one form of metacognition and is “the ability to think about how one is thinking” (Conley, 2007a, p. 16). It includes being able to understand how well one has mastered the content or skill in a specific subject and how far one can persevere when facing difficult or vague tasks. Study skills include dedicating long periods of time for studying outside of class, time-management, preparing for and learning how to take exams, taking advantage of resources available at the college or university, and being able to study in a group.

Contextual skills and awareness. Contextual skills include knowledge of how the system at the postsecondary institution operates and of the norms of interaction within the college environment. Conley (2007a) indicated that “success in college is enhanced for students who possess interpersonal and social skills that enable them to interact with a cross-section of academicians and peers” (p. 17). In addition, students need to have what Conley (2005b) referred to as “college knowledge”—an understanding of the formal and informal operations of college admissions, application processes, placement testing, tuition costs, and financial aid processes among others.

The four facets of college readiness—key cognitive strategies, key content knowledge and skills, academic behaviors, and contextual skills and awareness—provide the theoretical framework for this study that helps us to understand student perceptions of their college readiness as a result of enrollment in the early college program. This study examines how students perceive the ways in which their experiences at the early college have impacted their college readiness skills as represented by Conley’s four facets of college readiness. Student perceptions of their experiences in the program are not only examined through the lens of the early college framework of rigor, relevance, and relationships, but also through the lens of college readiness using the four facets identified by Conley.

Purpose of the Study

The purpose of this study is to understand the perceptions of students graduating from an early college program that focuses on health careers regarding their experiences within the program and the ways in which their experiences have informed their college readiness and college success. The early college program of concern for the study is located in a school district in the Midwestern region of the United States. Inquiry of student perceptions aimed to capture

how students view their experiences in the program regarding the three R's framework (Rigor, Relevance, and Relationships) and how the program prepared them for college success as reflected through the four facets of college readiness (key cognitive strategies, key content knowledge, academic behaviors, and contextual skills and awareness). The study employs an additional source of data through the examination of perceptions of early college teachers regarding their observations of their student college readiness skills. Inquiry of teacher perceptions aimed to triangulate data sources. Perception data was collected through interviews and analyzed to offer depth to the study and a better understanding of student experiences and what it means to be a successful college student in health careers at the early college.

Research Question and Sub-Questions

This study was conducted to answer the following two research questions and the seven research sub-questions:

1. What are the perceptions of students graduating from an early college program of their experiences within the program?
 - a. What are the perceptions of graduating students of the program rigor?
 - b. What are the perceptions of graduating students of the program relevance?
 - c. What are the perceptions of graduating students of the program relationships?
2. How do early college students perceive that their experiences have helped develop their college readiness skills?
 - a. How do students perceive that their experiences have helped develop their key cognitive strategies?
 - b. How do students perceive that their experiences have helped develop their key content knowledge and skills?

c. How do students perceive that their experiences have helped develop their academic behaviors?

d. How do students perceive that their experiences have helped develop their contextual skills and awareness?

Delimitations

This study is delimited to one early college high school. The early college site was founded on a community college grounds and is located in one school district in the Midwest. This limits generalization of the results of this study to other districts or other early colleges that have different characteristics from this early college high school and the school district in which it is located.

Chapter 2: Literature Review

Dual credit programs aim at increasing student readiness for college through exposure to rigorous college work and college experience. This literature review discusses dual credit programs with their two subsets—the dual enrollment program and the early college high school—and draws on studies that examine the purpose, structure, and history of dual enrollment and early college programs. Due to the challenges regarding postsecondary degree enrollment and completion, many college preparation programs—including dual enrollment and early college programs—were designed to increase student college readiness and consequently student academic achievement in college. “College Readiness” is considered the underlying framework for dual credit programs. Literature on college readiness with emphasis on the work of David Conley is also discussed in this chapter.

This literature review is divided into two sections. The first section is dedicated to understanding the common themes across dual credit programs as well as the history and outcomes of these programs with particular attention to the early college program. The second section discusses college readiness as a precursor for student college enrollment and postsecondary degree completion.

Common Themes across Dual Credit Programs

In the reviewed literature, the term dual-credit is used to indicate all forms of accelerated learning including dual enrollment, the early college, and middle college programs. Dual enrollment, middle college, and early college programs have different structures and operate in different ways. All dual-credit programs are accelerated learning programs designed to increase

the interest of participating students in college enrollment by permitting high school students to enroll in college classes (Bailey & Karp, 2003). Although a small percentage of students participate in these programs, the NCES reported that this number reached 1.1 million students in 2002-2003 (Bailey & Karp, 2003) and has increased further in the past decade. Many themes are prevalent across the literature of dual-credit programs. Although themes vary based on the type of program studied, the following are common themes that can be detected in the reviewed literature.

Rigorous work. One common element across dual-credit programs is the rigorous course work that these programs require for high school students. This rigorous curriculum does not mean that enrollment in dual credit programs is restricted only to high achieving students. Although states differ in their requirements for early college admission, the Education Commission of the States (2012) indicated that many early colleges accept students with moderate ability levels and do not limit their acceptance to students who excel in their academic achievement (Howley et al., 2013). The literature reveals that the intensity of rigorous work during high school years is one indicator for a college degree completion (Adelman, 2006). Adelman (2006) specified that the completion of 20 credits of course work in the first year of college is a solid indicator that the student will earn a college degree. The early college high school is built on the premise that rigorous coursework can be particularly helpful for students who are at risk for not completing postsecondary education or even finishing high school requirements (Kaniuka & Vickers, 2011).

Socioeconomic status. A main factor to consider while discussing accelerated learning programs is the socioeconomic status and ethnicity of the students enrolled in these programs. Research shows large differences between postsecondary enrollment of students from low-

income and high-income families (Engberg & Allen, 2011). This enrollment difference can be attributed to many factors. Bourdieu (1994), McDonough (1997), and Perna (2006) referred to an “individual’s habitus” regarding college choice. Individual habitus reflects a person’s characteristics including race/ethnicity, SES, family characteristics, and cultural background. Students’ decisions about college are related to economic and human capital as well as to social and cultural capital (Bourdieu, 1994; McDonough, 1997; Perna, 2006). Cultural capital is a system of attributes—such as language and knowledge that define one’s status—that are transmitted directly through family (Bourdieu, 1994). Social capital emphasizes the importance of networks of people and community resources that can benefit one’s productivity (Coleman, 1988). Economic capital is the individual’s access to financial resources and is directly related to socioeconomic status (Pena, 2006). Therefore, understanding background characteristics including a student’s cultural, social, and economic capital may help to understand college enrollment decisions.

Dual enrollment and early college programs can improve access to postsecondary education for students from low SES. All dual credit programs require little or no cost which increases the chance for underserved students to participate in them (Hoffman et al., 2009). The early college program was initiated based on the Early College High School Initiative (ECHSI). The ECHSI was mainly interested in improving the chances of underserved students and minorities to successfully complete postsecondary education (Kaniuka & Vickers, 2010; Thompson & Ongaga, 2011). The funding benefits of dual enrollment programs lead to an increased and prolonged enrollment of low-income students and students of specific ethnicities in postsecondary education. In Florida, students from Hispanic and African American ethnicities who took dual enrollment classes enrolled in post-secondary education at a higher rate than

students from other ethnicities (Hoffman, Santos, & Vargas, 2009). One study investigated the long term effects of a dual enrollment program in Florida. By examining the demographics and characteristics of participants, the researchers were able to conclude that low-income students and students with lower GPAs benefit to a “greater extent than their dual enrollment peers who enter college with more social, economic, and educational advantages” (Karp et al., 2007, p. 63).

Student academic achievement. Student achievement is a strong indicator for the success of dual credit programs (Hugo, 2001). Academic achievement indicates how well enrolled students perform in their selected classes, their GPAs, and their postsecondary degree completion. Data collected at the Santa Monica College (SMC) revealed that dual enrollment students generally achieve higher GPAs than regular college students (Hugo, 2001). Studies also show that dual credit improves the preparation of minority students for college admission (Hugo, 2001). This was evident at the SMC, where students served are from low-income and disadvantaged minority backgrounds (Hugo, 2001).

Dual enrollment programs can be related to improvement in students’ grades and to student enrollment in postsecondary degrees which are important indicators for a program’s success. A study on Georgia’s dual enrollment programs indicated that 91% of dually enrolled students earned an As, Bs, or Cs in their college coursework (Lynch & Hill, 2008). Instructors described their students as successfully learning work-related activities and capable of completing post-secondary education (Lynch & Hill, 2008). Similarly, a Florida dual enrollment study investigating long term effects of the program by comparing post-secondary outcomes of dual enrollment participants and non-participants revealed that students in the program are more likely to be enrolled for two years after high school (Karp et al., 2007). Participants were also found to accumulate an average 15 more college credits than non-participants. According to the

Florida study, students achieved higher GPAs than their classmates who had no dual-enrollment experience (Karp et al., 2007). These results coincided with the results student achievement in an Ohio dual enrollment study as well (Gelb, O'Neill, & Rochford, 2009). The three year evaluation study of the dual credit program in Ohio revealed that 80% of high school based dual enrollment students scored a grade of B or above in their dual credit classes (Gelb et al., 2009). Although the literature incorporates research studies on student outcomes in dual enrollment programs, similar research in the early college high school is minimal and has not extensively studied the effect of the program on student academic achievement (Kaniuka & Vickers, 2010).

Postsecondary degree enrollment and degree completion are considered signs of positive academic achievement and are consequently important indicators of the success of dual credit programs in achieving their goals. One report indicated that rates of graduation for students enrolled in early colleges in the United States were about 92%, as opposed to 69% of traditional college students nationwide (Adams, 2010). The results of this report are highly encouraging and can lead to further expansion of the vision of early colleges in many states.

Changes in student perceptions. In addition to increasing enrollment of students from low SES in postsecondary education, improving college access for minority students, increasing degree completion, and improving academic achievement of minorities, studies on dual enrollment programs showed changes in student attitudes and perceptions of college. This is particularly important for students who lack the human and social capital necessary for college enrollment decisions. A qualitative, descriptive state-wide case study of high school and technical college programs in Georgia (2005) aimed at understanding how dual-credit programs promote college access and success (Harnish & Lynch, 2005). The researchers discussed initial outcomes of the study in three dual enrollment sites. Preliminary results for the first phase of this

longitudinal study highlighted student characteristics, their motivations, and their perceptions of the programs. The results of the exploratory phase of the study revealed that attending dual enrollment classes positively changed students' perceptions about college and made them believe in their ability to succeed in college (Harnish & Lynch, 2005). In addition, students were less likely to ask for withdrawal from a dual enrollment class (Harnish & Lynch, 2005). Studies on perceptions of students in the early college programs also revealed positive results. Early college students indicated they were more prepared to succeed in college and complete a postsecondary degree (AIR & SRI International, 2009; Edmunds, 2012; McDonald & Farrell, 2012; Woodcock & Olson Beal, 2013).

Dual Enrollment Programs

The literature generally divides dual credit programs into two categories: dual enrollment programs and early college/middle college high schools (Hoffman, Santos, & Vargas, 2009). Dual enrollment programs offer college classes to high school students so they can experience a college education and earn college credits. Early and middle colleges are high schools that allow enrolled students to receive their high school diploma and an associate's degree simultaneously within five years and are often located on a the campus of a community college. While early college programs started in 2002 as a result of the Early College High School Initiative, dual enrollment programs have been around for many decades as a result of partnerships between high schools and colleges (Johnson & Brophy, 2006).

Definition and purpose. Dual enrollment can be defined as “an academic program where college-level courses are offered to high school students for college credit” (Krueger, 2006, p. 1). Conley (2010) stated that “dual enrollment refers to the participation of high school students in courses for which they receive credit at both the high school and at the college level”

(Conley, 2010, p. 96). Dual enrollment programs aim at bridging the K-12 and postsecondary education gap through helping students understand college requirements and expectations so they can transition successfully into postsecondary institutions (Bailey & Karp, 2003). Because the program allows students to earn dual credit, it decreases the number of credits required to earn a college degree and most importantly, provides students with insight into the college environment and experience with college course work (Conley, 2010).

Dual enrollment and under-represented students. Research on dual enrollment reveals that the programs are helpful in increasing student access to postsecondary education, particularly for minorities and for students from low SES. The literature described students enrolled in dual-enrollment programs as minorities, under-represented, or underserved (Bailey et al., 2002; Hoffman et al., 2009; Hugo, 2001). This increased enrollment of underserved students is due to the reduced cost of these programs. Most programs are subsidized by state funding. When states participate in dual enrollment, they provide supplementary funding to both school districts and colleges through Average Daily Attendance (ADA) for secondary school system and Full-time Equivalent Enrollment (FTE) for college. While some states allow both schools and colleges to claim full funding for enrolled students, others allow funding claims to come from one institution or the other (Hoffman & Vargas, 2010). Funding benefits increase enrollment of low-income students in postsecondary education (Hoffman et al., 2009). For example, Georgia's high school technical colleges are funded by the state's Helping Outstanding Pupils Educationally (HOPE) grant. Participating students enjoy full funding for college courses and are provided up to \$100 for every student per semester to help cover books and supplies (Harnish & Lynch, 2005). Other states provide similar incentives. In Minnesota, students who participate in the mandatory program known as the Postsecondary Enrollment Options Program

have no tuition costs. In Washington, K-12 districts whose students participate in the Running Start program are reimbursed by colleges. In Florida, dually enrolled students are relieved from course registration and enrollment fees (Krueger, 2006).

Dual enrollment and student academic achievement. Dual enrollment programs are more geared toward advanced students and rarely reach low-achieving students (Krueger, 2006). Findings in the reviewed literature regarding initial implementation of dual enrollment indicates that originally many dual enrollment programs were implemented to allow high-achieving students to complete accelerated work especially those who have completed advanced courses at their high school (Hoffman & Vargas, 2010). According to Conley (2010), “the most successful dual credit program encourages all interested students to apply but require students to meet specific academic eligibility requirements before participating in these courses” (p. 96). Hughes and Karp (2008) indicated that dual enrollment programs provide high school juniors and seniors enrolled in college courses with a challenging academic experience. The initial target of dual enrollment programs to enroll high achieving students led to the development of Advanced Placement (AP) courses at the high school where high schools attempted to compete with colleges for advanced students (Hoffman & Vargas, 2010). These AP courses are “designed to be college-level classes taught in high schools by high school teachers” (Conley, 2010, p. 210). The College Board organizes the Advanced Placement program and offers exams in 33 AP courses. Due to the many benefits of taking AP courses, many high schools consider Advanced Placement to be the college preparatory curriculum and some postsecondary institutions allow credit transfer for AP courses (Conley, 2010).

Many dual enrollment studies reveal that these programs increase student academic performance and lead to better educational achievement. Hughes and Karp (2008) indicated that

career and technical students who took dual enrollment courses performed better than their non-participating peers, suggesting that dual enrollment can be a promising strategy to encourage students to enroll and persist in postsecondary education. Introducing low-income and underserved students to college success skills through dual enrollment courses has provided positive results. As discussed earlier, the program improved preparation of low-income and disadvantaged minority students for college admission at the Santa Monica College (Hugo, 2001). Similarly, dual enrollment students in Florida were more likely to go to college for two years and earn more college credits than students who did not participate in dual enrollment. Participants who benefitted most were low-income students and students with lower GPAs (Karp et al., 2007). Jobs for the Future (JFF) supported a study to examine the effects of Texas students' participation in dual enrollment courses on student enrollment and degree completion in a postsecondary institution (Struhl & Vargas, 2012). The study suggested that dual enrollment can enhance college readiness—particularly for students from low-income and underrepresented populations. Academic outcomes collected of approximately 33,000 Texas high school students graduating in 2004 showed that students who participated in dual enrollment courses attended and completed college within the state at a much higher rate than students who did not participate in dual enrollment courses. The results were particularly high for low-income and minority students. The Texas Higher Education Coordinating Board pointed to the high increase in the number of dual enrollment students between 2004 and 2010; an increase from about 38,000 students to about 90,000 students (Struhl & Vargas, 2010). Other research indicates that the percentage of dually enrolled high school students tripled within three years but cautioned that this percentage only comprises 6% of all high school students (Kruger, 2006). This outcome may be related to traditionally offering dual enrollment courses to high achievers. Programs

should therefore allow enrollment of low-achieving students and provide support to ensure that these students complete a postsecondary degree (Krueger, 2006). One program that offers such benefits is the early college high school model, another form of dual credit programs, which is examined in the following section.

The Early College High School

Definition of the early college high school (ECHS). The early college is a system used to integrate high school and college by building an accelerated curriculum that allows students to complete their high school requirements and their associate degrees within five years (Krueger, 2006). The ECHS is a five year dual-credit program that starts in 9th grade and is based on incorporating two years of college while in high school so that early college high school students can graduate with both a high school diploma and an associate degree. These ECHSs therefore “expand the model of dual enrollment by incorporating dual enrollment courses into the whole structure of the school” (Edmunds, 2012, p. 81). Designed as a pioneering high school-college blend, the purpose of the early college is to increase student readiness for college (Edmunds, 2012). One of the characteristics of the early college program is a commitment to serving underrepresented students. The ECHS is also a means to provide college courses to underserved high school students in an environment where the designed curriculum and pedagogy act as “academic and social bridge for successful college integration through an acceleration process” (McDonald & Farrell, 2012, p. 219). The early college high school model is built on the concept that offering a rigorous curriculum with free or low-cost tuition will motivate underrepresented or under-achieving students in a traditional high school to enroll and succeed in postsecondary education (Woodcock & Olson Beal, 2013). Although the early college high school is not the only model of accelerated learning, it is unique in that it allows students to graduate with both a

high school diploma and an associate degree, increases the recruitment of first-generation and other underrepresented college students, and provides students with academic and social support (Woodcock & Olson Beal, 2013). The purpose of the early college is to increase rates of high school graduation as well as college enrollment and retention rates while allowing for shorter time to earn a degree (Alaie, 2011).

History of the early college high school. Providing a history of the early college development and implementation requires a discussion of the ECHSI—a partnership of the Bill and Melinda Gates Foundation, the Carnegie Corporation of New York, the Ford Foundation and the W.K. Kellogg Foundation, with 13 subsidiary organizations. Foundations partnering in the initiative planned to either start new early college high schools or redesign existing middle college high schools nationwide (Leonard, 2013). The initiative was coordinated by JFF, a national non-profit organization that partners with many states and has been around for over 30 years. JFF provides educational and career opportunities so that students from low-income populations acquire the skills necessary to succeed in a global economy (JFF, n.d.). About 240 early college high schools are available as a result of the ECHSI (JFF, 2010). These early colleges exist in at least 30 states but are mostly concentrated in New York, California, Texas, Georgia, and North Carolina (JFF, 2010).

A national evaluation of the ECHSI conducted in conjunction with the American Institutes of Research and SRI International (2009) showed that most early colleges were initiated as new high schools in partnership with two year colleges and founded on the campus of a community college campus or close to it (AIR & SRI International, 2009; Conley, 2010; JFF, 2010). The location of early college high schools on the campuses of community colleges allows

for feasibility of taking courses in the last two years of the program and affords students the opportunity to experience the college environment early on in their high school years.

Early colleges and underrepresented students. Reviewing the literature on early colleges and dual enrollment displayed many variations in the ways these programs are made available to students. Whereas participation in dual enrollment and AP courses requires students to be middle to high achievers in their high school courses (Bailey, Hughes & Karp, 2002), students who are targeted to enroll in early colleges are oftentimes lower achieving students. The ECHS has become more and more the dual-credit option of choice for improving college readiness for under-achieving students (Leonard, 2013). These students often lack the knowledge and skills for college success. The academic support provided to early college students allows low-achieving students to take college courses with their high school courses. In addition to the academic support, the goal of the early college is to also provide financial support to high school students from low-income backgrounds. Hoffman and Vargas (2010) indicated the early college is “a way for school and college partners to better serve underrepresented students” (p. 26). The Bill and Melinda Gates Foundation, in collaboration with the American Institutes of Research and SRI International (2009), performed an evaluation of the ECHSI. The evaluation showed that early colleges targeted racial and ethnic minorities (67% of students enrolled or 6% higher than high schools in the districts from which the early colleges’ students were accepted) and populations with low SES (59% of students enrolled or 5% higher than district high schools). In addition, 46% of students were first generation college students (AIR & SRI International, 2009). According to JFF (2009), 75,000 students enrolled in ECHSs nationwide. Out of the 75,000 students enrolled in ECHSs, 79% were students of color and 61% were eligible for free or reduced lunch. Approximately 50% were first generation college students (JFF, 2009).

Funding for early colleges. At the early college, low-income students can enjoy the benefits of dual credit programs at no cost. The foundations that initiated the ECHSs together with state governments provided grants that are furnished during the implementation of the ECHSs (Leonard, 2013). Because the early colleges are products of collaborations between community colleges or four-year universities and high school districts, this funding reduced the early college operational cost that the college and the school district in the collaboration would cover. Webb (2004) examined the cost of starting and operating an early college high school and found that this cost may be 5% to 12% higher than the traditional high school. This included costs of collaboration, coordination, tuition fees, and books. JFF in conjunction with the ECHSI encouraged the support of state governments for early college high school costs (Hoffman & Vargas, 2010). Support from state governments would reduce the load on school districts and colleges from added expenses incurred by the early college design (Leonard, 2013). The “hold harmless” funding approach—where both districts and colleges receive funding for early college students—is an incentive used for schools and partnering colleges (Hoffman & Vargas, 2010). This type of financing for early college designs encourages high schools and postsecondary institutions to be equally responsible for underrepresented students instead of competing for high-achieving students (Hoffman & Vargas, 2010) as is the case for dual enrollment programs.

With the ending of funding from the Bill and Melinda Gates Foundation in 2009 and with many state governments reducing funding for the early college high schools, many existing early college high schools have had to face financial challenges (Leonard, 2013). Since the Bill and Melinda Gates Foundation stopped supporting the ECHSI, intermediaries worked together to make the early college initiative “a self-sustaining network” (AIR & SRI International, 2009, p. 2). Leonard (2013) suggested that a possible solution to overcome financial problems for the

early college program was to develop “shared responsibility” of all concerned in the process instead of the “hold harmless” approach. In a descriptive case study that discussed the status of an early college that was four years into its development within a traditional high school, Leonard (2013) analyzed how the cost of funding and operating the school was a shared responsibility between the high school and local community college as well as families of students. Positive outcomes regarding parent involvement, student commitment to learning, and increased responsibility of administrators emerged (Leonard, 2013). Leonard (2013) recommended setting a budget for college readiness at the early college high school to sustain its development and design. Similarly, Krueger (2006) suggested that funding for dual enrollment should be provided by different parties “so that one institution or system does not bear the full financial responsibility of the program” (p. 5). Krueger (2006) provided an example from the State of Utah, where the state, the school system, and postsecondary institutions share program funding so that students can benefit from the programs at no extra cost.

Differentiating between early college and middle college high schools. The early college high school was not the first attempt to incorporate high school and college programs within one setting. Kisker (2006) referred to a plan called the six-four-four plan which was initially an attempt to incorporate the last two years of high school (grades 11 and 12) with the two years at a community college (grades 13 and 14) to produce what was then referred to as the middle college. The intent of this model was to produce a common curriculum and to provide unity in administration (Kisker, 2006). The Middle College High School (MCHS) was founded in the 1970’s as a precedent of the Early College High School. The school was an accelerated model that started at La Guardia Community College for minority youth (Born, 2006; McDonald & Farrell, 2012). The middle college at La Guardia was the first in the country, opening its doors

in 1974 and then becoming the first middle college to transform to an early college in 2002. This model, also referred to as the middle college early college (MCEC), particularly targeted and assimilated at risk high school students within college programs to graduate with both a high school diploma and an associate degree (Born, 2006). Krueger (2006) indicated that middle colleges were high schools located on college campuses and that student enrollment was limited to at risk-students. While the program concept was appealing to improve enrollment and persistence of at-risk students in postsecondary education, the framework and foundation that the ECHSI provided in 2002 expanded and improved the middle college concept that first started in 1972 (Lieberman, 2004). The design of the early college was built on the 30 years of experience of the middle college model that provided interventions derived from student academic results and experiences (Lieberman, 2004). Middle colleges are comparable to early colleges in offering accelerated learning programs with a supportive environment for traditionally underserved and low-income students. They are also similarly a result of collaboration between community colleges and school districts. The Middle College National Consortium (MCNC)—an intermediary organization of the Bill and Melinda Gates Foundation, Ford Foundation, Kellogg Foundation, and Carnegie Corporation—supports and funds middle college high schools. In addition to opening new early colleges, this funding helped to redesign existing middle colleges and transform them into early college high schools (Born, 2006).

Middle colleges faced many challenges that pose threat to their existence. Initially, these institutions were used to help at risk students prepare for college success. However, at-risk students “may not be intrinsically motivated to perform academically and... generally come from homes where they are the first to graduate from high school, much less college” (Born, 2006, p. 50). Middle colleges were located in communities where social problems, poverty, and high

crime rates existed and where dropout rates were extremely high. In order to overcome the challenges that these institutions faced, middle colleges were required to provide strong support systems to help at-risk students eliminate negative habits that may affect their learning (Born, 2006). Born (2006) examined two middle college sites and concluded that enrolled students at both sites needed to understand rigor in college classes and to develop motivation and determination to succeed in transferring from high school to college. Support strategies were established through a program called Advancement via Individual Determination (AVID) and through educational seminars. A tutoring program providing students with college readiness classes, AVID focused on skills such as note-taking time management, study skills, and writing and research skills. In addition to providing rigor and college readiness, caring relationships with mentors and counselors were vital to help students achieve their goals of postsecondary enrollment. Academic and personal guidance are therefore necessary for success of students at middle college high schools. A student at Chester County Middle College High School in Pennsylvania indicated that her enrollment in the program changed her from a student who did not care to go to college to one who is set on getting a double major (Krueger, 2006). Support provided by middle colleges allows students to develop the social capital necessary to overcome their economic and cultural capital.

Framework and core principles of ECHS. The ECHSI provided in 2008 five ECHS core principles that reflect the main purpose for developing early colleges and provide elements that sustain their design:

1. Commitment to providing educational support to underrepresented students
2. Partnership and joint accountability with postsecondary institutions and the community for student success

3. Development of a curriculum that allows students to earn college credits and complete an associate degree
4. Providing a support system that develops student academic, social, and behavioral skills
5. Advocating for support of the early college movement (AIR & SRI International, 2009).

The ECHS model is built on the 3 R's Framework; rigor (providing a rigorous curriculum), relevance (relating to student career interest) and relationships (a supportive learning environment).

Rigor. Rigor means offering “challenging instruction, rigorous coursework and high expectations for all students” (Thompson & Ongaga, 2011, p. 45). According to Edmunds (2015), rigor is defined as improved instruction and as activities that engage students in higher order thinking. Because the ECHS model entails a shorter time than a traditional high school to complete high school requirements with the college curriculum, a rigorous curriculum becomes an essential component of the early college design. Rigorous coursework is implemented to ensure students are successful for a college environment. A rigorous curriculum should also take into consideration academic support and a focused intervention for under-achieving students (Thompson & Ongaga, 2011). The ECHS offers preparatory coursework and support services that target student academic readiness (Born, 2006; McDonald & Farrell, 2012). The preparatory coursework may be taught by high school teachers to prepare for rigorous college work provided later by college instructors (MacDonald & Farrell, 2012). Literature on early colleges reveals that taking college courses before transitioning to a four year postsecondary institutions helped students gain confidence in their ability to tackle the challenging college curriculum and prepared them for college courses (Edmunds et al., 2010; Fischetti, Mackain, & Smith, 2011; Woodcock & Olson Beal, 2013). Edmunds (2012) led a longitudinal experimental study that

researched outcomes of the North Carolina's early college model with a sample of 715 9th- and 10th-grade students. Results revealed that participating in and completing rigorous courses helped students to be more prepared for college. Other studies indicated that students perceived academic rigor at ECHS as a positive aspect that prepared them for college (Edmunds et al., 2010; Fischetti et. al., 2011).

Relevance. A student's learning experience should be related to career goals and aspirations. Students should be able to find connections between their academic studies and work (Alford et al., 2014). Providing the relevance of academics for careers means providing opportunities to connect course work with students' personal experiences and their interests in future careers. Opportunities at the ECHS include offering practical learning opportunities, such as community service learning and projects (Thompson & Ongaga, 2011) and allowing students to participate in college services and activities. At Hudson Early College High School, students select a learning project that they participate in until they graduate (Thompson & Ongaga, 2011). Students develop a college-going identity when they are able to stay engaged in school and find college relevant to their future (Hooker & Brand, 2010).

Relationships. Besides college partnerships, strong supportive teacher-student and peer relationships are characteristics of the ECHS (Edmund et al., 2010; Thompson & Ongaga, 2011). Research shows that early college high schools are generally much smaller in size than traditional high schools (Kaniuka & Vickers, 2010). Due to their smaller sizes, early college high schools focus on caring and supportive relationships between faculty, students, and staff. One ECHS was described as a small entity on the partnering community college campus where students were able to access all campus resources and where "emphasis on college and career was carefully coupled with a caring atmosphere" (McDonald & Farrell, 2012, p. 222). This

caring atmosphere gave students support for academic success. Similarly, at Hudson Early College, the small learning environment and caring community enhanced student-teacher relationships and peer relationships, and allowed for greater academic and emotional student support (Thompson & Ongaga, 2011). Strong supportive relationships at the Cross Creek Early College High School also made early college experience meaningful to participating students (Kaniuka & Vickers, 2010). Other studies discussed the positive relationships with counselors and advisors at the early college high school (JFF, 2011; McDonough, 1997). Studies showed positive results of teacher support when combined with setting high expectations. One study examined how supportive schooling for culturally and linguistically diverse students can improve student preparation for college (Calaff, 2008). Supportive schooling was implemented by enrolling nine Latino students in a college preparation program, setting high expectations, providing students with intensive curriculum and technology, demonstrating teacher support, and embracing diversity. Interviews and student records indicated that students benefitted from the support and additional services provided. Students indicated that, unlike their Latino peers who showed no interest in college, they were highly motivated and ready for college education (Calaff, 2008).

Positive Outcomes of the early college high school. Participation in early college high schools produced many positive outcomes for enrolled high school students and postsecondary institutions. The following are some positive outcome of participation in early colleges:

Increase in high school graduation rates. According to JFF (2014), while 78% of high school students graduate nationwide, students graduate from the early college high school at a rate of 90% with less time and money to earn a postsecondary credential. A study led by American Institute of Research (AIR; 2013) revealed that early college students were more likely

to graduate from high school than traditional high school students, although graduation rates for both groups were high, 86% to 81% respectively.

Increase of enrollment in postsecondary institutions. According to the ECHSI initial report (2007), the results of students graduating from 17 early colleges in 2007 revealed that more than 85% graduated with college credits and that more than 65% were accepted in four-year universities. According to the AIR and SRI International (2009), of the 3000 students who graduated from 64 ECHSs, 86% continued with postsecondary education (community colleges or further) as opposed to 66% of all high school graduates. The study also revealed that more than 40% of students graduating from early colleges enrolled in a four-year institution. In the AIR (2013) study, 80% of early college students enrolled in higher education versus 71% of traditional high school students.

Increase in college graduation rates. Early college students were considerably more likely to earn a postsecondary degree than traditional high school students. In addition, early college students earned associate degrees faster than other students. AIR (2013) indicated that of the early college students in the study who earned an associate degree, 20% earned a degree concurrently with their high school degree (AIR, 2013). Nationwide, 30% of graduates at early colleges have earned an associate degree along with their high school diploma (JFF, 2014)

Improved academic achievement. A focus on student academic achievement in early colleges provided evidence that early college students performed better in their high school courses than traditional students in the school districts in which the early college was located. According to the AIR (2009) and JFF (2011), ECHS students indicated that they received an average 3.1 GPA for courses they took while they were at the early college (AIR & SRI International, 2009). In addition, ECHS students indicated that they earned an average grade of B

in their college courses. This academic performance was more evident for students in early colleges located on college campuses (AIR & SRI International, 2009)

Improved performance on state assessments. ECHS students performed as well or better on state assessments when compared with traditional high school students (AIR & SRI International, 2009; Edmunds et al., 2010). In 2007-2008, the proficiency rate of students from early college schools was 74% in language arts and 67% in mathematics, or overall 7% higher than their peers in both subjects in the same district (AIR & SRI International, 2009).

Increase in number of credits transferred to college. Early college students graduate with an average of 23 credits by the end of their senior year—equivalent to seven or eight college courses (AIR & SRI International, 2009; Edmunds, 2012). JFF (2014) indicated that 94% of early college graduates earn college credit free of tuition. The average graduate earns 38 college credits and saves 30% of tuition cost toward a bachelor's degree or 60% of tuition toward an associate's degree (JFF, 2014).

Enhancement of college readiness skills. Follow-up interviews with graduating early college students revealed that early college exposure prepared students for success in college and increased their college going aspirations (AIR & SRI International, 2009; Edmunds, 2012; Edmunds et al. 2010; Woodcock & Olson Beal, 2013). Aligning school and college coursework at the early colleges enabled students to complete a college preparatory curriculum. Findings from a study by Edmunds et al. (2010) indicated that Middleton Early College High School “was creating a college-going culture through a variety of approaches, including setting expectations for their students to go to college, exposing their students to a college preparatory course of study, and providing college awareness activities.” (p. 360) In addition, a longitudinal study performed on participation and success of students in college preparation courses at two early

colleges in North Carolina revealed that being on a college campus helped students learn the skills required to be successful in college (Edmunds, 2012). Interviews with 31 students from a disadvantaged background in one early college high school revealed student perceptions regarding their college readiness from academic, social, and personal perspectives. Students perceived that in addition to the benefits of the rigorous academic work provided at the early college, they developed college readiness skills such as increased student self-monitoring, increased productivity, discipline, and time management (McDonald & Farrell, 2012).

Negative outcomes. Not all literature on early colleges presents positive outcomes of the early college program. Understanding obstacles that impede success is helpful for improvement of the early high school design and implementation. The following address some of the negative outcomes of the model that were present in the literature.

Average grades or low GPAs. A study performed by Fischetti, Mackain, and Smith (2011) revealed that ECHS students earned lower GPAs than traditional freshmen at the partnering college. In addition, Woodcock and Olson Beal's (2013) study revealed that some of the students reported receiving an average grade of C on several college courses. The study indicated that perceptions reported by participants of their preparedness for college did not match their actual academic performance (Woodcock & Olson Beal, 2013).

Decline in student interest or confidence. Experiencing poor performance in rigorous early college classes is threatening to student interest in the subject taught as well as student self-esteem (Alaie, 2011). The ECHS of Urban College revealed student negative experiences were associated with poor student attendance and course failure (Alaie, 2011). This early college hosted a high number of students of color and first generation college students that found transitioning to college more difficult than students who had at least one parent who graduated

from college (Alaie, 2011). Similar results were revealed in the study conducted by Ongaga (2010) where early college students revealed lack of confidence in their ability to handle social responsibilities and expectations in college.

Lack of extracurricular activities. A negative feature of the early college high school design discussed in the literature is the absence of extracurricular activities such as sports, band, and student clubs (McDonald & Farrell, 2012; Thompson & Ongaga, 2011). The social aspect of the traditional high school with all its activities and events does not exist on the campus of the ECHS. Students have to make the hard decision of giving up participation in these activities when moving to an early college high school. Furthermore, students reported that the rigor of college courses required them to spend a longer time studying which prevented them from participating in extracurricular activities (Woodcock & Olson Beal, 2013).

The list of outcomes discussed earlier is not an all-inclusive list of positive and negative outcomes of the early college program. More research is needed to find out whether these outcomes, in particular the negative ones are prevalent in other programs as well.

College Readiness

The early college high school is a phenomenon that is derived from the concept of college and career readiness with a focus on enabling students—particularly underserved and first generation college students—to enroll in and graduate from postsecondary institutions. Although all forms of dual credit programs—including dual enrollment, early colleges and middle colleges—aim at allowing students to receive college credit, the fundamental reason for development and implementation of these programs is to promote college and career readiness for high school students. College readiness is thus the framework that underlies dual credit programs.

In defining college readiness, Conley (2007a, 2008, 2010) called for a comprehensive definition that incorporates multiple facets. As explained in the theoretical framework section (see Chapter 1), these facets include skills that students need for success in college. These are: key cognitive strategies (critical thinking, problem solving etc.), key content knowledge and skills (knowledge of course content plus writing and research), academic behaviors (student self-awareness and control, study-skills, work habits, time-management, and social skills to), and contextual skills and awareness (also referred to college knowledge) (Conley, 2007a, 2008).

Studies show a strong correlation between college readiness and student academic achievement. Based on improved results in academic achievement, studies supported the need for “college-readiness” programs for students before they start college. Many college preparation programs are believed to increase student college readiness (Malone, 2009). One study evaluated the impact of the Gaining Early Awareness and Readiness for Undergraduate Program (GEAR UP) on the college readiness of at-risk students (Bausmith & Megan, 2012). The GEAR UP program was implemented in 173 participating schools. Data collected included participation and performance of students on several assessments such as the SAT and AP tests. The GEAR UP program showed positive evidence of improving college readiness outcome for low-income students as reflected in higher participation and better performance on college assessments (Bausmith & Megan, 2012).

Conley (2008) considered the first two facets—acquiring key cognitive skills and content knowledge and skills—as the main factors behind improved test scores, grades, and degree completion. One study that supports this argument examined the teaching methods of three high school teachers implementing a new course for college preparation (Moss & Bordelon, 2007). The study involved incorporating a writing and rhetoric course for one year in a high school

district with students from diverse ethnicities. Teachers and students indicated equally that the class provided opportunities for students to learn critical thinking and reading skills, and to be more prepared for English Placement Tests (Moss & Bordelon, 2007). Another study examined a project where high school teachers were introduced to the Expository Reading and Writing Course (ERWC)—an intervention used to better prepare students for college (Hafner, Joseph, & McCormick, 2010). The ERWC modules were introduced in college preparatory courses over a sample of 23 teachers and their students from five schools in three urban districts in California. Data collected through surveys, teacher observations, and interviews showed that in addition to improving student reading and writing skills, students were more motivated to seek a college education. The program has been implemented in more than 250 schools in California.

The third college readiness facet that Conley (2008) discussed includes academic behaviors or non-cognitive skills. Few studies discuss academic behaviors or non-cognitive factors as college readiness skills. Giuliano and Sullivan (2004) extended the results of their study beyond test scores to non-cognitive behaviors. The authors discussed the effects of a summer program on promoting student growth and college readiness skills. The study examined the Summer Success Program, a four-credit environmental science course that incorporated reading, writing, math, and critical thinking skills. Questionnaires were administered to participating students and out of the 12 students who responded, 11 students gave positive feedback about the effect of the program on college preparation. Students extended the effects of the program beyond the immediate academic benefits and mastering skills to include enhanced independence, maturity, and self-worth (Giuliano & Sullivan, 2004).

There is not one specific indicator that can by itself be representative of whether a particular student is “college- ready” (Venezia & Voloch, 2012). This is clearly represented in

the studies discussed earlier. According to Conley (2007), the measures used for college readiness, such as grades and test scores, are not sufficient signs of whether students are ready for college or not. For example, Venezia and Voloch (2012) indicated that California's Early Assessment Program (EAP), a college admission test similar to ACT, does not address non-cognitive abilities and academic behaviors necessary for college readiness and therefore cannot be used as an indicator for being "college-ready." However, academic behaviors or non-cognitive abilities such as time management and study skills are difficult to measure because of the subjective nature of that data. Due to the difficulty of measuring non-cognitive abilities, many studies in the literature use test scores, grades, and meeting admission requirements as measures of college readiness. A more long-term reflection of college readiness in the literature was postsecondary degree completion or completion of a four-year degree (Porter & Polikoff, 2011).

The effect of implementing college readiness skills is most profound on first generation college students, minorities, and underserved students. One study discussed how first-generation college students perceive college readiness (Byrd & MacDonald, 2005). Participants in the study were eight first generation college students from a small urban university who graduated with associate degrees. Student interviews and journal entries revealed that participants perceived college readiness skills and abilities as the most important catalysts of their academic success. Students emphasized skills such as time-management skills, goal-focus, and self-advocacy as more pertinent to their positive academic achievement than academic skills such as reading, writing, and study skills. The ECHS—with its focus on underserved, minority, and first-generation college students—advocates for teaching and implementing non-cognitive college readiness skills such as proper time management in addition to core academic skills and key

cognitive skills. These college readiness skills help students manage their academic success and survive in the accelerated learning environment of the early college high school.

The fourth college readiness facet that Conley (2008) discussed includes contextual skills and awareness or what Conley (2005b) referred to as college knowledge. This facet is given particular attention in Conley's research in his published book titled, *College Knowledge* (2005). This facet is discussed in greater detail in the next section.

Conley's fourth facet: College knowledge. Of particular importance to my study is Conley's fourth facet of college readiness that he referred to "college knowledge." This facet is relevant to this study of the early college program due to the large number of underrepresented and underserved students enrolled in the program that this study examines. College knowledge involves acquiring academic behaviors that help students become college ready. Students need to have college knowledge in order to successfully participate in postsecondary education (Conley, 2005b, 2008). Students who possess college knowledge understand complicated college admission and selection procedures, are aware of opportunities for help in college and the requirements of college courses, and understand the difference between high school and college (Hooker & Brand, 2010). This understanding of college processes and dynamics—or college knowledge—is tied to students' social and cultural capital (Welton & Martinez, 2013). In fact, a student's decision about college is influenced by his/her social and cultural capital—a combination of characteristics such as ethnic background, socioeconomic status, family characteristics, and cultural background (Bourdieu 1994; McDonough, 1997). Social capital stresses the significance of networking and community assets that benefit one's productivity (Coleman, 1988). Cultural capital is a system of personal qualities and characteristics, such as language, and is transmitted immediately through family (Bourdieu, 1994).

Student SES and ethnicity are important determinants in student college enrollment decisions (Perna, 2006). Barnes and Slate (2014) examined college readiness rates across the state of Texas. Using data from the Texas Educational Agency (TEA), rates of college readiness for high school graduates from different ethnic backgrounds over a period of three years were examined. The study was framed using Bourdieu's cultural reproduction theory. Barnes and Slate (2014) indicated that "Bourdieu's cultural reproduction is relevant to college readiness rates because parents' level of education, learning, and occupational and social success are primary influences on their children's academic success" (p. 62). The study revealed that college readiness rates in Texas based on the TEA college readiness indicators improved from 31% to 39% over a three year period (from 2006 to 2009). However, there was a 17% difference in college readiness rates between White and Hispanic students, the same in 2009 as it was in 2002, and a 21% difference between White and African American students.

High schools should work on helping students develop college knowledge standards (Conley, 2005b; Roderick, Nagaoka, & Coca, 2009)—particularly for students who lack social and cultural capital. One way of helping students develop college knowledge is through college readiness counseling at the high school. Savitz-Romer (2012) indicated that school counselors who help students with future plans and provide information regarding postsecondary enrollment are a valuable form of social capital. College readiness counseling can be helpful for underserved and first generation college students. One study interviewed 11 counselors from urban, high-poverty high schools (Savitz-Romer, 2012). Findings of the college readiness counseling process reflected students' low expectations for their ability to make it to college and family financial concerns about college, but most profoundly that both students and their families lacked college knowledge (Savitz-Romer, 2012).

Critique of Conley's framework. Conley's conceptual framework of college readiness has been applied in many studies of college readiness since its introduction in 2007. Two recent studies that incorporated Conley's framework are Bragg and Taylor's (2014) college and career readiness pilot program and Schaefer's (2014) study of the college immersion program. Bragg and Taylor (2014) presented short term results in mathematics and English for student participation in the college and career readiness pilot program at two sites in Illinois: Prairie College and River College. Although the two sites provided slightly different results, the study revealed an understanding of how the pilot program results aligned with Conley's four facets of college readiness. Building on literature that indicated that middle school years are critical for college and career readiness, Schaefer (2014) re-conceptualized the facets of college readiness illustrated by Conley (2007) to reflect the experiences of middle school students at a one-week College Immersion Program. Analysis of data revealed that underserved seventh and eighth grade students who participated in the immersion week developed college knowledge and that they appreciated learning about the campus and about how college courses and professors worked. Students were also able to develop positive attitudes toward college. Although the four dimensions used in the study did not appear nested inside each other as in Conley's framework, the results were still informative of student perceptions and experiences at the College Immersion Program (Schaefer, 2014).

While Conley's framework has often been adopted, it was found faulty in some ways. Welton and Martinez (2013) indicated that "Conley's model appears to be a one size fits all approach, not considering the contextual needs of the high school as well as the cultural identities of the students, families and the community it serves" (Welton & Martinez, 2013, p. 200). In addition, Conley's research on college knowledge emphasized social capital but failed to

guide underrepresented students (first generation, low SES, and students of color) in how they can find valuable information that allows them to be prepared for or connected to college (Welton & Martinez, 2013). Castro (2013) used Conley's framework to assess college and career readiness in Illinois and found that the framework is helpful but needs augmentation in certain areas. Castro (2013) argued that Conley's framework is not enough to explain college readiness because it does not take into consideration student race and socioeconomic status. In critiquing Conley's framework, Castro (2013) called for an agenda that focuses on equity and suggested the need for intervention in college and career readiness programs by positioning the college readiness framework within a more equitable racial and socioeconomic context. Castro (2013) concluded that Conley's framework does not help practitioners develop and evaluate intervention programs that are pertinent to student race and SES, nor provide ways to address how this educational inequality affects college and career readiness.

Aligning dual credit programs with the college readiness framework. As evident from the discussed literature, dual credit programs are aligned with the college readiness framework. Some aspects of this alignment include the following:

Reducing remediation. Conley emphasized enrollment in credit bearing courses without remediation when defining college readiness. One of the main purposes of dual credit programs is to reduce enrollment in remediation courses. Some states provide dual enrollment programs in hope of reducing remediation (Krueger, 2006). For example, in order for all students to benefit from dual enrollment, Minnesota mandates dual enrollment programs and offers the programs free to students. The state also sets certain requirements that prohibit students from taking more than two years of college courses within the programs and they are not permitted to enroll in developmental or remediation courses (Krueger, 2006).

Improving college knowledge. Students and parents from low-income backgrounds should have better access to information regarding dual credit programs. The early college program and some dual enrollment programs provide information regarding college access. For example, California State University has publicized for the Early Assessment Program (EAP) and Washington law requires school districts to give parents access to information regarding requirements for college admission and dual enrollment options (Krueger, 2006).

Promoting equity. Conley's college readiness framework has been criticized for not being equitable (Castro, 2013; Welton & Martinez, 2013). While Conley's framework overlooked equity in defining college readiness, the main concern of early college programs is equitable access for students from underrepresented populations in dual credit programs. This equitable approach includes programs like "College Now" at the City University of New York (CUNY) which is committed to serving underserved students. At this CUNY program, students enroll and graduate with a high school diploma and an associate degree and are mainly from low-income backgrounds. Demographics of students at College Now in 2003 indicated that out of the 14,000 students enrolled, 22.2% were African American, 20.2% were White, 18.8% were Latino and 20% were Asian (Krueger, 2006). Data provided regarding enrollment of minority students in College Now suggested that this model would incorporate underrepresented students in dual credit programs. Similar approaches allow equal access to all students, such as Utah's provision of dual enrollment in all school districts and state colleges (Krueger, 2006).

Implementing rigor. Conley (2005a), Adelman (2006), and Bloom (2011) called for a rigorous high school curriculum that prepares students for college. One of the main foundations of dual credit programs, in particular the early college, is to implement a rigorous curriculum. In his analysis of dual credit programs, Krueger (2006) suggested that "creating a mechanism for

moving students through the system without paying attention to rigor or quality is a waste of student time and state resources” (p. 5). One way of implementing rigor is through collaboration between K-12 and postsecondary institutions. Alford et al. (2014) evaluated the implementation of an initiative to reinforce math and science teaching in low-income rural high schools. The project called Systemic Texas Educator Preparation Sites (STEPS) was a collaborative effort of university professors, high school teachers, and pre-service teachers to align high school courses with Texas College and Career Readiness Standards (CCRS) so that more students from low-income schools can access higher education. Results revealed that transitioning to a more rigorous curriculum requires time and continuous collaborative effort (Alford et al., 2014).

Aligning standards. Conley (2010) recommended ways for aligning standards between high school and college courses. The introduction of the Common Core State Standards (CCSS) in 2010 has provided a better understanding of the knowledge students should acquire for college and career success. CCSS are rigorous standards that focus on common college and career readiness standards across states. The Center on Education Policy provided data on high school assessment policies regarding college and career readiness. While the standards have been adopted by 44 states, the report indicated that 27 of the 31 states that have exit exams are developing common assessments aligned with the CCSS. In addition, 16 states currently offer assessments that test student college and career readiness (McIntosh, 2011). Conley, Hiatt, et al. (2010) addressed aligning high school and college courses and summarized findings of five studies related to the Texas College and Career Readiness Initiative (TCCRI). The first project aimed at development of the Texas CCRS in 2007 in partnership with the Educational Policy Improvement Center (EPIC), the Texas Higher Education Coordinating Board (THECB), and the Texas Education Agency (TEA). The second study validated Texas CCRS versus entry-level

college courses and analyzed 930 syllabi of 20 courses taught at Texas colleges and universities. The aim of the study was to compare the CCRS to the standards in these courses. This study was significant in being the first of its kind to validate the CCRS by employing syllabi of taught courses and instructor reviews. The third project included creation of 18 reference course profiles aligned with CCRS that represented what is taught in entry-level college courses. The fourth project aligned the CCRS with requirements in entry level career and technical education courses (CTE) taught at two-year postsecondary institutions in Texas. Finally, the fifth project included aligning placement tests used in Texas colleges and universities with the CCRS.

Developing career readiness. Although the concepts of college readiness and career readiness are identical, they are not exactly equal (Conley, 2012). While content knowledge for both may be identical, the career pathway is more focused in one area. However, the similarity lies in the skills needed for both—such as ownership of learning behavior, motivation, and ethical conduct (Conley, 2012). The states of Washington and Wisconsin provide different dual enrollment options for students planning to go to a four-year university from those offered to students interested in technical and career programs (Krueger, 2006). The Perkins Career and Technical Education Improvement Act of 2006 and the American Diploma Project Network (ADP) focused on graduating high school students with the skills that make them college and career ready (Meeder, 2008) through rigorous and challenging coursework in their programs of study. Some early college high schools are career-oriented programs that provide high school students with the opportunity to graduate with an associate degree in a technical field.

Assessing college-level learning. College readiness literature includes studies that can help identify the outcomes of dual credit programs, in particular the early college program. The following are two related college readiness studies:

A college readiness measure. Data regarding student demographic characteristics and performance—particularly for low-achieving students—and research measuring college-level learning can be helpful to identify student college readiness. The EPIC investigated student demographic and performance data, school characteristics, performance indicators, college readiness programs, and data from ACT and SAT from 38 high schools in 2007-2008 in order to create a valid measure of college readiness (Conley, McGaughy, et al., 2010). Researchers included schools with high percentages of low-income, minorities and under-represented students in higher education. The study resulted in the development of the CollegeCareerReady School Diagnostic. Employing teacher and administrator surveys based on the four facets of college readiness, this diagnostic provides information related to every school's college readiness practices and follows up on the school's annual progress. The instrument also provides recommendations for improvement. Users of CollegeCareerReady School Diagnostic have reported that simply reading the survey questions triggered ideas for how to prepare students for college (Conley, McGaughy, et al., 2010).

A measure of rigor. Studies that evaluate the quality of high school instruction—particularly regarding the implementation of rigor in high school courses—can also contribute important information to college readiness literature. Wiley et al. (2010) attempted to evaluate student college readiness while incorporating a measure of rigor in high school courses. The College Board designed and validated a multidimensional index of college readiness through combining SAT scores, high school GPAs, and completed rigorous coursework (Wiley et al., 2010). SAT scores and self-reported high school GPAs were obtained for the 2007 graduating seniors. An Academic Rigor Index, a measure of the level of difficulty of student high school work, was derived from student responses regarding high school courses (honors, dual

enrollment, or advanced placement). Data collected and the calculated index revealed that 31.9% of students graduating in 2007 were estimated to be college ready. Results of the 2009 senior class by ethnicity revealed that 42.7% of Asian American students, 38.2% of White students, 9.8% of African American, and 17.8% of Hispanic students were college ready. Although the study had limitations—such as using self-reported student grades rather than transcript grades—the index provided multiple measures for college readiness and developed readiness indicators that can assist schools for early detection purposes (Wiley et al., 2010).

Conclusion

College readiness is the common foundation for dual credit programs including dual enrollment and the early college high school. Conley's work in the field of college readiness is considered innovative in providing an operational definition and a theoretical framework with four interconnected facets that describe college readiness. Conley (2010) called for "a college-going culture," alignment of courses between college and high school, implementation of academic skills and behaviors, developing student college knowledge, and providing academic rigor in high school courses. Most importantly, Conley (2010) called for building connections and partnerships with postsecondary institutions that promote college readiness and that act as channels to transmit college knowledge. Dual credit programs, including the early college high school, constitute an essential form of these collaborations.

Dual credit programs allow high school students to earn college credits and experience college classes. This literature review provided an analysis of dual credit programs with their benefits, growth, funding, enrollment policies, impact on student populations, and student access. Recent efforts in the field of dual credit programs have been aimed at improving collaboration, funding, and access. Literature on the early college high school program, a result of partnership

between high school districts and community colleges or four year institutions, suggested that the students who benefit most from the program are low-income and first generation college students who lack college knowledge. Research also revealed higher rates of postsecondary enrollment, improved academic achievement, increased rates of postsecondary degree completion, and enhancement of college readiness skills for students who participate in the program.

It is important to note that research on the perceptions of students enrolled in the program is scarce. Few studies within the literature have discussed perceptions of students at early college programs. This research study analyzes the college readiness skills of students enrolled in one early college program. This study aims to understand the college readiness of students through the analysis of student and teacher perceptions. By choosing an early college program with a focus on health careers, the study approaches the framework of college readiness from a new perspective. A description of the early college program chosen for the study is provided in the following chapter. The study discusses student perceptions and teacher perceptions of acquired college readiness skills within the chosen early college program, thus providing insight into how students perceive their experience at the early college and the extent to which this experience has prepared them for college.

Chapter 3: Methodology

The purpose of this study was to understand the perceptions of graduating early college students regarding their program experiences and to examine the effects of the early college experience on student perceptions of their college readiness and college success. The early college program is an accelerated learning program that is designed for underserved and first generation college students. The early college is built on the three R's framework of rigor, relevance, and relationships. This study uses this framework to examine perceptions of graduating students of their experiences within the program. The literature indicated that the early college program improves student enrollment and completion of a postsecondary degree, and impacts student college readiness skills. However, the literature demonstrated a lack of agreement and a diversity of opinions about how to define college readiness (Conley, 2007; Porter & Polikoff, 2011). Conley (2010) attempted to define college readiness by identifying four areas where students develop necessary skills to be college-ready. The four areas include acquiring key cognitive skills, understanding content knowledge in the subjects studied, acquiring academic behaviors or non-cognitive skills, and being familiar with college admissions, relations and processes (Conley, 2008). This study used factors identified in Conley's definition of college readiness as a lens through which student perceptions of their experiences in the early college program are examined. Student performance on achievement exams such as the ACT and meeting requirements for college admissions have been used in the literature as indicators of college readiness (Roderick et al., 2009) but were not considered effective measures (Conley, 2007; Maruyama, 2012). Therefore, data regarding ACT scores

were not collected for the study. Although not considered a pure measure for college readiness, research indicated that school grades and GPAs are better indicators of college readiness than ACT and SAT scores (Adelman, 2006; Atkinson & Geiser, 2009; Geiser & Santelices, 2007). In this study, GPAs of graduating students were presented to reflect on student academic achievement but were not used as an indicator that explains student college readiness.

Description of the School

The early college high school in this study is the Howard Early College (HEC) located in the Midwest. Howard Early College (HEC) is a suburban five-year high school with a large number of immigrant students. HEC is located on the grounds of a community college and is part of the Davis Public School (DPS) district. HEC works in collaboration with the local health care system and with the community college to which it belongs. At the conclusion of grade 13, students receive a high school diploma from DPS and an associate degree from the community college if they complete all required credits. The emphasis of HEC is on health careers. As HEC students advance through the five-year program, they concentrate their coursework toward being certified in one health-related field—such as physical therapy, radiography, respiratory therapy, surgical technology, emergency medical services, or nursing. Students also have opportunities to participate in clinical experiences at the local hospital where they observe health care operations and volunteer in order to develop as effective health care providers as they proceed in the program. When the program started in 2008, the HEC planning committee projected to include 250-300 students in all grades (grade 9 through grade 13). Starting in 9th grade, 60% of students at HEC are recruited from the DPS school district and 40% come from neighboring school districts. Students apply for the program while they are still in eighth grade and have to sit for a

basic math and reading test. If students meet the program admission requirements, their names are entered into the list of prospective students and are selected for enrollment based on a lottery.

When this early college started in 2007-2008 school year, the public school district in which it is located was considered the fifth largest school district in Michigan and served about 18,000 students from diverse socioeconomic and ethnic backgrounds. Approximately 40% of the students qualified for free or reduced lunch and about the same percentage of students qualified for English as a Second Language (ESL) instruction (HEC, n.d.). Since students at HEC are recruited from DPS and from surrounding districts, students at HEC reflect the characteristics of the DPS and the neighboring school population. According to 2010 enrollment information, 65% of the students were Caucasian, 27% were African Americans, 4% Hispanic, 3% Asian, and 1% Native American.

According to the project abstract for HEC, the DPS district was interested in increasing career opportunities, increasing postsecondary degree completion rate, and improving the number of students entering postsecondary education. Students entering the health care field should acquire certain skills that are necessary for academic growth and for finding jobs after graduation. According to project abstract, students in health careers are required to be creative problem solvers and effective communicators. In addition, students should display strong leadership qualities and adaptability. This explains the focus of the program on skills needed for student successful college completion and for being ready to be employed in health careers.

To emphasize the focus of HEC on rigorous education in health care as well as relevance to work life and strong collaboration relations between partners, the mission, vision, and belief statement of HEC are included in the following section:

School mission: Building positive and collaborative relationships between parents, faculty, students, and partnership stakeholders, Howard Early College will prepare a talented group of diverse students for careers in the health care industry while promoting a safe and orderly environment that will be academically challenging, technologically innovative, and designed to promote higher level thinking skills through active participation. (HEC Project Abstract, n.d., p. 17)

School vision. Students who successfully complete the requirements of the program will:

- Have the necessary knowledge, training, skills, and experience to be immediately employed by the Health Care industry in their chosen career pathway.
- Have the academic and collaborative skills necessary to successfully work with diverse groups of individuals in society.
- Have the ability to demonstrate knowledge and skill attainment through extended intern and externship experiences.
- Through exposure to leading edge and innovative technology, adapt to an ever-changing and technical social world. (HEC Project Abstract, n.d., p. 17)

Belief statements:

- All students can learn especially when provided with adequate and immediate support structures.
- A safe, supportive, and orderly school environment supports learning.
- Diversity must be recognized and respected.
- Character education, defined by established Core Values, is paramount to proper student development.

- Positive, collaborative expectations will promote academic and social achievement in an ever changing society. (Project Abstract, n.d., p. 17)

Proposed Method

The reviewed literature revealed an existing gap in qualitative research regarding student perceptions of the early college program (McDonald & Farrell, 2012). In particular, research that addresses how students at the early college program perceive their experiences and how the program affects enrolled students is minimal. There is lack of research studies that discuss student perceptions regarding their college readiness skills as a result of participating in these programs. To address this gap in the literature, this study examined student perceptions of their experiences at the Howard Early College and the ways in which these experiences have impacted their college readiness skills using Conley's indicators of college readiness. Participants in this study were students graduating from the Howard Early College and who were interested in a postsecondary degree in a health-related field. Considering that the students in this study were interested in health science programs or health careers, this study shed light on how students who made these career choices perceived the ways in which this program prepared them to pursue a degree in the health field through providing the necessary college readiness skills. To provide triangulation of data sources, the study also included perceptions of educators who teach at the Howard Early College. Perceptions of teachers provided another source of data and offered insight into student experiences and student college readiness. These perceptions of students and teachers in the program could be best examined through a qualitative research paradigm.

The Qualitative Research Paradigm

The research paradigm that was most appropriately fit for this study is a qualitative paradigm. The study researched the perceptions of selected early college students regarding their

college readiness skills in the program they were enrolled in, particularly those enrolled in health careers. The study also examined the perceptions of early college teachers regarding the experiences and the college readiness of their students for triangulation of data sources. The research questions guiding this study addressed the relationship between the experience that students encountered at the early college program and student college readiness skills. The primary participants were high school students at the Howard Early College (HEC) who graduated in May of 2016. Other participants in the study included teachers from the early college high school.

Interviewing was the primary method used for data collection. The exploration of aspects of the early college program through interviews with a participating sample of graduating students from the Howard Early College—as well as participating early college teachers— informed this study regarding perceptions of student experiences and student college readiness.

Study Design

A phenomenological research approach was used for this study. Phenomenological research describes “the meaning of a concept or phenomenon that several individuals share” (Marshall & Rossman, 2011, p. 148). The phenomenological approach is intended to “explore, describe and analyze the meaning of individual lived experience” (Marshall & Rossman, 2011, p. 19) by identifying individual and common elements in the experiences of participants (Lodico, Spaulding, & Voegtler, 2010). The phenomenon that is being studied here is the experience of students at the early college program regarding their college readiness. Common emerging themes and outstanding emerging themes were explored across interviews to inform this study regarding student experiences in the program and their perceptions of college readiness.

Sample

A convenience sample of fifteen students was selected to participate in interviews to better understand student perceptions of their college readiness at the early college program. The sample only included students from the class of 2016. Interviews with students took place in May and June of 2016. At the time of the interview, students had just graduated and were getting ready to start college courses at the university level. The age of students in the sample was 19-20 years. As recent graduates from the program, students who graduated in 2016 could recall and provide detailed insight into their experiences in the program and how they perceived that the program had helped to improve their college readiness skills. Students were also able to inform the study regarding the programs they were pursuing—particularly those that were related to health careers.

As an instructor at the early college program selected for the study, the researcher was provided an opportunity for day to day interaction with early college students and teachers and this facilitated recruitment of the sample required for interviews. Students graduating in May 2016 were recruited during their last school meeting at the early college. During the meeting, the researcher informed the students about the purpose of the study and asked them to provide their contact information (email addresses and phone numbers) if they were willing to participate. Students were informed that they would be contacted through an email message sent by the researcher or through a phone call to schedule interviews.

In addition to the student sample, four of the seven early college teachers were interviewed to allow for triangulation of data. Early college teachers instructed students in 9th, 10th, and part of 11th grade. Teacher interviews were conducted to collect data about student experiences at the early college and to provide data regarding student college readiness from

different perspectives. Teachers were interviewed in September of 2016 after the student data has been collected, transcribed, and analyzed. This process helped to clarify themes from student interviews. In addition, demographic and program data from public school documents were used to provide insight into student demographics, student academic achievement, and program success.

Data Collection Procedures

Semi-structured interviews were used to collect data from graduating early college students and from early college teachers. The semi-structured interviews were conducted with selected students at the site of the early college high school after both the researcher and the participant agreed on the time and location, and after permission was granted from the principal to use the facility (see Appendix B: Student Interview Questions). Interviews were audio recorded and then transcribed. Data collected from student interviews informed the study about the reasons for student enrollment in the program as well as student perceptions of the program and the future plans of students. Most importantly, data from student interviews contributed to understanding student experiences in the program and how these experiences impacted the college readiness of selected early college students. Students were asked about demographic data such as student ethnicity and parent educational background (as an indicator for first-generation college students). Students were also asked to be contacted for multiple interviews if needed.

Teacher interviews were also semi-structured and were conducted at the Howard Early College (see Appendix C: Interview Questions for Early College Teachers). Teacher interviews were conducted after transcribing and analyzing data from student interviews. Scheduling teacher interviews at a later stage after the analysis of student data allowed for follow up on common themes and on outstanding themes. Interviews with teachers informed the study

regarding how teachers view their student experiences at the early college through the lens of college readiness and using Conley's four facets. Questions were directed toward how teachers felt about their students' cognitive skills, content knowledge, academic behaviors, and contextual skills and awareness. Interview questions also focused on understanding how the 3 R's framework (rigor, relevance, and relationships) influenced student perceptions of their college readiness. Specifically, questions were directed toward understanding how teachers thought that their students perceived the rigor of the curriculum. Questions also sought to understand teacher views of how students perceived that the early college experience could be relevant to their future college and career plans. In addition, interview questions aimed to understand what educators believed regarding student perceptions of the early college relationships. The researcher also analyzed analytic memos or notes that were written after the interviews. These notes provided insight into non-verbal communication and other information that could be of value during the analysis of data.

Student interview questions were categorized to reflect the chronological order of events and the five years of study as students proceeded through the program. Questions also reflected the three R's framework and the four facets of college readiness. Questions varied slightly from one student to another based on the student experiences and perceptions. Before interviews were conducted, students were informed about the nature of the study and that their answers will be kept confidential and anonymous. Students were informed that they could skip any questions that they did not feel comfortable answering and that they could withdraw from the study at any time. Students signed a consent form and were asked to approve of the interviews being audio recorded. Interviews took place in a classroom at the early college. The duration of each

interview varied between 40 and 50 minutes. Follow-up interviews were scheduled as needed. Three interviews were scheduled for follow up; each of them lasted for 5 minutes.

Similar to student interviews, teacher interview questions were also categorized to reflect the chronology of events at the early college, the three R's framework, and the four facets of college readiness. Teachers were informed about the nature of the study and about confidentiality and anonymity. They were asked to sign consent forms. The interviews took place either in the teachers' classrooms or the faculty lounge at the early college. The duration of each interview varied between 30 and 45 minutes. Follow-up phone calls or emails were used to collect more data if needed.

Connecting Method to Research Questions

The first research question guiding this study was: "What are the perceptions of students graduating from an early college program regarding their experiences within the program?" Based on this research question, the following sections address the three sub-questions and the types of data that were collected to answer each sub-question:

- 1) What are the perceptions of graduating early college students of the program rigor? Data collected to answer this question were student perceptions of the rigorous program at the early college and student thoughts of the differences between high school and college courses. Interview questions aimed to understand how students were able to overcome the challenges of rigor and how the rigorous curriculum helped students to be more prepared for college courses.
- 2) What are the perceptions of graduating early college students of the program relevance? Data collected to answer this question were student perceptions of the hospital experience and how this experience had helped relate their academic life to future career plans in

health professions. Data were also collected regarding student perceptions of extracurricular activities at the early college and how their participation (or lack thereof) in school activities had affected their early college experience.

- 3) What are the perceptions of graduating early college students of the relationships in the program? Data collected to answer this question were perceptions of students of their relationships with their teachers, counselors, and peers at the early college. Participant perception data of how the relationships at the early college had impacted students' progress in the program were also collected.

The second research question guiding this research was: "How do graduating early college students feel that their experiences have helped them develop their college readiness skills?" Based on this research question, and aligned with Conley's framework, the research sub-questions are listed below with the types of data that were collected to answer each sub-question.

- 1) How do students graduating from an early college program feel that their experiences have helped them to develop their key cognitive strategies? Collecting data to answer this question focused on whether and how students acquire core academic skills, such as critical thinking and problem solving skills during their enrollment at the early college program. Student perceptions of their key cognitive skills were assessed from student and teacher interviews—particularly through questions that inquired about student experiences in subjects that required critical thinking, analysis, and inquisitiveness.
- 2) How do students graduating from an early college program feel that their experiences have helped them to develop their academic knowledge and skills? Data collected to answer this question focused on student understanding of the content knowledge in the subjects studied, particularly in content related to health sciences as well as overarching

academic skills, such as writing and research. Students and teachers were asked about student perceptions of content knowledge in the courses they have completed and about how they acquired and applied the key content skills needed in college courses, with a specific focus on writing and research.

- 3) How do students graduating from an early college program feel that their experiences have helped them to develop their academic behaviors? Learning non-cognitive skills that indicate college readiness cannot be directly measured and require an understanding of student academic life and non-cognitive experiences—such as time management skills, study skills, and self-awareness. These were reported through interviews with both students and teachers. Students reflected on how they applied these skills in both their high school and in their college courses. Teachers were asked for their perspectives of their student academic behaviors.
- 4) How do students graduating from an early college program feel that their experiences helped them develop their contextual skills and awareness? Being familiar with college admissions, relations, and processes was assessed through understanding how students and teachers viewed the processes that provided students with college knowledge. Questions in the interview focused on how students perceived that the early college had helped them in understanding college requirements and whether enrollment in an early program had helped them to better integrate into and understand the college culture.

Data Analysis

Recorded interviews with participating students and teachers were transcribed verbatim. Analysis of transcribed interviews took place through coding and categorizing data. A priori coding using Conley's four facets and emergent coding was used for data analysis (Saldana,

2009). First cycle and second cycle coding methods were employed. For first cycle coding, elemental methods such as “in vivo” and “initial” coding were most convenient for the nature and type of collected data. Initial coding involves breaking down data into separate parts and examining the different parts to find out similar and different codes. It requires analyzing the data line by line. These codes are generally tentative and can be reworded later (Saldana, 2009). In-vivo coding was also used to reflect the exact words of the participants. This type of coding is useful because it allows the researcher to convey the culture and worldviews of participants (Saldana, 2009). Affective coding methods such as “Values” coding was also used to explain how participants value college education and degree completion.

For second cycle coding, pattern coding and focused coding methods were used. These coding methods were chosen because they are considered best matches for initial and in-vivo methods (Saldana, 2009). Pattern coding involves inferring from existing codes to identify and emerging theme. Focused coding involves looking for the most frequent initial codes to develop categories (Saldana, 2009). Broad categories were formed from codes and led to emerging themes regarding the college readiness of students enrolled at the early college program. Comparing themes emerging from different sources of data (interviews with students and teachers) allowed for triangulation and for final analysis and interpretation.

Validity Approaches

Validity in qualitative research is referred to as credibility. The term credibility indicates “whether the participants’ perceptions of setting or events match up with the researcher’s portrayal of them in the research report” (Lodico et al., 2010, p. 169). Credibility in this study was maintained by triangulating the data sources. Sources of data included interviews with participating students and teachers at the early college. In addition to triangulation of data

sources, the increased time spent in data collection allowed for nurturing strong relationships with participants and led to increased credibility within the study. Other approaches that were used included member checking. Transcribed data was shared with interviewed students and teachers to ensure that their intended responses matched the transcripts. Students and teachers were asked to inform the researcher of any corrections that need to be made. Finally, peer debriefing, where the researcher was able to discuss results with a colleague, was used as another credibility approach.

Reliability Approaches

Reliability or dependability refers to tracking procedures and processes used to collect and interpret data (Lodico et al., 2010). Checking student and teacher interview questions with peers and reviewing transcribed data from the interviews were ways to ensure the reliability of the study. In addition, by examining the definitions of codes as well as the explanation of methods, the researcher was able check for the reliability of instruments and procedures used for this study.

Transferability

Transferability can be judged by “the degree of similarity between the site studied and other sites as judged by the reader [and] is assessed by looking at the richness of the descriptions included in the study.” (Lodico et al., 2010, p. 173) As a qualitative study, transferability of this study or use for a similar research is not possible unless the new research takes place at a site where the characteristics of the site and the demographic data of participants are very similar to the description of participants and site location in this study.

Ethical Considerations

Ethical issues were carefully considered while conducting this study including obtaining permission for data collection and maintaining confidentiality of student data. For this project, the principal at the early college was informed about the purpose and scope of the study and his permission to conduct the study was granted before contacting the students and teachers for recruitment. In addition, approval from the research coordinator in the school district was obtained. Since this early college high school is a result of collaborative effort between the school district and the community college, approval to perform this study was also granted from the review board of the community college that houses the early college in this study. Furthermore, approval of the study from the Institutional Review Board (IRB) of the University was obtained before proceeding to data collection. Information regarding the research proposal and the instruments used were checked by the IRB committee before giving approval to proceed. Since students selected were over 18 years of age, no parental consent was needed. However, consent of students and teachers participating in the study was obtained. Students and teachers signed the consent forms before participating in study. Consent forms explained the purpose of the study including risks (if any) and benefits pertaining to conducting this research. Participants were also asked to consent for the audio recording of interviews through the use of a digital recorder. Before conducting the interviews, participants were informed that they may refuse to answer any of the questions that they do not feel comfortable answering or discontinue participation at any time. Contact information of the researcher was provided on the consent forms. Participants received one signed copy of the consent form and the original copy was saved with the study records and kept in a secure location. Confidentiality and anonymity of collected data were ensured. Student information and responses were kept anonymous.

Pseudonyms were used for the early college in the study, the school district, as well as the students and teachers interviewed. Data collected and transcribed was stored in a locked cabinet and will be destroyed six months after the completion of the study. Study information was also saved in files and folders on a password protected computer.

Critical Self-Narrative

The main limitation of this study is the researcher's bias due to the nature of this qualitative research. Recognizing the role of the researcher as the primary instrument in qualitative research, the researcher monitored subjectivity through the use of a research journal. Because the position of the researcher in relation to participants and to the context of study had the potential to inform results, the research journal allowed to record and critically analyze responses, interpretations, and thoughts throughout every stage of the research to exclude personal perceptions that could impede understanding of the perspectives of participants.

A short self-narrative about the researcher is included here. The researcher is a college instructor who taught health science courses for students at the early college program examined in this study. The researcher's interest in conducting this study has emerged from interaction with students and teachers at the early college program for a period of seven years. Concurrent with teaching college courses to early college students, the researcher has also taught introductory courses in health careers for traditional college students. Recognizing the number of students who ended up not pursuing careers in health care, the researcher questioned whether the early college program could help reduce the student attrition rate through early exposure to and enrollment within this health care field. Because the early college program exemplifies a form of dual credit that aims to improve student enrollment in postsecondary education, the researcher also questioned how students graduating from this program felt that this exposure had helped

improve their college preparation and their college success. Similar to the background of students participating in the early college program, the researcher immigrated to the United States and worked on completing a postsecondary degree. As a student and an immigrant, the researcher could relate to the difficulties that students in the early college program struggled with such as getting used to the school system and integrating in the college culture. This common background, along with the interest in the research topic, motivated the researcher to conduct this study.

Chapter 4: Analysis of Data from Student and Teacher Interviews

This chapter presents data from interviews with students and teachers at the early college. Interview data were collected to answer the first research question: “What are the perceptions of students graduating from an early college program of their experiences within the program?” and the three related sub-questions: “What are the perceptions of students regarding the program rigor?”; “What are the perceptions of students regarding the program relevance?”; and “What are the perceptions of students regarding the relationships within the program?” Interview data were also collected to answer the second research question: “How do graduating early college students perceive that these experiences helped develop their college readiness skills?” and the four related sub-questions: “How do students graduating from an early college program perceive that their experiences have helped develop their key cognitive strategies?”; “How do students graduating from an early college program perceive that their experiences have helped develop their key content knowledge and skills?”; “How do students graduating from an early college program perceive that their experiences have helped develop their academic behaviors?”; and “How do students graduating from an early college program perceive that their experiences have helped develop their contextual skills and awareness?”

Data from both student and teacher interviews are arranged in this chapter based on the chronology and order of interview questions. Interview questions first discussed factors affecting early college enrollment. Next interview questions addressed the three R’s framework of the early college program (rigor, relevance, and relationships) from both student and teacher perspectives. The three R’s of the early college framework were discussed to allow readers to

learn about student experiences at the early college. This section also set the stage for discussing the four facets of college readiness. After discussing the framework of the early college, questions shifted to how students perceive that the early college experience has influenced their college readiness skills. Presentation of data corresponding to college readiness is based on how collected data was relevant to each of the four facets of college readiness (key cognitive strategies, key content knowledge, academic behaviors, and contextual skills) and how this data could lead to emerging patterns and themes. In addition to results from student and teacher interviews, this chapter presents demographic data and student academic achievement data for the graduating class of 2016 and for the 15 students who were selected from the class of 2016 for interviews. The chapter also includes a brief description of the five year curriculum sequence at the early college program.

Description of the Curriculum

The curriculum at the early college high school is an integration of high school courses that fulfill state requirements and college courses that correspond to the requirements for an associate degree in either general science or applied science. The program consists of courses that are distributed over a period of five years. In 9th grade, students are required to take language arts and algebra I, which correspond to their required high school credits in English and math. Students also have to take their social studies credit during that year by completing their world civilizations course. They also take two science courses (biology and physics). In addition, students are required to successfully finish one credit of allied health through completing hospital rotations every Wednesday during their freshman year. In 10th grade, students have to take language arts, geometry, and history for high school state requirements. They take two more science courses (anatomy and chemistry). They also complete two college courses: college

success (COLL 101) and medical terminology (AH 100). Similar to 9th grade, students have to finish another credit of allied health—a course titled *Introduction to Health* (HCS 124), which entails another two semesters of hospital rotations, clinical shadowing, and laboratory experiments at the health care setting with which this early college collaborates. In 11th grade, students spend half of their school day at their early college high school and the other half taking college courses on the college campus which houses this early college high school. School courses include language arts, algebra II, a semester of an economics course, and another semester of a government course. College course requirements vary depending on the associate degree or the track that the student chooses. For an associate degree in general science, students complete the following college courses and credits: 8–10 credits of chemistry, 15–18 credits of biology, 6–8 credits of math, 8 credits of English, 8 credits of humanities and 9 credits of electives (political science, psychology, sociology, etc.).

Students who plan to graduate with an associate degree in applied science have to complete the requirements of the health career they choose to pursue. These courses vary based upon the track chosen by the student. Appendices D, E, and F illustrate the required sequence of courses for students enrolling in three applied science programs: pre-nursing (see Appendix D), surgical technology (see Appendix E) and emergency medical services/paramedic (see Appendix F). Certain college courses, such as biology and chemistry courses, that are required for the general science track are also common for many disciplines in applied science. In addition to taking courses in their area of concentration, students pursuing an associate degree in applied science have to complete clinical courses during their 12th grade and 13th grade years.

Student Demographic Data

The total number of students at the HEC early college program from freshman year to super-senior year changes periodically based on variations in student enrollment and transiency. Since the early college started in 2008, the number of total students in all grades per academic year has varied between 190 and 240 students. As of January 2016, the total number of students at the early college in all grades was 232. Student ethnicities also varied. As of January 2016, student data by ethnicity included 184 Caucasian students, 18 African American students, 17 Asian students, and 13 Hispanic students. The class of 2016 at the early college initially started with 46 students who enrolled in 2011 and ended with 41 graduating students. Five students exited the program in 10th grade. Demographic data for class of 2016 is presented in table 1.

Table 1 Demographic Data for Early College Students from the Class of 2016

Number of students	Enrolling in 2011	Graduating in 2016
Total number of students	46	41
Ethnicities		
-Caucasian	33	30
-African American	6	4
-Asian	6	6
-Hispanic	1	1
Gender:		
-Male	22	21
-Female	24	20
Qualifying for free or reduced lunch	25	21

As evident from table 1, the early college class of 2016 initially included 22 males and 24 females who enrolled in 2011. Regarding ethnicities, there were 33 Caucasian students, one Hispanic student, six African American students, and six Asian students. Twenty-five out of the 46 students who enrolled in the early college qualified for free or reduced lunch. In later years, five students dropped out of the program leading to graduation of 41 students in May of 2016. The graduating class included 21 males and 20 females and had 30 Caucasian students, one Hispanic student, four African American students, and six Asian students. In addition, almost half of the graduating students (21 out of 41) qualified for free or reduced lunch. Out of the 41 students who graduated from the class of 2016, 15 students were interviewed. The interviewed students included 7 male students and 8 female students from different ethnicities.

Regarding family background, data from interviews revealed that students at the HEC early college mostly belonged to large families with many siblings (an average of four to five siblings per family) and were immigrants or born to immigrant parents. Thirteen out of the 15 interviewed students were first generation college students whose parents did not enroll in college or complete a postsecondary degree. In addition, nine of the 15 students who were interviewed qualified for free or reduced lunch. Table 2 presents demographic data for interviewed students.

Table 2 Demographic Data for Interviewed Students

Student Pseudonyms	First Generation College Student	Free or Reduced Lunch	Ethnicity	Immigrant
Abby	Yes	Yes	Asian	Yes
Anthony	Yes	No	Caucasian	Yes
Diane	Yes	Yes	African-American	No
Edward	Yes	Yes	Caucasian	Yes
Emily	Yes	Yes	Caucasian	Yes
Farah	Yes	No	Caucasian	Yes
Harold	Yes	Yes	Caucasian	Yes
Ingrid	Yes	Yes	Caucasian	Yes
Ken	No	No	Caucasian	Yes
Keith	Yes	Yes	Caucasian	Yes
Maya	Yes	Yes	Caucasian	Yes
Sarah	Yes	No	Asian	Yes
Stacey	No	No	Caucasian	Yes
Walter	Yes	No	Caucasian	Yes
William	Yes	Yes	Caucasian	Yes

Student Academic Achievement Data

Data regarding student academic achievement for the early college class of 2016 were collected from public school documents, such as graduation brochures and class rosters. Table 3 indicates academic achievement for the graduating class of 2016.

Table 3 Academic Achievement Data for Early College Students from Class of 2016

	Number (total number of graduating students = 41)	Percentage
Students graduating with high school GPAs of 3.9-4.4	21	51.2%
Students graduating with high school GPAs of 3.5-3.89	11	26.8%
Students graduating with high school GPAs of 3.0-3.49	9	22%
Students graduating with associate degrees in general science	24	58.5%
Students graduating with an associate degree in applied science	9	22%
Students graduating with an associate degree in general arts	2	4.9%
Total number of students graduating with associate degrees	35	85.4%

As evident from table 3, a total of 21 students of the whole class of 2016 graduated with a grade point average between 3.9 and 4.4, 11 students with GPAs between 3.5 and 3.89, and nine students with GPAs between 3.0 and 3.49. In addition, 35 out of the 41 students who graduated received associate degrees in either general or applied science in addition to their high school diploma. School data indicated that in 2015 Newsweek ranked the school district in which this early college is located as the 14th best district in the state. Bridge magazine also ranked this

early college as one of 2015's America's top high schools based on college readiness and graduation rates. The school was also ranked in the 99th percentile of all high schools in the nation based on standardized test scores.

Interviewed students reported during the interviews the total number of credits they earned and the associate degree they attained. Table 4 presents this data for interviewed students at the early college.

Table 4 Academic Achievement Data for Interviewed Early College Students

Pseudonyms	Credits earned	Associate Degree Attained
Abby	84	General Arts
Anthony	85	General Science
Diane	74	General Arts
Edward	83	Surgical Technology
Emily	74	Radiology
Farah	65	General Science
Harold	68	General Science
Ingrid	80	General Science
Ken	70	Surgical Technology
Keith	90	Emergency Medical Services
Maya	71	General Science
Sarah	70	General Science
Stacey	82	General Science
Walter	79	General Science
William	85	General Science

Teacher Data

The early college employs seven educators who teach different subjects in 9th, 10th, and 11th grades. Four out of the seven teachers were interviewed by the researcher to provide triangulation of data for this study: Mr. A., the math teacher; Mr. B., the economics/government teacher; Mrs. Y., the physics/anatomy teacher; and Mrs. Z. the language arts teacher. Mr. A., the math teacher, has been teaching for 22 years total and for eight years at the early college. Mr. A. has a degree in civil engineering and a teaching degree. He teaches algebra I for 9th graders and algebra II for 10th and 11th graders. Mr. B. is the government and economics teacher for juniors. Mr. B. also teaches language arts for freshman students. He has been teaching in the program for eight years as well. Mr. B. has a bachelor's degree in social studies and a masters' degree in bilingual/bicultural education. Mrs. Y. teaches physics to freshman students at the early college and anatomy to sophomore students. Mrs. Y. has a masters' degree in science education as well as a degree in medical technology. Mrs. Y. has been teaching at the early college for eight years since the program started. Mrs. Z. teaches language arts to sophomores and juniors and has also been at the early college since the start of the program. She has a bachelor's degree in language arts teaching and a master's degree in bilingual education.

Data from teacher interviews regarding the content taught and the college readiness methods utilized were collected after analysis of data from student interviews. The purpose of collecting data through teacher interviews was to reflect on the 3 R's framework of the early college and on the four facets of college readiness, and to triangulate this data with the data collected and analyzed from student interviews in order to identify common patterns and to generate themes.

Factors Determining Early College Enrollment

Students revealed that they were interested in joining the early college for various reasons. Factors that influenced student enrollment decisions are identified as follows: family guidance and/or encouragement, sibling connections, professional interests, personal interests, financial and/or time incentives, and school structure.

Family guidance. Family guidance was an influential factor for student enrollment in the program. Students indicated that they were encouraged by parents or older siblings to join the early college. Family encouragement was not always met by excitement from early college students. Harold, Sarah, and Emily resisted joining the early college because they wanted to be with their friends in high school. Harold stated,

I got the application for the program from my middle school but I wasn't going to fill it out because I wanted to go to high school with my friends. Then my parents encouraged me to apply so I filled out the application, turned it in and ended up getting in.

Sarah similarly reflected, "My parents wanted me to come here. When you're in 8th grade and you're hearing about going to a different school where you don't know people, it's not really something that jumps out to you." Emily shared, "My older sister told me about the early college and I was like, 'oh this is interesting,' but at the same time I am going to leave my middle school friends and go to a whole new school."

Interest in being with peers was a factor in Abby's decision to join the early college program in order to be with a classmate joining from the same middle school. She recalled, "My friend wanted to come to this school because her sister was here. We started becoming best friends in middle school and she didn't know anyone here so she encouraged me to join." Although Harold, Emily, and Sarah revealed their hesitation to apply for the early college

program was due to their desire to remain with their peers, Anthony said that he was excited to join. Anthony explained how family guidance to join the early college produced a positive outcome for him: “My older sister who used to work here was the one who told me about this program. She encouraged me to apply...best decision I’ve ever made.” William talked about having an aunt who works in the medical field and who inspired him to enroll at the early college.

Sibling connections. Sibling relationships played a big role in student enrollment. Eight students out of the 15 who were interviewed (Walter, Anthony, William, Farah, Emily, Maya, Ingrid, and Harold) talked about older siblings as being role models because they went to college or are working in the health care field. Walter shared, “One of my older brothers is a dentist and my other brother is in medical school right now. Also my sister graduated as a dental hygienist.” It was Maya’s older sibling who went to the early college who influenced her decision to enroll. Although sibling connections often had a positive influence, that was not the case with William. William explained how it bothered him when early college teachers compared him to his older brother who graduated from the early college with an associate’s degree in surgical technology: “I hated being compared to my brother. Everyone had high expectations of me because of my brother.”

Personal decision. Two of the interviewed students considered choosing the early college as their own personal decision as their parents were indifferent. Edward discussed that his parents were not able to relate to his school work:

My parents were never really involved in my schooling so whatever decisions I made for school were my decisions. I just told them I am going to go to this school and they said,

“Okay, if that’s what you think is best for you.” They’re not familiar with the schooling here.

Similarly, Keith said it was his personal decision to join: “It was something I came to independently; I researched the school and I came to the conclusion that I want to go there and my mother’s role was mostly just signing the form.”

Professional interests. Keith related his choice to enroll in the early college to his interest in being in the medical field: “I already knew I wanted to be a physician so I decided that it was a good fit for me and I applied.” Similarly, Diane explained:

I wanted to be in health care because I wanted to help others. I always wanted to be in the medical field so that’s one of the reasons my step mom applied for me to join this school.

If it wasn’t this school, it was going to be another school that had to do with health care. Sarah echoed this sentiment: “I was interested in going into medicine and I thought it would be a good experience to see what it would be like.” Ingrid shared that she had an equal interest in the medical field, stating,

I attended a presentation about the early college during middle school and that was the first time I heard about it. But then I started researching about it and it really got my attention because I was always planning on doing something in the medical field so it sounded like a great opportunity and especially because of the experience.

Financial/time incentives. The financial incentive, as represented in free college tuition, was a larger factor in Abby’s decision for enrolling in the early college than her interest in joining the health field: “When I heard about free college and free everything, I was like let me try nursing.” The short period of time needed to earn a degree was one reason the program was appealing to Walter, who shared:

The principal at that time and two teachers came to my middle school and presented about the early college and what the program offered. I was immediately interested. I would get my associates of science and they would also save me a year.

Edward mentioned that earning credits and the ability to work were incentives for him to join: “I thought it would give me a good head start; getting credits for college and I have something I can work with in the hospital.”

School structure. Farah and Maya wanted to join the early college because of the school structure. Farah stated, “I liked the fact that it was a small surrounding. That is the main reason why I loved coming here.” Maya saw appeal in the close relationships fostered by the early college:

To be honest, I wasn’t even thinking about medicine or anything like that, but I would hear how my brother talked about the teachers and how family oriented the school was and I really liked that so that’s why I came to the early college.

The Three R’s Framework of the Early College

The following section explains how data from student interviews support the three R’s framework of the early college program: rigor, relevance, and relationships. Data is presented first from the perspectives of early college students. Next, triangulation is achieved by presenting data from teacher perspectives, and comparing and contrasting this data with student responses.

Student perceptions of the rigor. The curriculum for this five-year program requires students to complete most of their high school requirements during 9th grade and 10th grade years before they start taking college courses with students on the college campus in 11th grade. Additionally, students get introduced to college courses in 10th grade year, although these courses still take place in their high school setting. Students are required to complete three

college courses in 10th grade in addition to their high school courses. Two of these courses (medical terminology and basic health care) are required for students in order to continue in a health care field and are offered to students at the high school setting.

Student interviews revealed a level of variance in responses regarding their interpretation of rigor. Keith defined rigor as: “Something that is more challenging. It definitely requires more from the participants.” His definition of rigor implies that he correlates rigor with putting forth extra effort and work to achieve a goal. Harold related rigor to having to complete a large number of courses, stating:

I think that this program requires more rigors in our curriculum because we are required to take many science courses very early on in the program: biology and physics in freshman year and then chemistry, anatomy and medical terminology in sophomore year.

Interviews with students indicated that 10th grade was the most rigorous year out of the five years of the program. Referring to the increased requirements of 10th grade compared to 9th grade and to having to take the first college courses in health sciences, Maya shared:

I would say 9th grade was a breeze, 10th grade was what killed me. It was the hardest of the five years because you’re being exposed to college classes and in addition you have two heavy science courses plus the hospital.

Ken similarly related: “10th grade was like a big transition from high school to college courses. It was more hectic than 9th grade and you’re going to the hospital also so it was long days.”

Harold reflected on both the difficulty and daunting nature of taking on these additional responsibilities:

10th grade was the most stressful year out of the whole program. It was the hardest year because we were getting into college classes and that’s what brought the pressure on us.

We were like 15 years old taking college classes and we did not think we were ready for it but we ended up doing fine.

Edward shared that “it was a little more challenging. We had to put more time into studying,” while Sarah responded: “I remember getting like four hours of sleep in that year. It was just so hard.” Diane reflected that “10th grade was more challenging but I am always up for a challenge.”

Students start college courses on the college campus where the early college is located during their 11th grade year. Considering this transition to take courses on campus, junior year was referred to by a few students as a challenging year as well, although the common response was that the content and structure of the college courses were not difficult to get used to.

Students explained that they were required to manage a schedule that included both high school and college courses, and had to be on campus for long hours, as Abby explains: “The college classes weren’t that bad; they were easy to adapt to. It was just the transition from high school to college every single day that was kind of difficult.” Ken noted that “it just felt easy going from the high school to the college. I felt like I was already used to college courses.” Ingrid explained how she felt when she transitioned into college courses in 11th grade:

That year was different because my whole life was basically college and I spent more time on campus than I did at the high school. It was very different because right away I was in a big biology class with different people. I only had two or three people from my school. It was a whole different environment and the way you do things was just really new to me.

When asked to compare the challenge or rigor in high school to that in college courses, early college students perceived that it was an easy transition from high school to college courses.

William shared:

I don't feel like I had high school and college... You had classes with high school teachers at the early college but you always had to look at them as college courses. So when we did go to college, it just felt like another class. It didn't feel any different.

Ken and Stacey felt that the college classes were easier and referred to the good preparation they had in their high school courses. College was initially considered more challenging for Maya but she explained that her high school preparation helped:

At the high school everyone was doing well in my classes. I'm not saying they were easy. When I went to college, I felt like I had to try way harder than I had to at the early college but what helped is that I was used to the work ethic from the early college classes; over time, college classes started becoming like high school classes.

By "harder" Maya explained that she had to do more work and put forth more effort when studying for college courses as opposed to high school courses. Keith connected the rigor to the academic behaviors needed in college courses: "I think the college courses require a lot more independent learning and independent studying," while Sarah stated, "I feel that they're pretty much the same; obviously the college classes go at a faster pace but the information kind of overlapped."

Positive aspects of rigor were perceived by Abby and Emily. They both explained that they liked the rigor of the program because they believed that this rigor is what prepared them to be "successful,"—whether success meant that they received good grades, completed an associate degree, or are more prepared for a university degree. Abby stated, "I really liked the challenge.

The program was trying to push our limits getting us prepared for what could be the future.” Emily similarly shared, “I think each student at some point feels overwhelmed but the curriculum here is all to get you ready for college so whatever they’re doing is something that will help you in your college courses.” Students who joined an applied science program related rigor to the strict grading system in health concentration courses. Emily found that “getting good grades was harder in college courses because of the different grading system.” While Ken and Edward who graduated from the surgical technology program and Emily who graduated with her associates in radiography did not seem to mind the grading system, William explained that he had to transfer out of the surgical technology program and pursue a general science degree because he was not able to meet the grading requirements. Similarly, Diane—who eventually transferred out of the physical therapy program and earned her associates of arts instead—explained: “I did the physical therapy program but the first semester I failed. A 92% was a B and an 80% was a C; I always strived for above but my test results were below.” The grading scale was not the only negative aspect that students perceived regarding rigor within the program. Farah explained how the program pressure caused burnout for her and that she felt she was not ready to pursue her four-year degree right after graduation from the early college: “I felt that so much was being thrown at us and I didn’t know how to manage anything. I felt so young and pushed to choose my concentration so early and now I regret everything.” Stacey also complained that the program was so rigorous in the sense that there were no electives offered at the early college. While she was interested in taking art or music classes, these courses were missing from the early college curriculum.

The rigor from teacher perspectives. Mrs. Y. smiled as she noted an observation that teachers discussed at the school: “We call it: The 10th graders are cracking.” By cracking, she

explained that students break down under the pressure of the rigorous coursework. When describing rigor, she referred to the challenging curriculum. Mrs. Y. noted that early college students mostly feel the rigor in 10th grade which was similar to what students described regarding the challenges of rigor that they experienced during that year. Mrs. Y. also regarded the sophomore year as “the make or break year” during which students are introduced to college courses for the first time even though these courses are still offered within their high school environment. Mrs. Y. warned her students about the fast pace of the college courses: “You’re going to have a quiz or a test every week.” Mrs. Y. said that most early college students are highly motivated to do well in their classes, even the ones who are not doing well in the beginning: “They see the goal. They know that, at the end of five years, they will have this diploma and an associate’s degree.”

When asked about rigor, Mr. B. said:

They are well aware of what they’re going to be getting themselves into before they come to this school...they go through orientation, the parents and themselves, they know the rigor of this program. Some of them handle it pretty well, they’ll make sure they budget their time wisely when it comes to studying. They seek tutoring if they need it. Others break down when they feel overwhelmed and start struggling in class; they don’t get their homework done. That’s when teachers identify these students and try to work one-on-one with them.

When asked about students who exit the program, Mr. B. said: “If they do leave, most of them will do so after their first year; a few will leave after sophomore year.”

While discussing rigor at the early college, Mrs. Z. said: “I think here at the early college because we do the reading and math testing for students, they’re at least at grade level and the

amount of rigor they endure here helps prepare them for college.” Similar to Mrs. Y.’s comment, Mrs. Z shared: “There’s a little bit more of a purpose: It’s a means to an end. They know they need to do well here because they have a goal in mind.” Mrs. Z. explained that balancing high school and college is mostly a challenge for students in junior year which coincided with student responses regarding their challenging schedules and meeting the requirements of high school and college in 11th grade: “They have their college life and then they still have to come back to high school.” She added that students who struggle in high school are also likely to struggle at the collegiate level.

When discussing rigor, Mr. A. said that the program already starts harder than a traditional high school because students are required to take two science courses in their freshman year. Similar student comments were noted regarding taking two science courses during 9th grade. Coinciding with other teacher responses and student responses, Mr. A. explained that a lot of students start feeling overwhelmed in 10th grade. He explained: “It’s where they realize maybe this isn’t for me or I need to do something different. I’m sure that’s when the counselor sees more students in her office.” Mr. A. pointed out that students who don’t return usually leave after 9th grade: “Some probably realize they’re not interested in the medical field... We don’t force them to stay in the medical field, we find something that works for them and they can remain in the program.” Similar to Mrs. Y.’s and Mrs. Z.’s comment regarding student motivation, Mr. A. related student persistence at this stage to motivation: “I think a huge part of it is motivation...it is the student wanting to be here. If they want to be here, they realize what it takes and they’ll get over the bumps.”

To summarize, the data from teacher interviews coincided with themes that emerged from student interviews regarding rigor. Teachers explained that students consider the 10th grade

year as the hardest year within the program, but student motivation during this stage, setting a goal, and persistence to achieve that goal were qualities that help students survive the program rigor. Breaking down under the pressure of rigor was referred to by teachers as the negative reaction that some students may exhibit. Working with those who struggle from the beginning helped students to overcome the pressure of rigor and persist in the program.

Student perceptions of the relevance. Students at the early college are required to complete clinical rotations and shadowing experiences with specialized physicians and surgeons at a local hospital every Wednesday during their freshman and sophomore years. Students are exposed to many health care disciplines including physical therapy, respiratory therapy, surgical technology, anesthesia, nursing and pharmacy. Every Wednesday, half of the students would have rotations in the morning and then the other half would work on laboratory experiments with their anatomy and chemistry teachers. Students would then switch their schedules in the afternoons. The 10th graders go through eight-hour job shadowing shifts for the duration of two months per rotation and they get to pick the specific rotation they would like to complete. They end up with four shadowing experiences within the two semesters of the school year. The reason for these rotations and shadowing experiences is to expose students to the different health care fields. Students must declare by the end of 10th grade the health care concentration in which they are pursuing their associate degree. At the hospital, students perform laboratory experiments that enable them to have hands-on experiences in applied sciences. They also take an allied health course that introduces them to basic topics in health care and involves hands-on patient care.

Based on the interviews, the hospital experience that early college students encountered was considered the highlight of the program. Anthony shared, “It was probably my favorite thing about the program,” and Farah felt that “the clinical experiences were the best experiences of the

early college. They were so fun.” Interviewed students referred to this experience as an eye-opening opportunity considering that it allowed them to choose their desired career paths in health care, as Ingrid relates:

I always wanted to go into the medical field. This just kind of opened my eyes more because I came into this school knowing that I’m interested but the rotations verified that I am actually interested. It made me want it even more.

Edward similarly responded:

That was an awesome experience because it showed me the different possibilities I have and it made me familiar with the hospital. I probably chose Surgical Technology because of the hospital. I liked seeing how it was like in the operating room. That was pretty cool.

Keith described his experiences as both motivating and inspiring:

Rotations were nice; I felt like I was too young to fully appreciate them but getting the early exposure definitely kept my desire to be involved in medicine going and it really inspired me; especially because I saw an open heart surgery and a kidney transplant.

William displayed a similar enthusiasm:

I loved the hospital experience, I really did. My first three weeks were surgical technology and I was really happy because I got to see a surgery. The patient’s intestines were like just there and the surgeon was explaining everything.

Farah also found attending surgeries to be an exciting experience, sharing, “I was shadowing for surgical tech and I was able to go into surgeries. I saw knee surgeries and oral surgeries. That was so cool.” Maya summed up the whole experience by saying:

With the rotations, someone that had zero interest in medicine came out with wanting to be in the field. It’s hard to change someone’s view or their major but those rotations were

the highlight you could say of the early college. I would go in at first and would be a little nervous. I had Keith and Ken in my group for like a whole year and they both had an interest in medicine and I was the only one that didn't. Being with them and getting exposed to all these things and seeing their reactions, it made me kind of jealous like I want to feel what you're feeling right now. I remember seeing surgery and I stood there for like an hour and not moving my eyes away. I think the best part was going back home and telling my parents what I saw. Like, "Mom I saw an eye surgery today" or like "I saw a dead body" and she'd be like "What?!" So as 9th graders and 10th graders, you wouldn't expect us being ok with seeing these things. We were and I felt like we came out stronger.

In addition to the benefit of better understanding career choices, students also indicated other positive aspects of the hospital experience, such as when they participated in activities that made them feel like independent young adults. Students described the hospital rotations as "amazing," "exciting," "awesome," and "fun" because they were able to witness surgeries and other advanced procedures at a very early age. Ken shared, "I would have never imagined myself doing that in freshman year of high school. We got to see a bunch of different stuff and jobs to shadow. You're always seeing something new there." Harold similarly described:

It gives you experiences that a lot of people don't have. They don't go into hospitals and do rotations in their specialties until they're a lot older. I watched a surgery and it was like my first surgery that I've ever watched. It was a brain surgery, like in person. I was three feet away from it. It's really amazing to see the actual brain and then operating on it.

Anthony was also impressed, stating, “I don’t think anybody can say they got to watch a brain surgery when they are 15. Not standing from a distance, I was standing and getting blood splattered on me.” Students mentioned that they talked proudly about their experience to friends and family members, as Walter recalls, “The clinical rotations were awesome. I remember showing off that I am doing rotations to my friends and showing pictures. We had lab coats and badges. It was a nice experience. It was like a break from school.” Emily, who went into radiography, saw the relevance of these rotations to her specialty as a radiographer:

If I didn’t have these clinical rotations, I wouldn’t know what a chest X-ray is or how would I do a chest X-ray. It also teaches you how the different systems work and you’re applying what you learn and this helps.

Stacey, who currently works in a hospital setting, explained that the hospital experience was relevant to her in the sense that it helped her get the job she is at now:

Hospital experience helped give me an idea of how everyday work would be like. It’s not like how it is in the movies, so that was good. Plus now that I was there for two years, I know people that work there from back in 10th grade. So it was easier for me to go back to them and apply for a job there.

Harold and Ingrid saw yet another benefit of the hospital experience. They both explained that rotations helped boost their independence and self-discipline. Harold shared,

We would spend all day at the rotation we get put into. It felt good because there was no one there to keep an eye on you. We’d have to keep an eye on ourselves. We had to have lunch on our own and get back to our rotation.

Ingrid also took pride in managing the responsibilities associated with this independence, stating:

Just the fact that we got to be on our own, it was cool because we got to go around the hospital. We met a whole bunch of people and they loved us because we were younger but we weren't immature.

Even students who had difficulty adjusting to the hospital environment or who did not end up specializing in a health concentration were positive in their responses to the clinical experience in the sense that it helped them make their decision about their future. Diana recalled:

During the surgical technology rotation, they were doing a tonsillectomy. I have a sensitive nose so I got lightheaded from the burning smell but I didn't faint. During physical therapy, the therapist was cleaning a patient and I almost fainted there. But I always had a desire to help others especially since my birth mother passed away from breast cancer.

Sarah was similarly positive despite discomfort with some of the events she witnessed, sharing:

I liked that it showed you what you liked and what you didn't like. I remember in respiratory therapy, I don't know what they were doing but there was a tube down the throat of one patient and like a wire thing and he spit out all this stuff and I'm like I don't want to do that.

Abby, who ended up wanting to go into architecture instead of the medical field, said that the rotations made her certain that she does not want to do nursing as a profession. She stated, "After having job shadows and clinical rotations, I was like I cannot see myself standing here for eight hours a day and walking around the hospital taking care of patients. I just would rather do something different."

Discussion of relevance at the early college also included participation in school activities. Students mentioned that there were not enough student clubs or venues available for

them to join while in high school. The three venues where students participated were the National Honor Society (NHS), the Student Council, and the Health Occupations Students of America (HOSA). Abby shared, “I was part of NHS and was president of student council in 9th grade. We also had a partnership with the hospital and we created a program where we’d plan events to teach younger kids about healthy living.” Maya was also a participant in clubs: “I was active in the Health Occupations Students of America. I remember we won first place and made it to State competitions in 10th grade.” Although students took advantage of the venues that were offered, Sarah discussed that the lack of variety of clubs and activities might have negatively affected their scholarship applications: “You’re applying for scholarships and they would be like what other clubs are you in and it was only NHS and HOSA and you can’t write, ‘Oh my school doesn’t have anything else.’ That’s a disadvantage I guess.” Anthony, William and Walter complained about not having sports teams at the early college high school. The lack of school sports was mainly due to the small class sizes which do not facilitate having enough students to form a school team. However, Harold said regarding the lack of sports:

Honestly it’s not worth it because we don’t have the time during high school because we do have really hard classes. We’d have to study a lot. We wouldn’t have the time to be able to do sports if we wanted to.

Students explained that they could participate in sports at other high schools in the district.

Edward joined the soccer team of one high school during both 9th and 10th grade. When asked why they did not join sports teams at other schools, Walter and Anthony said they did not feel they belonged there or did not know the students well enough to participate in their sports team.

Harold also added that the time constraint contributed to not doing so:

We could have gone to our home school and played if we wanted to. I do know some who did but they said it was not a good idea because they had practice for like three hours after school. And then they'd go home and they're tired and they wouldn't do their homework; they would go to sleep.

While taking courses at the college, the majority of early college students chose not to participate in activities and join student organizations on campus. Students discussed that it was not the lack of venues at the college that prevented them from joining activities but rather the lack of time to participate due to study demands, conflicting class schedules, work commitments, and sometimes transportation problems. The exception to this case was Maya, who actively participated and had leadership roles in at least three student organizations at the college at one time. Harold explained, "I didn't have the time because of work and school." Stacey, who worked as an anatomy tutor at the learning lab, said, "I just didn't get into clubs. Maya was like the head of every single club and she would tell me to join but I was here for classes and for work and I just wanted to go home after."

The relevance from teacher perspectives. Data from teacher interviews revealed the value of program relevance for enrolled students. When discussing the hospital experience, Mrs. Y. indicated that her students enjoy it. She explained, "They love it! Especially the freshman, they get to rotate through all the different allied health fields." She also shared how students felt about choosing career paths after these rotations: "Most of them know right away: 'This is what I want to do' and a couple of them maybe two or three would say 'It was too early for me to pick.'" Similarly, Mrs. Z. said that students enjoyed the hospital experience: "They love going on all these rotations because they come back thinking they want to be a surgical technician or a nurse...or they might say, 'This is so boring; I didn't know it was going to be like this.'" Mrs. Z.

mentioned that some students lean more toward the general science degree than the applied science degree because general science courses are more transferrable to a university than specialized degree courses. When asked about how he thinks students perceive the hospital experience, Mr. B noted that most students say good things about it:

It gives them a fantastic opportunity to see what things are going to be like for them if they choose that path. Some of them like having the interaction with patients or staff members at the hospital. Some of them love just being independent and on their own... They have to take the shuttle bus on their own from one building to the other and they really like that they are trusted with that and it gives them a sense of responsibility.

Another competent of relevance is getting involved in activities within the high school and on college campus. Mr. A. explained that these activities build relevance to student lives at the early college because they boost their social skills and their leadership potential. Mr. A. also discussed how activities provide students with opportunities for community service which they need for college applications. He explained, however, the lack of extracurricular activities at the high school: "The problem is the small school size, we can't have sports teams; we obviously don't have band or drama, although we tried to hold a little choir." He added that there are plenty of clubs on the college campus students can participate in during 11th, 12th, and 13th grades: "I always emphasize that they should get involved. If I could go back to college, I'd get involved in more clubs whether it's just social or specific academic clubs." When asked about how students feel about lack of activities at the high school, Mrs. Y. said that students in freshman year are sometimes "pouty": "They don't have the sports and the dances so we hear a bit of whining about that in the beginning. But when they start getting into sophomore and early junior year, they realize they don't have the time anyway." This comment was also mentioned in student

interviews when they explained that they could not join activities on campus due to conflicting schedules and study demands. Mrs. Y. noted that the early college offers opportunities in which students can get involved. She had helped organize HOSA in the past and is now running the National Honor Society where many students get the opportunity to volunteer for community service and record their hours for college applications. She mentioned that some students still fear they are missing out. Discussing extracurricular activities at the high school, Mr. B. shared: “Last year for the first time, I ran a debate club. I didn’t have a lot of students, maybe 10 or 12 but it went pretty well.” Mrs. Z. explained that students are well aware of the lack of extracurricular activities early on: “They know upfront: there isn’t going to be any art class or music class.” Mrs. Z. talked about student lack of participation in clubs on campus: “They don’t participate because they are really busy. Some of them work especially in senior and super-senior year where they don’t have to take high school classes but the load is also heavier.”

Concluding the discussion on relevance, similar perceptions across student and teacher interviews are evident. Both students and teachers highly commended the hospital experience and recognized its benefits regarding the connection between student academic life and future career choices. Teachers and students also indicated that the hospital experience helped students to develop self-confidence and independence. The other aspect of relevance that was discussed by both students and teachers was student participation in extracurricular activities at the early college and on campus. While students complained about the lack of venues offered, teachers explained that the small school size and the busy schedule that students have when they start college courses does not facilitate student participation in activities.

Student perceptions of the relationships. Student perceptions of relationships at the early college were divided into three categories: peer-peer relationships, student-teacher relations, and relationships with the counselor and principal.

Peer-peer relationships. Anxiety at the beginning of freshman year was a common feeling for students joining the early college. For Abby, having a friend who joined with her from the same middle school helped to ease the discomfort. Despite the anxiety students felt at the beginning of freshman year, Edward and Stacey indicated that they made friends quickly. Edward shared, “You tend to make friends fast here,” while Stacey explained, “I came here and I didn’t know anybody; not one person; but I made friends pretty quick within the first two weeks.” Diane recalled, “The first year, I felt pretty comfortable. Even as a new student but everyone was new so I made friends pretty quickly.” Farah was similarly apprehensive, but quickly found friends:

When I first came here I was really scared because there were only three people I knew from my middle school but actually I felt comfortable with everyone right away. I loved how everyone was from all over the place.

Students enjoyed strong friendships with their peers during the first two years at the early college, as William explained, “I feel like I love the friends that I made here; these are the friends that know everything about me.” Harold attributed these strong relationships to the curriculum that required everyone to take the same courses during these years: “We are all together in the same classes in 10th and 11th grades so we developed close friendships.” The small school size at the early college high school versus the traditional high school helped boost these friendships, as recalled by Anthony, “Everybody got along. There were less than fifty of us total so it wasn’t really intimidating because we’re such a small class.” Ken shared a similar sentiment, stating, “It

was really easy to make friends here. It's so small so we all became really close friends.”

However, Friendships faded away in 11th, 12th and 13th grades when students started taking college courses and the different schedules and concentrations that students chose. Keith recalled, “It's interesting that although we were a smaller class, we were actually less closely knit than other high school classes when we graduated.” Ingrid also experienced this distance, sharing:

A lot of us kind of separated...after 11th grade because everyone went their own way. We didn't have our high school classes anymore. We all took our own paths so you only kept the friendships if you wanted to work on it.

Abby concluded that “we were pretty good friends at one point but the college experience drifted us apart from each other. We still had all the memories though.”

Student-teacher relationships. All interviewed early college students referred to the supportive and caring relationships of their high school teachers. Abby perceived these teacher-student relationships at the early college as the best aspect of the early college program: “The best thing about the early college program is the opportunity to get to know the teachers. You can't really describe it in one word because everyone had something to offer.” Emily, Harold, and Anthony contributed these relationships to the small school size. Emily shared:

It is a small school and the teachers are right there. You see them all the time so it is not like I have to walk all the way to the other side of the school. It's just one hallway so it was easy to just ask questions and be comfortable around them.

Harold also enjoyed the attention and care this dynamic allowed, stating, “The thing about a small school is that the teachers remember every one of us. That's the best thing because you

don't want to feel like they don't care." Having the same teachers for many years contributed to these strong student-teacher relationships, as Farah recalled:

I couldn't ask for better. They're amazing and I'm so comfortable with everyone here.

We are like a family here. We've had the same teachers for two consecutive years and we were always able to go to them for help throughout the five years.

Anthony felt that "it really is like a family. You've known these teachers for many years; they're more than teachers by then."

The terms "caring," "helpful," "friendly," "understanding," and "easy to talk to" were used to describe teachers in interviews conducted with students at the early college, as Sarah stated:

Mrs. Z. is my favorite...she's just so friendly and her class was so fun. She just jokes around and she really cares about us. I also liked Mr. B. His classes were pretty tough and he was a tough grader but he does care about his students too. If you need somebody to talk to, you can talk to him. I always come back and just have a conversation with him.

Emily echoed this sentiment, sharing:

Mrs. Z. is my favorite. She acts like your friend and she's so kind. She really cares...even though she was busy grading and getting ready for the next card-marking she was still there to help me with my college paper. I also like Mr. A., he stays after school so if you have any questions, you can go to him and he'll take out of his time to help you.

Farah also noted her strong relationship with the teachers, confiding:

I can't pick a favorite honestly but I feel very close to Mrs. Y. She's so sincere always.

Every time she sees me, she'd hug me. Even for graduation, she went outside just

looking for me...And I remember once I had a problem and couldn't get her my assignment on time and she was very understanding.

Abby described her favorite teacher by saying:

She was a great teacher and we just really got along. I was one of her best students I guess and it just wasn't even just that. She was like a mother figure to me... I just can't imagine going through the early college without her...She was there for me every single step of the way and I can't thank her enough for helping me... even my personal life. I shared it with her and she doesn't judge me.

Maya and Diane had difficulty singling out a favorite teacher because they liked and appreciated all of them, as Maya stated:

Everyone had their own unique thing and I can't really pinpoint and say this specific teacher is my favorite. Although some students would say that Mrs. Y. is strict but she is funny too! Look how she dresses. She is probably the best dressed teacher at the early college. Mr. A. is so sarcastic but I like that about him....I feel like the unique personalities of our teachers is what made classes enjoyable.

Diane shared, "They're all my favorites ...I actually established a good relationship with all the teachers." William explained how his teachers had a positive influence on him, stating, "I love the way they teach. They get you involved as much as they can. They taught me to be responsible." Similarly Walter said: "They teach you how to be a gentleman. Just the way they speak to you, they don't speak to you like you're a little kid. They treat you like an adult." These strong student-teacher relationships also evolved in student descriptions of how they dealt with the challenges of rigor—particularly when they started their college courses, as Diane shared, "Mrs. Z. always believed that we could do it and was always there if I had any questions."

Edward also talked about how teachers eased his anxiety when he started the program back in 9th grade, stating: “The teachers were awesome. I’m serious I love the teachers. They were welcoming back in 9th grade; everybody is so nice to you.” Encouragement from teachers was an important factor in building these relationships, as described by Harold: “Mr. B. told me that I was the most improved from freshman year to junior year. He saw a big difference in how I was doing in class. He was very helpful.”

Relationships with the counselor and principal. The counselor was described as being trustworthy, caring, supportive, and encouraging, as Emily shared:

She cares about her students. If you have a problem, she’ll go through it with you, she’ll close her office door and you can have a one on one meeting with her and discuss whatever problems you’re having. She’ll feel with you, she’ll even cry with you. That’s how much she cares for her students.

Stacey shared: “I always feel comfortable talking to the counselor. I feel that she likes me so I was not shy going in and asking for help.” The principal was also described as a supportive figure. William said: “The principal is the man,” while Angela considered the principal as “the glue that holds the early college together.” Ken said that the principal “anchored down the program” and Farah described him as caring: “I feel like he really cares about us and just wants to do what’s best for us.” It is worth noting here that when the early college first started in 2008, five principals acquired the leadership of the program within the first three years. The current principal has taken on this leadership role since 2011.

The relationships from teacher perspectives. The discussion of interviews with teachers regarding relationships is divided into three categories: Peer-peer relationships, teacher-student relationships, and teacher-parent relationships.

Peer-peer relationships. Regarding peer-peer relationships, Mrs. Y. explained that the two week orientation that students participate in at the beginning of freshman year helps them to meet each other. Although initially they complain that they do not know anyone, she sees that they make friendships fast because they are constantly with each other. Mrs. Y. mentioned that the small school helps students build these relationships: “We’re a small school and they’re in every class together.” Similarly, Mr. B. noted: “Students have the same classmates in every single class on a daily basis. They get to know each other well and they get comfortable.” This data coincides with what students explained regarding their relationships with peers. Similar to student responses, teachers also indicated that these friendships weakened as students started their college courses in 11th grade. Mr. B. said, “Once they start becoming full time college students, that’s where the separation happens. They each have their own college classes and schedules. They’re focusing on their careers and what they are going to do next, they have jobs...” Mrs. Z. also discussed this separation regarding student-student relationships at the early college: “Friendships start fading away as they go to the college because they don’t see each other often.”

Teacher-student relationships. Mrs. Y. related the positive relationships she experiences with students to having the same students for more than one year: “I think it’s because we see the kids all the time. It really helps when we have a couple of years with them in a row.” Similarly, Mrs. Z shared:

It’s nice that we teach them for two years and you really get to know them. It’s also nice that we all teach the same kids, and we are all in the same hallway so when a child is struggling or if a student is having a bad day we share this with each other.

Emphasizing the small school size aspect, Mrs. Z. said: “Only 50, not even, maybe 41 or 42 students graduate whereas at another high school in the district at least 500 would graduate. I hope they see even though we’re a small school, that we’ve built relationships.” Mr. A. also referred to the small school size: “The nice thing about having only so many faculty and so many students is that we definitely get to work one-on one with students here more than if they were at a bigger high school.” These comments made by early college teachers support the theme that emerged from student interviews regarding small school size and positive relationships.

In addition to the positive effect of the small school size on relationships, discussions with early college teachers showed that these teachers cared about the success of their students, another theme that was also evident from student interviews. Both Mr. A. and Mr. B. contributed the strong teacher-student relationships to the caring and supportive environment that teachers provide. Mr. A. shared:

I just try and do what I can to make sure that my students; each and every one of them; are going to succeed as best as they possibly could. I can’t explain to you how I show that but I guess they pick that up.

Similarly, Mr. B. stated:

I think they know I care. I’m just always here. I try to emphasize if you need help, I’ll be here and I’m in my room at lunch. So if we have the same lunch, a student can come in. I stay after school and I come in early so it’s an open door policy.

Mr. A. explained that even when they get to their college courses, students come back for help because “everybody is welcome.”

Teacher-parent relationships. Teachers discussed parental support of their student success. They also explained the impact of the relationships teachers build with parents of

students enrolled at the early college. Positive relationships with parents were evident in all interviews with early college teachers. Mrs. Z. explained: “The parents for the most part come to open house; we have conversations with them about their students, about what’s going on in the classrooms and what they’re learning.” Teachers also discussed support of parents for student success. Parental support of their children’s education and academic success at the early college was a prevalent theme across all teacher interviews. Mrs. Y explained that by just showing up to the parent-teacher conferences, she feels that parents show interest in their children’s success. She added:

To me, if you do not have a good support system at home, this is not going to work. It does not matter what the educational level of the parent is as long as the parent is there to keep encouraging them. They got parents that push them, ask whether they did their homework and what their grades look like.

Mr. A said: “75% of parents who come to conference don’t need to come because their kids are doing fine. But of course that’s why they are doing fine because their parents are involved.” Mrs. Z. also noted the positive effect of this parental support: “I think students here are invested and the parents sometimes are even more invested than the students.” In comparison to data from student interviews, parental guidance and support were discussed by students when they indicated the factors that influenced their decisions to join the early college program. Students mentioned that their parents (and sometimes older siblings) encouraged them to join the program. However, students did not discuss the parental support they received while enrolled in the program as extensively as teachers did.

To summarize this section regarding relationships, students and teachers both indicated that the small school size helped to boost both peer-peer relationships (at least during the first

two years of the program) and teacher-student relationships. Data from student and teacher interviews revealed that the teachers' support throughout the five years was evident in their interest in student success at the early college. Strong support from parents was also evident from teacher interviews.

The Four Facets of College Readiness

The following section discusses data from student and teacher interviews regarding the four facets of college readiness. These are: key cognitive strategies, key content knowledge, academic behaviors, and contextual skills and awareness (Conley, 2007a). For each facet, data from interviews regarding perceptions of students are presented first and data from teacher interviews follows.

Student perceptions of key cognitive strategies. The key cognitive strategies that were discussed during interviews with early college students were critical thinking, analysis, interpretation, and applying knowledge (Conley, 2007a).

Students were asked how the early college had helped to improve student critical thinking strategies. Interviews revealed variance in student definition of critical thinking and in their perception of what it meant to apply this cognitive skill in their course work. Ken confused critical thinking with creative thinking by saying: "You have to think outside the box." Howard explained that he applied critical thinking when he used the information he learned within a new context. An example of how Harold applied critical thinking in biology was:

In biology, when teachers ask a certain question that might refer to different parts of the nitrogen, oxygen, or water cycles, you have to use a part from this cycle then a part from that cycle, then put them together to make a new cycle. So basically it's using the information you know to make something new.

When students explained critical thinking, they also referred to problem solving and decision making skills. Ken, Edward, and Keith discussed how they needed to apply critical thinking to make sound decisions while analyzing case studies in specialized courses for their chosen health concentration. In discussing these case studies, Edward explained that he had to consider the best scenarios that will help improve patients' outcomes in surgical technology:

When I got to the surgical technology classes, I found out that I had to learn the material and then use it in a certain scenario. It was harder because you had to think of the different outcomes with patients. It was basically thinking about how the stuff you learned will fit to a specific situation.

Other key cognitive strategies that are considered necessary for college readiness are student ability to interpret information and to use analytical skills. Although interpretation and analysis skills were evident in student discussion of critical thinking, students also considered participation in class discussions as one way of using analytical and interpretive skills. Participation in class discussions was referred to by students as a necessary skill to succeed in certain college courses such as social sciences and humanities, as described by Keith: "We were required to analyze and discuss certain situations in my psychology and English courses. I was definitely a participant in class discussion in these courses; both of them had a strong analytical component." Students explained that the debates the government teacher implemented in the high school government class improved their discussion, analysis, and interpretation skills.

Applying practical knowledge was the key cognitive strategy that students talked about most during the interviews. Students explained that the course work at the high school as well as the rotations that they completed in freshman and sophomore years at the hospital were beneficial and allowed them to acquire a wealth of practical knowledge that they could apply in

their college courses. This was particularly true for those who were enrolled in an applied health science field, such as Ken and Edward in the surgical technology program and Keith in the emergency medical services program. Ken described: “A whole lot of stuff I learned in Mrs. Y.’s class helped with my clinical courses in surgical technology; the words from medical terminology were also applicable big time,” while Keith noted:

There was plenty of stuff that we were able to apply in our college courses. There’s the stuff from anatomy and medical terminology and then there’s the stuff from the allied health course at the hospital. On the first day of my emergency medical services class, I was the only one that knew how to take blood pressure and take vitals.

In addition, students referred to the knowledge they learned in Mr. B’s government and economics classes. Edward stated: “We took government with Mr. B. then I took political science in college. I was able to apply a lot of stuff from government in my political science class.” Walter explained, “We discussed the death penalty in college and that was something we talked about before in government; I also remember things like statistics and tax increase from our economics class.” The real life scenarios that were introduced to students in government and economics helped students to apply what they learned in school to their everyday life, which can also be interpreted as creating relevance, as Sarah explains: “Mr. B. had us research like big companies and try to find what companies own other companies, something I thought helped us understand how these things work in the world around us.”

Key cognitive skills from teacher perspective. When asked about students’ problem solving and critical thinking skills, Mrs. Y. said: “We try to incorporate these skills into the curriculum but it isn’t always easy. I think it is because some students are not there yet; physically you know, their brains aren’t fully developed yet...some of it is maturity.” Mr. B also

explained that some students struggled in the program because they did not have the ability to think critically: “Some may not have the critical thinking ability that college professors would want to see in their students and some may struggle with basic comprehension.” Teacher comments regarding cognitive skills explains the variance found in student understanding of critical thinking and why they confused its definition with the definitions of other cognitive skills.

Early college teachers had various approaches to applying cognitive skills. For example, Mrs. Y. attempted to reinforce analytical and interpretive skills in all her classes. In anatomy, she would give students a case study and ask them to answer questions about it. In physics, students were introduced to the problem and asked to figure out solutions for it. Mr. B. discussed the meaning of critical thinking with his students: “I tell them you’re thinking deeply about something, you’re analyzing it, you’re breaking it into pieces and you’re making judgements on it.” Similarly, Mr. A. said:

I try to question them during classes over topics to get them to think a bit more. As they get older, they do a better job at it. Some of them are good at looking at something and thinking about what we are going to do with it or what comes next.

Mrs. Z. explained how she implemented key cognitive skills in her classes: “We talk a lot about the different types of argumentation and persuasion and about facts, opinions, assumptions, and inferences.” Mrs. Z. also implemented higher order thinking questions in her class: “I have them read a portion of the text and come up with five facts then answer three higher order thinking questions.”

Applying knowledge is another cognitive skill that early college teachers talked about. In Anatomy, Mrs. Y. applied content to examples from real life:

I always tell them this is what you look like on the inside; this is what is happening in your body right now and you don't realize it; like you just ate and you are digesting right now. I get really excited about the material I teach because I have a passion for it. I think the body is amazing and I try to throw that passion back at them, I want them to be excited about it like me.

Mr. B. also discussed how he applied knowledge from the content that he teaches to the outside world:

I do authentic learning; I bring what's going on in the real world to the classroom or have them apply whatever they learn to real-life outside of school. In economics, for example, I teach them about credit cards, insurance, mortgages, student loans and other real life skills.

Mr. B's favorite subject to teach is government. He worked hard to prepare juniors in his classes to be knowledgeable young adults, stating: "They're going to be of voting age soon and will experience all the things that adults go through." By relating knowledge to valuable life lessons, Mr. B.'s effort to apply knowledge also builds relevance for student learning at the early college.

Student perceptions of key content knowledge and skills. Discussion of key content knowledge in student interviews included student perceptions of content knowledge in science courses and math. Although content knowledge was briefly discussed by students in social studies courses such as history, government and economics classes, these discussions were more relevant to other facets of college readiness such as cognitive strategies and contextual skills. Key content skills, including writing and research across the curriculum, are also discussed in this section.

Student content knowledge in science courses was discussed the most in student interviews due to the focus of the early college curriculum on science courses for students interested in earning their associates degree in a health science concentration or enrolling in an applied science program. Although the early college provides students with the opportunity to graduate with an associate degree in an applied science program, such as physical therapy, radiography, emergency medical services, and surgical technology, most students from the class of 2016 chose to earn an associate degree of general science instead. Only nine out of 41 students who graduated in 2016 completed an applied science degree. Students explained that one of the main factors that contributed to this phenomenon was that universities transfer more general science courses as opposed to the specialized courses that students cover in applied science or health concentration.

When asked about content knowledge in science, students indicated that they enjoyed their science courses in high school: “Science courses were something I liked doing. They weren’t boring. They kept me interested” (Diane); “For me they were interesting classes. Some people I met at the college said they were hard but I didn’t feel like that” (Interview with Edward), “I loved Biology, it was my favorite subject” (Ingrid); William said:

Anatomy is my favorite; I loved learning about the nerves, the bones and the muscles.

For me I put them in like a 3D structure in my head and I’ll just start turning it and naming it. It’s like watching a Sci-Fi movie.

Students said that the content they learned in the high school science courses helped facilitate their understanding of science concepts in college courses. For example, students explained that they were exposed to concepts in their college chemistry courses that were similar to those they learned in their high school chemistry courses and that learning anatomy in high school for two

consecutive semesters helped make college biology and anatomy easier to manage. When asked what they meant by “easier,” students explained that the content of these courses was familiar to them, as Ken related, “The anatomy we took here was helpful; it was just like walking through the same thing all over again at the college.” Sarah explained:

Each course builds off of the other. Like you take biology here, then whatever other class you take you’re going to have to learn about mitosis, about the cells, and all the other organelles and stuff in it. So I feel like that was background information. That wasn’t something that I had to cram to learn, while everyone had to learn like oh what a mitochondria is or a nucleus but I already knew what it was because I was already exposed to it. Like in chemistry you’re going to have to know what a mass number is or what an atomic number is and I don’t have to go back and relearn it because I already learned it here.

Students felt that the classes at the early college provided a foundation to students in general science courses, as shared by William: “They taught us the basics in high school; what we really needed to build on so we can do well in our college courses.” By “basics,” William explained that because the curriculum required them to take certain courses like anatomy, biology, and chemistry in high school, students were more prepared for college:

Even though these were basically high school classes, not all high schools have the choice to take these classes. Like anatomy, if you were in another high school you don’t have to take it but for us we had to.

Students who were in the general science track also learned skills in the laboratory components of their high school biology, chemistry, and physics, as Abby stated: “I had one college biology course and we had to have lab but most of it was easy because I already learnt about it in high

school. For example, I already knew the parts of the microscope.” Students also related their ability to do well in these college science courses to their passion to learn science. Maya related her achievements in her science courses to her interest in the content:

I was very confident about my college science classes but I don’t feel like I could get A’s because I did well earlier in my high school classes, but because I enjoyed them. If I enjoy the course, that will make me get an A. If I don’t, I will neglect the class and I’ll get a bad grade.

Diane also explained: “I loved Anatomy. I was fascinated with the bones and the different structures. I actually remembered most of them. When I went to college, I was like yes! I get to do this again.” Students mentioned that they liked these courses because their high school teachers explained the content in a way that appealed to them. Ingrid shared, “I feel like each teacher played a part. They each taught us in a different and interesting way and with each course you actually learn something,” and Keith stated, “They love being educators. When they teach, their passion shows.”

While learning science content was gratifying for many early college students, learning content in math was not nearly as pleasant—even for students who received A’s in their math courses: “My biggest fear is math” (Farah); “Math wasn’t always easy” (Diane); “I struggled in math since I was in middle school” (Anthony); “I would say I’m pretty average in math” (Keith); “I just wasn’t really interested in math” (Ingrid); “When I started taking math courses in college, I wasn’t really doing well because I was never strong in math” (Maya). Anthony explained the reason for his struggle in math: “I think it’s because math just builds and builds and you can’t go back and learn your basics; it’s like learning a language.” Only Edward, Walter, and Abby said that they liked learning math content. Edward explained that his parent played a role in his

interest in math: “I always got As in math. Growing up, my dad always encouraged me to not use a calculator and now I don’t really like to use a calculator. It helped me a lot.” Maya, who was placed in lower college math courses, indicated that placement tests are not always good indicators of student’s knowledge and understanding of math. Similarly Sarah, who placed very low in math, said: “I don’t agree with placement exams because I feel like they’re way harder than the actual class.” Despite their struggle in math courses, students explained that they still did well in math because had the resources and the support at the early college. Students referred to the help that the early college math teacher offered in their high school courses and continued to offer later when they started college courses, as Ken related: “I went to Mr. A. for help in my college math because I didn’t take any math classes since the high school class and then I took math during my last semester in 13th grade.”

In addition to content knowledge in math, science, and social studies, writing and research skills are considered overarching key content skills for college readiness. While Harold and Maya indicated that they enjoy writing: “Writing is my favorite” (Harold); “I did well on my papers” (Maya), Edward said that writing was not his favorite subject:

I never liked it...it was just too much time concentrated on one certain thing to make sure it came out good. I never thought I was good at writing, I still don’t think I’m good at writing. I always have to put extra time and effort into it.

Regardless of whether they enjoyed writing or not, all interviewed students explained that they practiced writing skills extensively in their high school courses: “I think I had the skills because we did papers in 9th grade and then we did more papers in 10th grade” (Ken); “I think we had one paper once every couple of weeks in language arts and a history paper every few weeks. In our science courses, we did one paper per semester; we also had essays regularly” (Keith).

Students also referred to the skills that their language arts teacher taught them at the early college: “Mrs. Z. taught me to always plan before I write” (Farah); “Mrs. Z. showed us the basic template and that’s what I did in my college courses too and that’s why I did good in my English course” (Stacey). Ingrid shared:

We’d write rough drafts and they’d edit them for us, they’d show us exactly what is wrong and ‘til this day I know not to make the same mistakes. I became much better with sentence flow and forming a thesis.

Even when they started their college courses, students went back to their language arts teacher at the early college to help them in their writing assignments: “She helped me with citations, grammar and proof- reading” (Ingrid).

When asked about research in college courses, student responses varied. Harold, Anthony, and Diane mentioned that they learned research skills in their high school history and English courses: “We did a few projects that were literature based” (Anthony). Students explained that this experience helped them in working on their college research papers that required looking up and integrating information from many sources: “We did research here; it was definitely helpful although it was way more complex in the college courses” (Ingrid). Students mentioned that, besides their research in their high school history class, they also did one research project in anatomy in 10th grade that focused on a specific health topic. Students also explained that they had research papers in allied health in 9th grade: “We were required to look up articles and research the health conditions and surgeries we saw in our hospital rotations” (Walter).

Key content knowledge from teacher perspectives. The courses offered within the different health care concentrations at the community college where this early college is housed

offer continuation to the content that students learn in their high school classes. Students are required to complete certain courses in high school before getting to the more challenging and fast paced college courses. For example, most applied health science concentrations require taking two college courses of anatomy and physiology after completing a full year of anatomy in 10th grade. Students proceed to take college anatomy (if needed for their concentration) in 11th grade immediately after completing their high school anatomy in 10th grade feeling more comfortable with the content.

Data regarding content knowledge in science was mostly provided by Mrs. Y. because she teaches two major science courses at the early college: anatomy and physics. Mrs. Y. described how the curriculum at the early college provides continuation of courses starting with high school courses in freshman and sophomore years and proceeding with the college curriculum in 11th, 12th and 13th grade. Mrs. Y. explained:

Students in other high schools might have had anatomy in 11th grade and might not be taking it again until they're sophomores in college and might have forgotten a lot of things. So I think that our students have an advantage over others in that they've just taken it so it's still fresh in their heads.

Mrs. Y. mentioned that students do well in their college courses. She was very proud of the academic achievement of her students in their college biology and anatomy courses: "Just last week, one of our juniors told me that she got 95% on her college biology test and the class average was 75%." Mrs. Y. also mentioned that she aligns the information in the subjects she teaches in her class with syllabi of courses taught by college instructors. When asked how she prepares students for college, Mrs. Y. referred to making sure students understand content knowledge in the courses she teaches. Mrs. Y. explained how content knowledge in one subject

area can be closely related to content knowledge in another. For example, in order for freshman students to succeed in their physics class, students have to possess certain math skills that allow them to solve physics problems. Noting the difficulty in learning the math content that many early college students perceived, Mrs. Y. explained, “I think some of these kids put up the math wall. They think they’ve been taught at an early age that they cannot do math and they put that in their head. I always tell them that they need to break that wall.”

Discussion of the second facet of college readiness also included the overarching key content skills such as writing and research. Most of the conversation about key content skills with the language arts teacher, Mrs. Z., focused on writing. Mrs. Z. explained that she reinforces the use of rubrics in her class in preparation of students for college writing:

I try to instill the importance of following rubrics in my teaching. I tell them I want you to write this kind of paper and you need to follow these guidelines. You need to be looking at the rubric while writing your paper so you know what in the world you are writing about.

She added:

When they get to college, they come back to me for help with their papers. I see them implementing stuff they have learned. I think the thinking part is there, the logic is there; it’s more like grammar mistakes, punctuation errors, that kind of stuff.

Mrs. Z. explained that she prepares students for the writing portion of the SAT. Mrs. Z. also discussed writing styles. She explained that although she teaches the MLA format only, she thinks that the APA format should also be required for her language arts students before they get to their college courses. She mentioned that students should know APA because they are going to be writing papers in the health courses: “This year a student in surgical technology wrote a

paper, but it was APA style so he was a little nervous about it because we don't teach APA." She said she would like to alternate teaching APA style for one semester and MLA style for another. Regarding writing styles, Mr. B. said that students struggle with the specifics of MLA like proper punctuation and capitalization. Mr. B. explained that there is not enough time to reinforce MLA and APA and he cannot contribute a whole semester of the school year just for that. But he explained that when students get to college classes, students are at least familiar with it. Mr. B. added: "Some of them come back to me and the other English teacher here for help."

When asked about research, Mrs. Y. stressed encouraging student inquisitiveness by helping her students expand their knowledge beyond the textbook through research and projects. Mrs. Y. explained that her students are required to search for articles that discuss certain topics in anatomy, summarize them, and answer questions about them. In physics, students sometimes have to do certain experiments at home and write papers with evidence of their work. Students also look up articles that are related to what they witness at the hospital (procedures, surgeries, pathological conditions) during their shadowing and clinical experiences. Mrs. Y. also mentioned that she requires her students to submit projects at the end of the school year. For sophomores, the project is called FAQ (Frequently Asked Questions) and students have to present about a certain topic. For example, last year's topic was cancer and students had to present about different types of cancerous tumors. Freshmen students have to do a community service project where they would research a common medical or community health issue such as smoking, mental health, prescription drugs, or others. Research is presented at the end of the school year. Similarly, Mr. B. reinforces research skills by teaching his students about the proper way of conducting research: "Especially for juniors, I teach them about credible sources and also about researching different sources." When asked about research, Mrs. Z. explained: "I should

probably do more research-based activities; more papers that would force them to use the library or other resources like the internet.” Mr. A. also mentioned that he does not do writing or projects in his classes:

I don’t do nearly enough writing or projects in my math classes as I should partly just because of lack of time particularly with freshman students who I only see 4 days a week, so I have to do the same amount of material in 20% less time.

Mr. A explained that student hospital rotations on Wednesdays take away that 20% of his teaching time.

Common patterns that emerged from student and teacher interviews regarding student perceptions of key content knowledge suggest that students built an interest in learning science content throughout their first two years within the program. In addition, students were able to carry that interest with them into the college science courses. While most interviewed students lacked the interest in math content, support from early college math teacher helped students to develop skills needed to succeed in math.

Student perceptions of academic behaviors. Student interviews revealed a wealth of data regarding the third facet of college readiness. Interviewed students discussed time management, study skills, study habits as well as self-monitoring and awareness, which were skills emphasized in the reviewed literature (Conley, 2007a).

Time management. All interviewed early college students referred to time management as the academic behavior that is most needed for student success in college courses. When asked to define time-management, student responses varied: “You have to have a calendar”; “a set schedule”; “the ability to divide time wisely between school, work, and social life.” Properly managing time also meant “saying no to distractions.” Although students mentioned that they

were informed by their early college teachers that once they started taking college courses they would be required to dedicate enough time to study for these courses, Sarah and Anthony explained that it was a self-learned process. Sarah stated:

I don't think that time-management was taught like an actual skill but you quickly learn when you had to study for seven exams in two weeks; sophomore year was when you had to have time management skills and you couldn't procrastinate and you can't cram for tests. It's not going to work.

Anthony said, "I learned time management because I was always stressed going into exams waiting 'til the last minute to study. Then I started skipping the gym and concentrating on my work." Time management was described by students as a necessary skill that they had to learn in college: "In 11th grade, I really learned time-management; I had both high school classes and college classes and there was no way I could do it without time management" (Walter). Students explained that they initially had difficulty dedicating time for high school and college courses and that many of them underestimated the amount of work needed to succeed in a college course. For example William learned that "studying the day before the exam does not work." He continued:

Time management for me was setting certain time for studying or knowing when to say no to certain things like going out with friends. That's a very big thing because if you fall back in college, you fall back. It's hard to get back to the rhythm of the course.

Harold and Abby explained how they applied time-management skills. Harold shared:

I usually put the phone on do not disturb so it does not pop up any notifications. I just go to the library and study by myself. I made a thing where I won't go out until it is Friday or Saturday. I had to do all my studying between Sunday and Thursday.

Abby agreed: “You need to know what your school schedule is and your work schedule if you’re working and fit them together. Then still have time for studying and also saving time for family and friends.” When asked to describe a student who is college ready, all interviewed students referred to time-management as an essential quality of a college ready student.

Study habits/skills. Students described “note-taking” as an imperative skill that they needed to practice in college courses. Students said that teachers continuously reinforced note-taking in their high school courses in particular in biology, chemistry, and math: “They taught us how to take notes and I applied that to my college courses as well” (William). Students elaborated on how teachers taught them note-taking techniques such as “indenting, writing down what’s important and eliminating what’s not and learning how to abbreviate” (Emily). Students explained the benefits they gained from efficient note-taking including organization skills, preparation for college courses, and better retention of information: “I was kind of bad with taking notes. Learning how to take notes helped me be more organized” (Stacey); “We had to take notes in our high school biology and chemistry classes. It was helpful because you learn how to write fast, something that you need to do in college classes” (Abby). Abby explained that note-taking was very helpful for her to study particularly that she got in the habit of rewriting her notes so it was easy for her to remember what was covered in class: “I couldn’t even read my own handwriting but I’ll rewrite my notes when I get home and that was like studying to me because it would retain in my memory. It was a nice way of learning.”

Another academic behavior that students discussed in the interviews was joining study groups. Interviewed early college students were not always cognizant about the importance of participating in study groups with other college students: Abby explained: “I’ve mostly been like a solo studier. I learn more when I’m by myself because I get distracted by other people.” Maya

echoed this sentiment: “Something I didn’t work on before my college courses was being in a study group.” Students explained that they started taking advantage of study groups at the learning lab in chemistry, math, and anatomy because they saw better results in college courses. Anthony mentioned joining study groups for math twice a week helped him study for math. Walter also explained that spending about nine hours a week in group study working on problems for his chemistry course made him more prepared for class and exams. Keith said: “I’ve had a few study sessions with my paramedic class, generally before a final. It really helped a lot.” Harold explained why study groups are beneficial in college:

If you get together with other students, even if you just know a little bit, you’ll all learn more. Like in science courses, there are a lot of people who need help and if they don’t understand certain things, others do and will help them get it.

Along with group study, students also had to work in groups for certain projects in college. Students are required to complete team projects in college courses. Students explained that practicing working on group projects in their history and government high school classes prepared them to yield positive results when they had to do so in college: Ken explained:

We had a lot of group projects in high school which helped when we got to our college classes. Me and Edward had a project for the surgical technology program where we had to present the anatomy of the human brain and the heart. The professor said it was the best project and presentation she had ever seen.

Group projects also help students learn to adapt to other students’ schedules and personalities thus building tolerance and social skills. William compared team work in college to playing a sport and that he became effective at it with practice.

Another academic behavior students had to acquire to succeed in their college courses was seeking help through the use of office hours and finding resources on campus. Students were encouraged by their high school teachers to use office hours if they need help in their college courses: “I learned that you should ask for help if you are struggling. So I did and I think that’s one of the things I learned from my language arts teacher” (William). Maya, who used office hours continuously, said: “I used office hours a lot, the teachers were always laughing when they saw me.” Sarah explained the advantage of using office hours in chemistry:

In chemistry I used office hours at least once or twice a week when exams are coming up. I feel like when you have one on one meeting with the professor, it’s a lot easier understanding than in a lecture class with 50 students. You can ask questions without holding up the class.

Farah, who did not use office hours, whether due to time schedule conflicts or because she simply did not want to ask for help, admitted that she should have done so and that meeting regularly with her instructors in courses she struggled with would have definitely helped. The majority of early college students said they would rather seek help from their high school teachers than go see their college instructors during office hours. Students would go back and ask their language arts teachers at the high school to help them with proofreading their papers in their English college class or they would go back to their math teacher for an explanation of a concept they could not grasp in their college math course: “I never went to office hours. If I needed help with my English papers, Mrs. Z. would correct them for me before I turn them in” (Edward); “I would ask Mr. A. if I had any questions in my college math course” (Emily). Stacey shared:

I used to come back and ask Mr. A. so many questions because I was taking pre-calculus at the college so he helped me a lot. And Mrs. Z. would look over my papers and I could talk to her.

Even Maya, who used office hours, explained that when she struggled in her chemistry course, she went back to her chemistry high school teacher. The teacher supplemented Maya with review packets and Maya ended up progressing in her college chemistry course. This suggests that that the relationships that students had with their teachers at the early college influenced their academic behaviors.

Self-monitoring and self-awareness. Self-monitoring was evident in students' behaviors in their college classes and at the hospital. Maturity was required from students in college courses; they were supposed to behave as college students at an early age: "College felt like it was the real world; it was the actual thing. You had to be more serious" (Edward). Students also felt that they had to act in a mature way during hospital rotations. Self-monitoring was also evident in student self-discipline regarding their class attendance. Interviewed students enjoyed the independence that the early college program offered when starting college courses on campus and were able to balance it with self-discipline: "We had the freedom of going or staying. We needed a certain degree of self-discipline to go to class and not just skip" (Edward). Students were cognizant about the importance of attending class, explaining that their consistent attendance in college courses was considered key to their positive academic achievement: "In my years of college, I only skipped one class. I've never liked skipping. I knew that if I skipped, I would study two or three times more. It was never worth it for me to skip" (Edward); "I barely skipped class; it would be a miracle for me to skip class" (Abby). Students showed a high sense of responsibility: "It is definitely a lot of responsibility; going to classes, doing your homework,

and studying for quizzes and tests” (Ken). Although guidance from the counselor was always provided, students had to choose their college courses wisely. Whether during registration for courses for the next semester or while planning a career path in health care, student independence and decision-making practices boosted their confidence and self-esteem.

Self-awareness was evident through student ability to prioritize college work and studying and to learn from their mistakes. Interview data revealed that students had strong work ethics. Students wanted to succeed in their college courses and were able to prioritize school work over other commitments, such as work and socializing. This self-awareness was driven by the incentives that made students initially join the program, such as earning credits and graduating with an associate degree (Anthony, Walter, Edward, and Abby). Awareness was also a product of student interest in learning about the fields they were specializing in—as is the case of Keith, Ken, and Emily. As for Maya, a B was not a good enough grade and she was not satisfied when unable to receive the A grade: “I was not happy in my psychology class because I was trying so hard for this class and I got a B in the end. I was expecting an A.” When asked about his GPA, William explained the competitive nature of the early college program: “You are looking at 3.875 GPA and the reason I put it into three significant figures is because you can find another student who is probably only 0.001 points away from you.” Parental guidance and pressure also influenced student perceptions of success: “A grade doesn’t determine how much you know, but with my mom, I had to get those As” (Stacey).

Self-awareness was also evident in student recognition of previous mistakes. Not all interviewed students successfully completed all their college courses. However, they could still recognize their faults regarding study habits, content skills, or cognitive skills and work on not repeating them. Students took responsibility when receiving a lower grade than what they had

hoped for: “It was probably my fault too, I could’ve studied more” (Diane). Data from interviews revealed that students perceived failure as being acceptable because it would lead to success later on with enough persistence and perseverance: “If you learn from your mistakes, then I think you’re ready for college” (Ken). William mentioned that he changed his study habits and time management skills and worked harder after failing his first math course.

Academic behaviors from teacher perspectives. Data regarding academic behaviors from teacher interviews included teacher perceptions of how students manage their time, acquire and maintain certain study skills and habits, and their self-awareness and motivation. Teachers also discussed what academic skills and behaviors they encourage and implement in their teaching.

Time-management. In her discussion of student academic behaviors, Mrs. Y. focused above all on the importance of time-management. In her classroom you can see posters that incorporate this imperative skill such as “Prioritize, Plan, and Perform” and “Due dates are closer than they appear.” She explained: “Time management to me is number one. We have a late policy where if they turn stuff in late; that is an automatic 25% and that’s usually the first dose of reality right there.” Mrs. Y. also referred to having what she calls “the little chat” with the students whenever she realizes they are behind. Mrs. Y. explains to her students the necessity of getting rid of distractions such as the cell phone and social media while studying. Similar to Mrs. Y., Mrs. Z. mentioned that she reinforces time management in her class. She uses the “Remind” application with her students to reinforce deadlines and assignment due dates—particularly with the juniors who are only there for two hours in the morning and then leave the high school building to their college classes. She also monitors student submission of assignments and lets them know if they are missing anything: “They might say I was really swamped or I had to study

for this test and that's where I think the whole time-management thing comes in." Mr. B. emphasizes the importance of study time-management by having students practice this skill in class:

I teach them time management by giving them different tasks. I'll give them a time limit to do one task and another five or ten minutes to do another task. I tell them to make sure everything is completed of good quality. Students also have to meet time limits in assigned presentations or speeches.

As for Mr. A., he explained how he emphasizes time-management: "I try to make deadlines reasonable. I also have my blog and I update it literally every day. I put due dates there." Mr. A. mentioned that students have good disciplinary skills. One example of being disciplined is their timely arrival to class: "Students usually get here on time even though there's no school bell. This is another difference from a traditional high school."

Study habits and study skills. One academic behavior that Mrs. Y. reinforces in her classes is group study and group projects: "It's an in-class kind of thing. I usually pick the groups. My purpose of doing that is just to see how they work with each other." Other times, when working on take home projects, Mrs. Y. allows her students to pick the groups they want to be in: "I tell them that sometimes in college you might have to do a group project and you've got to put up with everybody's schedule, you've got to be tolerant." Mrs. Z. also reinforces group study. Mrs. Z. mentioned that her students talk about difficulty adapting to group study and group work in college. Regarding group work, Mr. B assigns projects within groups in class. When assigning group work, Mr. B also assigns students with higher learning abilities in a group with students of lower learning abilities so they can collaborate and put together the project.

Regarding note-taking, Mrs. Z. explained that she does not reinforce note-taking as it is not needed as much in language arts as opposed to other subjects. When discussing note-taking, Mr. A. explained that taking notes is very important in his math class: “Not every student likes to take notes or is good at it so I try to emphasize it.” Mr. A. reinforces utilizing different study techniques:

Some students always say: I can’t study for math so I try to show them what I think is a good way. I suggest that they practice problems. I always see them walking around with flashcards for all classes and I say if it works for other classes why not try it here; whether it is vocabulary or a formula you are trying to remember.

Self-monitoring and self-awareness. One important academic behavior that the teachers discussed was self-monitoring and self-awareness. Teachers also connected this academic behavior to seeking help, using campus resources, and using office hours. Mrs. Z. mentioned that most of her students have self-monitoring and self-awareness skills. Students would seek help if they are not doing well in class and ask what they need to do in order to improve. Mrs. Z. also explained that students are encouraged to ask for help in college by using office hours: “By the time they graduate, students have to submit portfolios that prove that they visited their professors during office hours at least once per semester. The portfolio should also include the syllabus of each college course.” Similarly, Mrs. Y. mentioned that she encourages her students to ask for help:

The older kids come back or I’ll stop them in the hall way and ask them how they are doing in biology or anatomy at the college. Most freshman and sophomore students will come and ask for help but there are a few that you have to chase down and tell them we have to sit down and talk...they call us the resident nags.

Elaborating on self-awareness, Mr. B. mentioned that some students are too embarrassed to ask for help. For those who ask for help, he would work with the students one-on-one to identify their strengths and weaknesses regarding studying and understanding content. Mr. B. said that he encourages his students to go to their professors' college hours: "It is part of becoming an independent college student," he added: "But they say we understand you better, we are more familiar with you." Mr. B. also stated: "About 20% of students struggle but some are either not aware of it or too embarrassed to ask for help because they're struggling." As part of self-awareness, Mr. A. recognizes the persistence of students at the early college: "I hear often that students here don't like math...but they still work hard and take pride in what they do." Discussing office hours, Mr. A. explained: "When we had our freshman orientation, we did a campus tour and we brought up the fact that college professors have office hours... students are aware of the advertised college office hours but prefer the open-door school setting."

Student perceptions of contextual skills and awareness. Discussion of contextual skills and awareness included student perceptions of the college culture, the resources on campus, and how the early college has prepared students to apply for SAT, ACT, universities, scholarships, and financial aid.

College culture. One critical challenge that students faced in junior year was taking college courses with older students when they were only 15 years of age. Discussion of this age gap between the young early college students and other students enrolled at the community college was evident in student interviews. Early college students explained that they were intimidated by older students as evident in the words of Sarah, William, and Walter: "You're put into a class with people you don't know and they're like 18 or 25 or even 45 years old. It's different from when it's all your peers and everyone jokes around like in our high school classes"

(Sarah); “I had a nickname in my first math class; they called me 16...because I was 16 years old and everyone was older than me; I didn’t like it” (William); “It was funny that sometimes they would ask us: Are you even supposed to be here? Are you with someone? What are you doing here? Because we look so young” (Walter). Students wanted to feel that they belonged within the college culture regardless of the age gap, as Maya recalls:

I remember entering my first college class and seeing people that are twice my age...it intimidated me so much. I went and sat in the back and pretended I didn’t want to talk to anyone in case they found out I was a high school student.

Sarah noted, “I feel like if there’s someone that’s a little bit older than you, you’re not necessarily trying to impress them but you want to be their friend. You’re so young and you just want to be accepted by everyone.” Students, however, were still proud to be in college at a young age. Ken explained: “I felt like a kid being in classes with people who are 30 or older but it still felt good.” Similarly, Abby expressed her pride to be a young college student: “I felt proud like look at me I’m with these students that are at least five years older than me and I’m doing what they’re doing.” As the youngest in college classes, early college students were viewed by other college students as being smart, one factor that can lead to increased student self-efficacy and motivation: “I think a lot of people thought oh he’s in high school and in college he must be smart so they would ask me to join certain discussions or certain study groups” (Edward).

Anthony stated:

It got to a point where the older students, which were 10 or 15 years older than us, were asking us questions in class. I mean it is a good thing knowing that you know this valuable information at a young age.

Another challenge that students faced was getting used to the college campus and college processes. Although early college students enjoyed the freedom that the program offered by being on the college campus, they were overwhelmed by the campus layout. While Diane referred to being intimidated by the large campus size when she started taking college courses, William tried to solve the problem his own way:

I didn't know the layout of the college so I kind of got lost every now and then. So one day I went after class and I pretty much mapped the whole place in my head. I know the shortcuts now.

Students understood that being exposed to the college processes facilitated their integration into the college culture, as Keith reflected:

I think having the early exposure makes me more prepared to go into a university now as an adult. All the other incoming freshmen are worried about this big transition but for me it is mostly just going to be business as usual. I have a general idea of what to expect. I'm not going to be surprised by anything.

However, one observed aspect of the college culture across the majority of early college students was their struggle in interacting and working with college professors. Keith explained his experiences with his college instructors: "I've had so many professors here, some that I really liked and others that I did not like." Abby, who struggled in two college classes, blamed this struggle on having instructors to whom she did not feel she could relate. Students continuously compared the support system in their high school to that in college. Harold explained:

Our teachers at the early college high school were more supportive than the college instructors. We were used to having twenty students in high school classrooms and in college there was like 30 to 40 students and the professors are different; they do not know

you by name because it's only one semester; you can go to them for help but it had to be on their own time.

Edward shared, "We didn't really know the teachers in college that well so we couldn't talk to them the way we did with our teachers in high school," and Walter noted, "I think it's more personal at the high school. You kind of become family; college classes aren't as personal."

University applications, ACT, SAT, scholarships, and financial aid. Student knowledge and understanding of university applications, scholarships, and financial aid processes was well supported at the early college. Students explained that early on in the program, the counselor would have one-on-one meetings every semester with students to discuss their progress and to plan next steps regarding course selection. In later years, the counselor's focus was to guide students in university choice that would best fit their future plans and needs. Ken explained how the counselor helped with class selection within the program and with career and university choices: "The counselor here would help you with your classes and what you need to have done. She would show you everything you have to get filled out and what to do to apply for universities." Students explained that the counselor would have monthly meetings during their senior and super-senior year to discuss college applications. The counselor and the principal arranged for seminars once a month to discuss scholarships, financial aid, and college applications for students in their last year in the program: "The school had seminars on Wednesdays. They talked about scholarships and financial aid and applying to colleges" (Harold). Interviewed students explained that the counselor and the principal held the seminars in the computer lab and students were able to go to the designated website and apply right then and there. They explained that both the counselor and the principal were available to sit down with students and discuss any questions or concerns they might have during applying. Students

described these seminars as informative. However Emily, Ken, and Edward, who had clinical courses during the time of the seminars, said that they were not able to take full advantage of them. Other means of providing students with contextual skills and awareness were email correspondences that would provide information for students who would miss the seminars: “The counselor would send emails every week, sometimes multiple times a week with scholarship opportunities. It really came down to the student to try them or not” (Sarah). Sarah and Abby reported that they took advantage of these scholarship opportunities.

Efforts to enhance student college knowledge were not implemented by the counselor alone. Preparing students for college entrance exams such as the ACT/ SAT/ PSAT was also facilitated by the early college teachers. In addition to a preparatory course for college entrance exams that was required for all students, interviewed students repeatedly explained that their bell work included examples of ACT/SAT questions: “Mrs. Z. gave us practice exams almost every day. That was the first thing we would do in class for like bell-work. We’d come in and she’d give us a packet of 15-20 questions” (Harold). Students said that teachers pointed out what to focus on in every content area for ACT/SAT and offered practice tests and booklets: “They integrated the ACT preparation into the curriculum. We all got review books to take home and use. They were really good ones too” (Keith); “They provided us with booklets and practice exams for the test” (Ken). Students also reported that teachers prepared them for the ACT or SAT by encouraging them to take the practice college admission tests that can give students an idea of what the actual test looks like.

Resources at the early college and on campus. Students discussed that attending student orientation at the beginning of freshman year was the best way to learn about the early college program and about resources on the college campus. Once accepted into the program, early

college students in their freshman year go through a two-week orientation process. Interviewed students described the orientation as an exciting opportunity that allowed them to be aware of what is coming ahead and to look forward to being in the program. Early college students enjoyed the availability of many helpful resources and facilities on campus. Examples of these facilities are the learning lab where tutoring activities take place, the computer lab, and the library. When asked how often they utilize facilities and resources on campus, student reported using the learning lab and the library often. Students explained that they used the learning lab regularly to receive tutoring in science courses and to participate in study groups (Anthony, Walter, William, and Maya). Students explained that they used the library to work on research for college courses and for studying. Others said that they utilized the computer lab on the college campus (William, Harold).

Contextual skills and awareness from teacher perspectives. Discussion of contextual skills and awareness from teacher perspectives included teacher views of how students perceive college culture. Teacher interviews also indicated how teachers facilitate college knowledge processes, such as by preparing students to apply for colleges, scholarships, and financial aid. Teachers also emphasized student orientation that the early college program provides for students when they start 9th grade.

College culture. In her discussion of student adjustment to college culture, Mrs. Y. explained the challenges students undergo when they start college courses. One particular challenge is being with students from all ages. She discussed how one of her students did not want to mention in her college class that she is an early college student: “I think because she doesn’t want to be labelled as the youngest... They want to blend with everyone.” Being in classes with older students was also pointed out by Mrs. Z.: “We tell them during orientation that

when college classes start you will be on campus with people of all ages. Yet, I think they are a bit surprised by how old students are.” When asked about student understanding of the college culture, Mr. B. said: “I tell them you know this is how a lot of college professors operate. This is for example their mentality when it comes to a disruption of the class or cell phone usage...”

Student orientation. Contextual skills were mostly reinforced during student orientation. Mrs. Z. referred to how student orientation offered during the first two weeks for freshman students introduces students to the early college program. Orientation is an important aspect of the program, Mrs. Z. explained: “I and two other teachers arrange the two weeks of orientation at the beginning of every year for freshman students...you kind of get to know the kids then and we talk a lot about what is expected.” Similarly, Mr. A. discussed how orientation introduces students to the resources on campus: “We do some team building exercises and we do academic writing. We tour the library and we emphasize the learning lab. They also do CPR training which they need for the hospital.”

Scholarships, financial aid, Act and Sat preparation. In his reference to contextual skills and awareness, Mr. B. talks to his students about financial aid and scholarship applications. He explained how this is related to the content in his economics class:

In economics, we talk about debt and student loans. I show them what a financial aid application looks like and I really push hard for my students to apply to as many scholarships as they can. I think most of them wait ‘til they get to the college to find out more about scholarships...Yet, I introduce it to them. At least they are aware of what steps they have to take.

When asked about ACT and SAT preparations, all teachers explained that a preparation course is mandatory for all juniors to attend. Mrs. Z. noted that the early college is concerned

with fostering the academic progress of students who normally would not have gone to college and to provide them with that opportunity. Most students at the early college are determined to continue and complete a four-year degree: “We talk about the SAT: You’re going to need to do well because this sort of determines where you are going to go for college.” To prepare students for these exams, Mr. B. provides practice tests and testing strategies, such as how to prepare the night before the test. Mr. B. mentioned that students take the practice test once or twice before the actual ACT or SAT. He noted:

Now that students have the PSAT, all teachers here are now incorporating SAT strategies into the lesson plans...we would word things on assessments the way they would see it on an SAT test...my bell-work is also set up similar to the SAT format.

While anatomy is not required in SAT or ACT, Mrs. Y. explained that she prepares students for SAT by stressing the importance of reading skills. She also discusses with her physics students the kinds of problems that are like the SAT or ACT math problems: “I talk to the math teacher here and we collaborate for these tests...for example velocity in physics, he calls it rate in math but it is the same concept.” Similarly, Mr. A. is involved in facilitating student preparation for SAT and ACT: “Part of it is bell-work; throughout the year I give them examples of types of problems they would find in some of the preparation books...I teach them quick estimation and how to eliminate the wrong answers.”

Concluding Questions

Interviews with teachers and students included concluding questions that asked about what students perceived as the most liked and least liked aspect of the early college program. In addition, both students and teachers were asked about what qualities they perceive to be indicative of a college ready student.

Most liked and least liked aspects of the early college. When asked about the most liked aspect of the program, student responses were very similar. As discussed earlier, all students referred to the hospital experience as the most liked aspect, even the ones who did not end up wanting to pursue careers in health or medicine. All students also considered the school environment and the close relationships as one of the best features of the program. When asked about the least liked aspect of the program, many students referred to the rigor they had to endure and to the lack of extracurricular activities and sports at the high school level as discussed before.

Teachers also alluded to the hospital experience. When asked about what she thought students perceive as the best aspect of the program, Mrs. Z. referred to the hospital experience. Teachers also referred to the college culture. For Mr. A., the positive aspects included being on a college campus: "I'm so glad we are on a college campus, I think it makes a world of difference. Students get a quick peak at college earlier than any other typical high school student." Regarding positive aspects of the program, teachers referred to earning college credits and to the relationships. Mr. B shared:

The opportunities the program presents to them, meaning they could take so many college credits, graduate with an associate's degree, pave the way for a career and transfer to four year universities. And then the closeness of everyone here; it's a very comfortable environment for them.

For Mrs. Y., the small school size contributed to the positive aspect of the program as manifested in the supportive relationships as well as negative aspect represented by lack of school sports and activities. When asked about the least liked aspect by students, Mrs. Z. explained that it must be the rigor of the program. Mr. A's perception of the negative aspects included both the rigor and

the fact that they don't have too many electives: "The rigor can get overwhelming and then not having too many extracurricular activities is definitely a detriment."

Qualities of a college ready student. The final question in both student and teacher interviews aimed to understand what students and teachers perceive as necessary qualities needed for a college ready student.

When asked to describe a student who they consider college ready, students touched upon many of the qualities that belong to the four facets of college readiness. Based on student narrative, the qualities that each student perceived as important descriptors of college readiness were noted as well as the ways in which these qualities described by students fit within the four facets of college readiness. Abby perceived persistence and time-management as important qualities of a college ready student: "Someone who is responsible, hard-working, not giving up, knows how to manage their time, knows his or her limits"—these qualities fit within the third facet of college readiness or academic behaviors. Keith stressed time management, motivation, and self-determination. He explained: "A college ready person is one who manages time well and prioritizes; is motivated and determined." William discussed academic behaviors such as organization skills, open mindedness, good study habits, time-management, and note-taking skills. Diane stressed study habits, note-taking, time-management, and asking for help which are all academic behaviors. She said: "Good at studying habits, has good note-taking skills, recognizes the importance of time-management, willing to help or get help." In addition to academic behaviors, Edward emphasized maturity: "Having good note taking skills; knowing what to learn and what to take out of a teacher's lesson or presentation, knows when to act mature; is capable of managing their time." Emily said: "definitely someone that manages their time... they have a goal in mind and they are living it, in a way where you're not taking classes

that you don't need and you're not wasting time." Harold explained: "Ready to put all distractions aside and to be able to put time for classes." Ken emphasized self-awareness: "Being able to learn and take challenges; being committed and learning from their mistakes. You'll make some but then you'll improve yourself." In addition to academic behaviors, Stacey focused on contextual skills and awareness:

The people doing the best that I know are the ones that aren't afraid to go up to the learning lab and ask questions or to bother the teacher. You can't be afraid to ask if you need help and just knowing what works for you because not every study style works for everybody.

In addition to academic behaviors, Sarah focused on relationships and on college culture as well as on content knowledge:

They know how to manage their time, how to study; how to understand the material; asking the right questions and going to office hours if you don't understand something. And communication; knowing how to integrate into a different environment that you're not familiar with...and making a friend...you definitely need to make a friend, at least one.

Similarly Ingrid focused on contextual skills and on relationships: "They know what they want to do. They're taking the right courses and are on the right path, they know how to manage their time, how to study and how to deal with college instructors" Anthony mentioned maturity, study skills, and utilizing available resources. He said: "Time management, maturity, know how to get ready for exams, know what and how to study, knowing what's available to you and using your resources like the learning lab." Farah mentioned motivation and self-determination. She said: "You would have to be motivated. There's no room for being unmotivated. You have also to be

determined and to manage your time well; know how to prioritize.” Time management and maturity were considered priority for Walter: “I think time-management is number one; also being mature about the environment, knowing that you have freedom but you shouldn’t take advantage.” For Maya, relevance and school activities were important because she said they help to improve contextual skills and awareness: “Someone that is well rounded; not just focused on school. Activities do really help you. They’re not just there to have fun; they build your application, your resume, and your connections.” As evident from student quotes, most early college students placed more weight on the last two facets of college readiness in describing a college-ready student (academic behaviors and contextual skills and awareness) as opposed to the first two (content knowledge and key cognitive skills).

Similarly teachers focused on the academic behaviors. However, they particularly stressed motivation and maturity. Describing a college ready student, Mrs. Z. said, “someone who is academically prepared, emotionally ready, organized, able to manage their time and to speak to an adult on their level.” She added that most students at the early college can be college ready but a few may not have the maturity yet. As for Mr. B., college ready students “have the awareness of what college life is like as far as academically speaking, they have to have the patience for it and a set of skills to succeed in the college environment. Having the motivation absolutely helps.” Mrs. Y. added: “We’re not looking for all ‘A’ students to be admitted into the program. It’s just whether they have the motivation or not. You can be a ‘C’ student but have that motivation.” When asked about qualities of a college ready student, Mr. A. stressed the importance of career readiness instead:

The concept of this early college isn’t always preparing them for a four-year college.

Some kids will go but the concept is that they’ll be ready for the workplace when they’re

finished with our program. They'll have an associate's degree and a marketable skill... there's nothing wrong with going to work or having a skilled trade.

A common practice that teachers at the early college do every year is to ask graduating seniors to write words of advice for incoming freshman students. The following are the words of advice that some of these seniors write for future early college students. These comments are worth sharing because students touched on many of the college readiness skills that were discussed in this study. Student comments included:

Pay attention in class; Do your homework; Procrastination is a no-no; Time-management is the key; Cramming never works; Be organized; Teachers nag you for your own good; This school is a commitment; aim high; Take the hospital and lab time seriously; Go to your counselor for anything; Listen to advice from teachers; Physics always comes back to haunt you; Divorce Netflix; Don't guess, know; Stay positive.

Conclusion

This chapter presented data from interviews with 15 graduating students and with four teachers from the early college. Interview data were coded and categorized in this chapter following the order of interview questions. Data from student interviews was triangulated with data from teacher interviews to provide insight into student experiences at the early college and student perceptions of their college readiness skills. The main categories that emerged from the interviews were student perceptions of the three R's framework of rigor, relevance and relationships and of the four facets of college readiness. The next chapter presents a discussion of the emerging themes based on the analysis of data in this chapter.

Chapter 5: Discussion

This chapter discusses themes that emerged after analysis of data from student and teacher interviews. The chapter presents themes that would answer each of the research questions. It also connects the themes to the reviewed literature regarding the early college framework and the college readiness facets that were discussed in Chapter 2 of this dissertation. In presenting the results of this study and how these results confirm or contradict findings in the literature, the researcher aims to answer the two main research questions and the seven sub-questions for this study. The main research questions for this study are:

- a. What are the perceptions of students graduating from an early college program of their experiences within the program?
- b. How do early college students perceive that their experiences have helped develop their college readiness skills?

Based on the above two research questions, this study was conducted to answer the following seven sub-questions:

1. What are the perceptions of graduating students of the program rigor?
2. What are the perceptions of graduating students of the program relevance?
3. What are the perceptions of graduating students of the program relationships?
4. How do students perceive that their experiences have helped develop their key cognitive strategies?
5. How do students perceive that their experiences have helped develop their key content knowledge and skills?

6. How do students perceive that their experiences have helped develop their academic behaviors?
7. How do students perceive that their experiences have helped develop their contextual skills and awareness?

Organization of the Chapter

This chapter allows the reader to correlate the themes and findings discussed here with data presented earlier in chapter four and to relate these themes to the literature in Chapter 2. Chapter 4 of this document organized data from teacher and student interviews into seven main sections. The seven sections reflected student perceptions of their experiences regarding the three R's framework of the early college and the four facets of college readiness. Each of the three R's and each of the four facets corresponded to one research sub-question. In this chapter, the sub-headings are arranged to reflect emerging themes from the seven sections and are organized to answer every research sub-question that corresponds to one of the seven sections. The researcher discusses how data from student and teacher interviews lead to the themes for the seven sub-questions. Next, the researcher contextualizes literature that supports or refutes the claims made from analyzed data. After answering the research sub-questions, the researcher then provides conclusions to answer the two primary broad research questions. Finally the researcher discusses indicates implications for this study and offers recommendations for future research.

Research Sub-Question One

The following are themes that emerged from interview data to answer the first sub-question "What are the perceptions of graduating students regarding the program rigor?" Emerging themes for student perceptions of the program rigor are also connected to literature.

Getting over the bumps in 10th grade. Student comments of the rigorous program at the early college indicated that they experienced many challenges during 10th grade year: “Tenth grade was the most challenging but I am always up for a challenge” (Diane). Harold shared this sentiment, stating:

Tenth grade was the most stressful year out of the whole program. It was the hardest year because we were getting into college classes and that’s what brought the pressure on us. We were like 15 years old taking college classes and we did not think we were ready for it but we ended up doing fine.

The challenges of 10th grade that were explained by students included having to study for longer hours during 10th grade year and having to balance several commitments, such as college courses and hospital rotations. Teachers referred to the effect of rigor on students in 10th grade by indicating that some students may start “cracking” or “breaking down” during that time. Data from student and teacher interviews provided evidence that students needed and received the most support from their early college teachers and from the counselor during sophomore year. Thompson and Ongaga (2011) indicated that having a rigorous curriculum at the early college should be accompanied with academic support and a focused intervention for under-achieving students. Similarly, Born (2006) as well as McDonald and Farrell (2012) explained that the early college provides support services that target student college readiness and that accompanies the preparatory coursework. Besides teacher support, student self-efficacy and motivation also helped students deal with the challenges of rigor. As Mr. A explained, “It is the student wanting to be here. If they want to be here, they realize what it takes and they’ll get over the bumps.” These results correlate with data from research conducted by Conley and French (2014) who discussed how certain qualities—such as student motivation, persistence, and interest in reaching

certain goals—helped students overcome the challenges they faced in their math and English courses.

The two sides of rigor. Definitions of rigor in the literature vary. Edmunds (2015) defined rigor as follows: “Rigor is not something extra you have to do on top of everything else, rigor is part of quality instruction and part of a quality schooling experience; you cannot have quality instruction or a quality school without rigor” (p. 1). Variations in student definitions of rigor were evident from student interviews. The most common response identified by students was that rigor was something more challenging or required more effort. When asked to define rigor, Ken indicated that rigor meant putting forth effort to achieve a goal. Edward and Sarah explained that they had to study for long hours. Six out of the 15 interviewed students indicated there were negative implications of the rigorous program: they were not able to play sports because they had to put more time into their studies and they had to take more courses than traditional high school students did. One student admitted facing burnout and “breaking down,” which aligned with data from teacher interviews. These comments indicate that students had a negative perception of rigor while going through the early college experience. Teachers indicated that they identify students who are challenged by the rigor and work with them. This rigorous experience may have been detrimental to students if it were not accompanied by teacher support. The literature discussed how experiencing poor performance in rigorous early college classes was threatening to student interest in the subject taught and to student self-esteem (Alaie, 2011).

Although rigor was one of the least liked aspects of the early college, some students were still able to recognize its benefits in preparing them for college. Emily and William acknowledged that rigor is what granted them positive academic achievement or getting to the finish line: having both a high school diploma and an associate degree in five years. Woodcock

and Olson Beal (2013), Fischetti, Mackain and Smith (2011) as well as Edmunds et al. (2010) revealed that the rigorous curriculum which requires students to take college courses before transferring to a four year postsecondary institution helped students to be more prepared to succeed in college courses. These studies also indicated that rigorous coursework allowed students to be more confident in their ability to overcome the challenges of a college curriculum.

Focus on grades. Another theme that emerged from the interviews was student focus on grades. For example, it was evident from the interview with Maya that she was not happy with a B grade and from the interview with Stacey that her parents pushed her to achieve better grades. When asked about his GPA, William explained the competitive nature of the early college program: “You are looking at 3.875 GPA and the reason I put it into three significant figures is because you can find another student who is probably only 0.001 points away from you.” Teachers also alluded to being proud of their students who received good grades. For example, Mrs. Y. repeatedly mentioned that students do well in their college courses. She was very proud of the academic achievement of her students in their college biology and anatomy courses: “Just last week, one of our juniors told me that she got 95% on her college biology test and the class average was 75%.” These results are similar to the positive academic achievement of early college students revealed in the reviewed literature. Research on early college program indicated that students received an average of 3.1 GPA for courses they took while they were at the early college (AIR & SRI, 2009).

However, emphasis on grades does not always translate to student understanding of content or of student academic engagement. Interviews with teachers at the early college showed that teachers were aware that grades are not indicative of student achievement. Teachers indicated that there is less focus on grades while examining applications for students who get

admitted into the program. When discussing program requirements, teachers indicated that students were not selected for admission based on their grades but rather on their potential to succeed. Mrs. Y. explained: “We’re not looking for all ‘A’ students. It’s just whether they have the motivation or not. You can be a ‘C’ student but have that motivation.” Motivation was determined by student interest in the program and by willingness to work hard and to persist in it. This aspect of the early college coincides with research that emphasizes the importance of programs that help the low achieving students. Kuh (2007) indicated that understanding the precollege experiences of the least engaged students and involving them in effective programs and practices can improve their academic achievement. Leonard (2013) also indicated that the academic support provided to low-achieving students continues to make the early college the program of choice for these students.

It can be concluded from the discussion of themes regarding rigor that both teachers and students perceived the program at the early college to be rigorous, challenging, or requiring hard work. Students perceived both advantages and disadvantages of the rigorous curriculum at the early college. The advantages of rigor included that students perceived rigor to be helpful in developing college readiness through providing them with the knowledge and skills needed to be successful in college. The disadvantages that students observed included having to put in extra work and effort to study for their high school and college courses, particularly in 10th grade, and not being able to participate in school activities. These disadvantages, however, were overcome by student motivation to do well and reach a goal at the end of the five years of the program. Teachers also indicated that students had the motivation and were determined to do well because they think of going through this program as a means to an end. Student motivation can therefore be considered one factor that led to student academic success in the early college program.

Research Sub-Question Two

The following are themes that emerged from data regarding the second sub-question “What are the perceptions of graduating students regarding the program relevance?” Emerging themes for student perceptions of the program relevance are also connected to literature.

The program highlight. Students considered the hospital experience as the most liked aspect and the “highlight” of the early college program. Relating school work to future career plans for students at the early college program either kept students interested in health careers or made them decide early whether this path was what they really wanted to pursue. Data from teacher interviews confirmed this finding; teachers explained that students were able to make decisions regarding their future career paths based on the hospital experience and the clinical rotations the program provided. Relevance was evident on two levels: On the academic level, relevance can be seen in student interest in completing a postsecondary degree in a science discipline. On the career level, relevance was reflected by student interest in obtaining an associate degree that they can work with in the health field. Mrs. Y. said that students “had enough medical glimpses to see what path they want to go down.” In addition, both teachers and students explained that the hands on experience provided by the hospital rotations and clinical shadowing made the program more appealing and interesting for students pursuing a career in health care. Thompson and Ongaga (2011) explained that opportunities for providing relevant experiences for students at the early college are crucial and are represented in offering practical learning opportunities and community learning experiences. Alford et al. (2014) indicated that students should be able to find connections between their academic studies and work. The hospital experience at this early college program was perceived as an opportunity for students to

develop experiences that were relevant to their course of study and to their future career plans. This aspect of relevance made students more interested in succeeding within the program.

A sense of independence and self-confidence. One common aspect of relevance that was evident from teacher interviews was relating the hospital experience to developing student independence and maturity. The hospital experience helped students to develop a sense of independence and self-confidence because students were able to witness procedures and surgeries to which many students their age would not get the chance to be exposed: “It gives you experiences that a lot of people don’t have. They don’t go into hospitals and do rotations in their specialties until they’re a lot older” (Harold). The reviewed literature revealed that a student’s learning experience is improved when it is related to career goals and aspirations (Alford et al., 2014; Thompson & Ongaga, 2011). Students also had to be on their own while shadowing and during their clinical rotations at the hospital and had to develop a sense of responsibility to understand and follow the hospital protocols. In addition, students acquired self-confidence when they had to interact with adults and patients within the hospital setting. This provides evidence that the program relevance influenced student academic behaviors and overall growth.

Lack of interest in extracurricular activities. Lack of sports and electives at the early college was one negative aspect that most students talked about. Students said that they would have liked to have more electives, sports, and clubs similar to a traditional high school. Parallel to what was evident from student interviews, teachers said that students are usually not happy about the lack of sports and are “pouty” about not having many options for activities to join. Teachers added that even if more activities were available, students could not have joined them due to time constraints. Similarly, interviewed students indicated that they were not interested in joining clubs and activities when they started their college courses on campus due to time and

work commitments. Students explained that the rigorous curriculum, among other factors, prevented them from committing to college activities. It can then be concluded that the program rigor had a negative impact on the aspect of relevance that is represented by participation in extracurricular activities.

Teachers at the early college made efforts to provide students with elements of relevance through arranging venues at the high school such as Student Council and National Honor Society and encouraging students to participate in extracurricular activities on the college campus. Mr. A. advocated for student activities and explained that extracurricular activities establish relevance because they help students build their leadership and social skills. Similarly, Mr. B. and Mrs. Y. referred to their efforts in providing students with venues such as the debate club and HOSA. Although these venues were offered at the early college, students felt so overwhelmed by the demands of their course work that many chose not to join them. In addition, some students felt that the venues were not enough to contribute to a rich college application. Thompson and Ongaga (2011), as well as McDonald and Farrell (2012), discussed this feature of the early college high school design; highlighting the absence of extracurricular activities such as sports, band, and student clubs and the lack of the social aspects of a traditional high school. Students have to make the hard decision of giving up participation in these activities when moving to an early college high school. Similar to results that emerged from this study, a study performed by Woodcock and Olson Beal (2013) explained that the rigor of college courses required students to spend a long time studying and prevented them from participating in extracurricular activities.

In conclusion, themes generated from this study to answer the second sub-question revealed student perceptions of the profound influence that the element of relevance had on

students' positive experiences within the early college program. The relevance of the program to student future careers was represented by the hospital experience. Students were able to experience different career paths within the health field and decide on pursuing the path with which they felt most comfortable. Students also had the opportunity to see the course content applied in practical settings and to witness how professionals in the field apply cognitive strategies, such as problem solving skills and analysis. The second type of relevance that students experienced—relevance to future academic goals—was represented by earning credits and completing an associate degree. Interviewed students perceived earning credits that they could transfer or completing an associate degree as an advantage of being at the early college. Both aspects of relevance were perceived by students as positive aspects of this five year program. Thus relevance can be considered the cornerstone of the program; the connection of the hospital experience to career paths provides one aspect of relevance and the connection of the program to college culture and to attaining a college degree provides relevance from a different perspective; one that is needed for college readiness. The significance of these findings is in providing evidence of the impact of relevance on college readiness. Extrapolating results from this study and applying relevance of student academics to future goals and career aspirations in academic settings can help improve student college readiness.

Research Sub-Question Three

The following are themes that emerged from data related to the third sub-question “What are the perceptions of graduating students regarding the relationships within the program?” Emerging themes for student perceptions of the relationships within the program are also connected to literature.

Teachers as support system. Students repeatedly discussed the strong student-teacher relationships and how caring and helpful their teachers were: “Mrs. Z. always believed that we could do it and was always there if I had any questions” (Diane). Students received help, encouragement, and support from their high school teachers not only during the first two years when they were still completing their high school classes but also when they were enrolled in their college courses and therefore throughout the whole five years of the program. Both students and teachers indicated that the school structure and small class size were factors that helped build these student-teacher relationships. Interviewed students indicated that having supportive teachers who cared for them and helped them to succeed in every way possible was one of the best aspects of the program. One student even said that she joined the early college because of the school structure. One conclusion that can be made here is that supportive relationships helped ease the rigor of the program for interviewed early college students. Teachers had a critical impact on student growth. William explained how his teachers had a positive influence on him: “I love the way they teach. They get you involved as much as they can. They taught me to be responsible.” Similarly Walter said: “They teach you how to be a gentleman. Just the way they speak to you, they don’t speak to you like you’re a little kid. They treat you like an adult.” Encouragement from teachers was another factor that helped build these relationships: “Mr. A. told me that I was the most improved from freshman year to junior year” (Harold). Kaniuka and Vickers (2010) indicated that because the early college high schools are generally much smaller in size than traditional high schools, they tend to focus on caring and supportive relationships between faculty, students, and staff. Describing the caring atmosphere at Cross Creek Early College, they added that it was not only the emphasis on these relationships within this small school that made a difference, but rather focusing these relationships on the purpose of student

learning. Strong supportive teacher-student relationships were also characteristics of the ECHS's in the study by Thompson and Ongaga (2011) and the study by Edmunds et al. (2010). Similarly, MacDonald and Farrell (2012) discussed how in their study "emphasis on college and career was carefully coupled with a caring atmosphere" (p. 222). Similar to other studies that examined early college program, the caring atmosphere at this early college gave students support for academic success and allowed them to overcome the challenges of rigor.

Peers as support system. Strong peer relationships helped students to overcome the program challenges in 9th and 10th grade due to small school and class sizes. Students also took similar courses during 9th and 10th grade and had to be together in classes for long periods of time. Friendships faded away in 11th, 12th, and 13th grades due to students moving on to different college courses and having different schedules. Students were intimidated by older students in their college courses and initially had difficulty building relationships with these older students. However, students felt that they were viewed as being smart by their older college classmates, an aspect which helped them build their self-esteem and self-efficacy. Students indicated that they also participated in study groups on campus and were able to make friendships with members of their study groups. The study by Thompson and Ongaga (2011) discussed the positive impact of strong peer relationships at the early college: "Peer relationships, in this context, promote a safe learning environment, positive academic and social support, and a sense of belonging where students support and push each other towards high academic achievement" (p. 47). Further, the authors found that students learned to be supportive of their peers because they were supported by their teachers: "The notion of reciprocity is important, for as students are supported by their teachers, they reciprocate in their efforts toward competence and in their support of peers" (p. 49). In this present study, similar findings were

evident in how teachers supported students and students supported each other at this early college program.

Parents and siblings as support system. Data from teacher interviews indicated that parents were encouraging and supportive of their student success. Parents wanted their children—who are mostly first generation college students—to graduate from the early college and earn a postsecondary degree. In doing so, parents hoped that their children would have a better future than they did. Teachers explained that students were able to persist in the program rigor because they had parents who pushed them and supported them to be successful. At the early college, both parents and students shared a common academic goal which is student academic success as they participate in the program and complete a postsecondary degree.

In addition to family guidance, sibling relationships played an essential role in students' decisions to join the early college. The literature discussed how students' decisions about college are related to social and cultural capital (Bourdieu 1994; McDonough 1997). This leads to the conclusion that the cultural capital of interviewed early college students influenced their decisions to enroll in and persist in this program. Cultural capital here stems from student background as first generation college students. As evident from student demographic data, 13 out of the 15 interviewed students were first generation college students. The early college provided these students with the college knowledge they needed to succeed as first-generation college students. Economic capital also plays a role in student decision regarding college enrollment and completion (Perna 2006). The literature described most students enrolled in dual-credit programs as minorities, under-represented, or underserved (Bailey et al., 2002; Hoffman et al., 2009; Hugo, 2001). In this study, student demographic data revealed that most interviewed students were born to immigrant parents who arrived to the United States looking for

opportunities to improve their social and economic status. Data from student interviews revealed that financial incentives were important factors in student participation in the early college program. Earning free college credits was appealing to many interviewed students who come from low income backgrounds and/or from large families of many siblings.

In conclusion, themes and findings for the third research sub-question in this study support the literature that discusses the positive impact of relationships at the early college on student academic experience. Support of students by their teachers was viewed by students as one of the pillars upon which the early college has built its success. Similarly, students perceived that their strong connections with peers—particularly in the first two years of the program—helped them go through the rigor of the program. Students also reported that their parents and siblings had encouraged them to enroll at the early college. Teachers indicated that parental support was a factor that led to student success and persistence. Although the reviewed literature provided evidence that teacher and peer support were characteristics of strong relationships at the early college, findings from this study indicate that parental support was another element of these relationships and that parental involvement in their students' schooling has improved student academic outcomes and the overall early college experience.

Research Sub-Question Four

The following themes are organized to answer the research sub-question: “How do students perceive that their experiences at the early college helped develop their key cognitive strategies?” Themes are also connected to literature.

Student understanding of cognitive skills. Students indicated that they learned and understood how to apply key cognitive strategies. Students discussed how they applied critical thinking, problem solving, and analytical skills in their college courses: “We were required to

analyze and discuss certain situations in my psychology and English courses. I was definitely a participant in class discussion in these courses; both of them had a strong analytical component” (Keith). Students explained that the debates the government teacher implemented in the high school government class improved their discussion, analysis, and interpretation skills. Students also explained that the course work at the high school and the hospital rotations helped them to develop practical knowledge that they could apply in their college courses, particularly for students who were enrolled in an applied health science field: “A whole lot of stuff I learned in Mrs. Y.’s class helped with my clinical courses in surgical technology; the words from medical terminology were also applicable big time” (Ken). As Keith explained:

There was plenty of stuff that we were able to apply in our college courses. There’s the stuff from anatomy and medical terminology and then there’s the stuff from the allied health course at the hospital. On the first day of my emergency medical services class, I was the only one that knew how to take blood pressure and take vitals.

Ken, Edward, and Keith discussed how they needed to apply critical thinking to make sound decisions while analyzing case studies in specialized courses for their chosen health concentration. As the innermost facet that coincides with all the nested facets in Conley’s framework, Conley (2007a) explained the crucial role that cognitive strategies play in preparing students for college. While early college students perceived that they possessed the cognitive skills of college readiness, Conley (2010) indicated that these skills are not well developed for freshman students: “Several studies found college faculty members nationwide...to be in near universal agreement that most students arrive unprepared for the intellectual demands and expectations of postsecondary faculty” (p. 33). Conley (2010) added that critical thinking and problem solving were the cognitive skills that needed improvement for freshman students. In this

study, student perceptions indicated that they were able to apply cognitive strategies in their college courses thus providing evidence that the early college has helped students to develop these skills that are usually lacking for freshman college students.

Student development and cognitive growth. Although students talked about applying key cognitive skills in college courses, they had difficulty defining or naming them. This was evident in how Ken, Edward, and Harold defined critical thinking. Data from teacher interviews regarding the facet of key cognitive strategies indicated that this area was perceived to be less developed for students at the early college compared to the other three facets of college readiness. Teachers explained that the young age at which students start taking college courses was the main reason that the key cognitive skills, such as critical thinking and problem solving, were not fully developed for students at the early college program. Mrs. Y. stated: “Their brains are not fully developed yet...” and Mrs. Z. clarified that students’ maturity is what enables them to apply these skills. Conley (2010) indicated that cognitive strategies describe patterns of intellectual behaviors that can be developed over time so that they become dispositions, intellectual habits and thinking skills. These skills would be used by students in college while applying content knowledge.

Interviews with the teachers revealed that teachers at the early college expose students to practices that develop their cognitive skills, such as interpretation and analysis. Opportunities for cognitive growth are evident in the analytical skills that Mr. B. and Mrs. Z. described using in their teaching practices. Students who joined the applied sciences reported that they acquired a wealth of practical knowledge during the early college years and then applied in their college courses. Teachers at the early college referred to increased student personal growth and thus an improvement in student utilization of these skills from one year to another. Mrs. Z. said: “We

usually see growth from their sophomore to junior year and see how they become young adults. I think it is nice seeing that kind of maturity.” This explains student perceptions of their ability to apply cognitive skills in their college courses.

In conclusion, while Conley (2010) mentioned that critical thinking and problem solving were proven to be the main skills that freshman students were lacking, this study provided evidence that students perceived they were able to acquire cognitive strategies such as analysis, interpretation, critical thinking, and problem solving at the early college and then apply them in their college courses. On the other hand, teachers reported that students lacked the maturity needed to apply these skills in 9th and 10th grade but they started understanding them as they proceeded in the program. Early college teachers only taught students in 9th, 10th, and half of 11th grade, but they perceived that they still witnessed the development of student cognitive skills in 12th and 13th grade and that students reached a better understanding of this facet of college readiness.

Research Sub-Question Five

The following emerging themes answer the research sub-question: “How do students perceive that their experiences helped develop their key content knowledge and skills?” Themes are also connected to literature.

Adequate preparation in science content. Students indicated that they were interested in learning the content of science courses offered at the early college. Students also shared that they were comfortable with their college science courses within their chosen concentrations. College science courses were considered by students to be easy to manage due to the adequate preparation that students received in their high school anatomy, biology, physics, and chemistry courses. Students explained that teachers taught them the basics that they needed to know for

their college courses and that the content in college builds on what they learned at the early college high school. Data from teacher interviews indicated similar findings. Teachers elaborated on how they use concepts from daily student experiences to make learning science more relevant. The hospital experience was the main catalyst in this learning process. Based on data from teacher and student interviews, one conclusion that can be made is that students perceived that the early college was able to keep them interested in either a general science track or a health careers track by facilitating their success in science courses and by using models to which the students were able to relate. Conley (2010) referred to the crucial role that the use of models and systems in science disciplines plays in student understanding of complex scientific concepts. Students reported that providing relevance to content helped them to maintain their interest in science content. They perceived that the laboratory experiments performed every Wednesday at the hospital setting facilitated their interest in the content taught. These experiments also reinforced student cognitive strategies by learning how to apply the acquired concepts. Conley (2010) indicated that “Laboratory settings are the environments where content knowledge and scientific key cognitive strategies converge to help students think scientifically and integrate learned content knowledge” (p. 38). Thus, relevant experiences represented in shadowing and hospital rotations as well as laboratory experiments helped students to understand the general science and health domains they were interested in and connect the content to relevant choices—both on the academic and career levels.

Teacher support in math courses. Math was a difficult subject for 13 out of the 15 interviewed students. Students reported that they did not like learning math content and that they found it hard to understand. Mrs. Y. explained:

I think some of these kids put up the math wall. They think they've been taught at an early age that they cannot do math and they put that in their head. I always tell them that they need to break that wall.

Conley (2010) stressed the importance of adequate math preparation for students in college. He explained:

Students possess more than a formulaic understanding of mathematics. They have the ability to apply conceptual understandings in order to extract a problem from a context, use mathematics to solve a problem and then interpret the solution back into the context. (p. 37)

Although students mentioned that math content was not easy to comprehend and apply at the early college, they indicated that the student-teacher relationships and the support they received at the early college helped them to overcome this obstacle. The fact that students struggled in math is not necessarily a new phenomenon. The important conclusion here is that the support that students received at the early college was perceived as a factor that helped them to overcome these difficulties.

Passion for teaching content. Students reported that their teachers played a significant role in developing their content knowledge. Data from student and teacher interviews indicated that the early college teachers were passionate about the subjects they taught. Students consequently felt more interested in the content they learned in their high school classes. Students referred to how teachers facilitated student interest in topics covered in science courses as well as in government and economics courses. Students alluded to the passion that teachers showed for teaching and that this made students more invested in the program as well. Teachers also indicated that they were able to help students relate what they learned to situations in their

daily life practices, was in the case of Mrs. Y. in her anatomy teaching and Mr. B in his economics and government lessons. Conley (2010) explained: “Understanding and mastering key content knowledge is achieved by processing information so that its structure becomes more apparent and then probing, consolidating and applying that information by means of the key cognitive strategies” (p. 35). Students reported that they developed critical thinking and problem solving skills in their college courses (case studies in applied sciences) and were able to apply the content they learned in their high school classes (debates in government). The catalyst that helped in this process was the passion that teachers showed in teaching content.

Room for improvement in research and writing. Students indicated that their writing and research skills were developed and refined through teacher support in the first two years of the early college program. Students explained that their writing and research experience at the early college facilitated the development of these skills for their college research papers: “We did research here; it was definitely helpful although it was way more complex in the college courses” (Ingrid); “I think I had the skills because we did papers in 9th grade and then we did more papers in 10th grade” (Ken). Students also referred to the skills that their language arts teacher taught them at the early college: “She taught me to always plan before I write” (Farah); “Mrs. Z. showed us the basic template and that’s what I did in my college courses too and that’s why I did good in my English course” (Stacey). Ingrid shared:

We’d write rough drafts and they’d edit them for us, they’d show us exactly what is wrong and ‘til this day I know not to make the same mistakes. I became much better with sentence flow and forming a thesis.

However, Mrs. Z. and Mr. A. explained that they would have liked to do more in the areas of writing and research to better prepare their students for college. Conley (2010) explained that

writing “is the means by which students are evaluated to some degree in nearly every postsecondary course” (p. 36). Students went back to their teachers for help in writing and research for their college courses. Key content skills were therefore enhanced through the support that students received from their early college teachers. Mrs. Z. and Mr. B. explained that students were able to present arguments properly but it was more the format, the grammar, and the citations of their college writing assignments with which students struggled. Conley (2010) explained: “College writing requires students to present arguments clearly, substantiate each point and use the basics of a style manual when constructing a paper” (p. 37). Mr. B. explained that he teaches his students how to find credible sources, an important aspect of learning how to do research in college courses according to Conley (2010): “The student learns the rules and ethics of collecting information and how to synthesize information” (p. 34). Even when they started their college courses, the students went back to their language arts teachers at the early college to help them in their writing assignments: “She helped me with citations, grammar, and proof-reading” (Ingrid).

In conclusion, the above themes suggest that students perceived that the relevance framework of the early college helped in the development of student key content knowledge and skills. The ample preparation of the program in science courses and the connections made to student life facilitated the development of content knowledge. In addition, students reported that their teachers’ passion for teaching as well as their teacher support of student learning helped them develop content knowledge in specific subjects, such as math and language arts. Content skills such as research and writing were also developed due to their relevance to student future academic goals. Research and writing are skills required in college and are therefore relevant to student academic preparation for a college degree. Part of the research at the early college was

relevant to student career choices in health sciences. Thus, applying content skills in the health field provided another type of relevance: relevance to future career goals in health care.

Research Sub-Question Six

Themes examined below are organized to answer the research sub-question: “How do students perceive that their experiences helped them develop their academic skills?” Themes are then connected to literature. The facet of academic behaviors was the most discussed by students during interviews. When asked about what qualities they perceived as important to being college ready, students emphasized skills belonging to the facet of academic behaviors more than any other facet.

Persistence, self-efficacy, and motivation. Student comments regarding the rigorous curriculum in 10th grade indicated that students were able to overcome the challenges of rigor due to their persistence, motivation, and self-efficacy. When referring to challenges they faced in 10th grade, Diane commented, “I’m always up for a challenge” and Harold stated, “We did not think we were ready but we ended up doing fine.” These student quotes reflect the persistence and perseverance of early college students. In fact, a common theme that was evident from all student interviews was that students were highly determined to succeed in the program, regardless of the obstacles with which they were faced. Students in the program were held to higher academic standards and were provided with consistent support from their teachers and their parents, which led to increased student self-efficacy. Self-efficacy was also a product of the competition that the early college students experienced in college courses with older students and their ability to perform on an equal level of knowledge with their older peers. Ingrid described her classmates by saying, “They knew what they wanted to do, they had everything set up, and they had plans.” Teachers also indicated that students had a goal in mind when they

started the program. Mrs. Z. said that when students enroll in the program, “they see a means to an end,” which is graduating within five years with both their high school diplomas and their associate degrees. Students also see other goals beyond this end. These goals include transferring to a university, completing a 4-year degree and working in a health-related field. Mrs. Y. referred to motivation as one factor that helped students to overcome the program rigor. She said: “I think they are highly motivated, they know what to expect in these college classes.” Robbins et al. (2004) revealed three constructs that can best identify student academic achievement and success: motivation, academic related-skills, and social engagement. Therefore, when combined with motivation and social skills, academic behaviors can contribute to college preparation and positive academic achievement.

Development of study skills. Interviews revealed that study skills were developed by early college students and reinforced by early college teachers. Conley (2010) indicated that time-management, taking class notes, and communicating with teachers are among the study skills needed for college success. Students perceived that their teachers taught them the art of taking notes in college courses and emphasized time management skills. Although teachers encouraged students to be punctual and to avoid procrastination in their high school classes, six out of the 15 interviewed students indicated that they did not learn how to properly manage their time until they started their college courses. These students attributed being successful in college to properly managing time and being serious about school. They explained that they realized that they were not doing as well as they wanted to in their college courses and had to give up distractions in order to focus on their school work. Students said that they aware that they had to put in long hours for studying outside the classroom. According to Conley (2010), student academic success in college is a product of acquiring a set of academic skills and behaviors that

allow students to complete their work successfully including dedicating a long enough time for studying outside class.

Another learned behavior that students perceived they had acquired when taking college courses was asking for help. Students who sought help from their high school teachers when needed seemed to have a positive early college experience. Although not many interviewed students said that they took advantage of the office hours for college professors, those who utilized office hours when facing difficulties indicated that they were able to progress in their college courses and build positive relationships with their college professors. A third learned behavior was joining study groups. Maya, Keith, Walter, and Anthony explained that study groups were influential in their college learning. As Conley (2010) explained, “An additional critical set of study skill is the ability to participate successfully in a study group and to recognize the critical importance of study groups to success in specific subjects that assume students will be using them” (p. 40).

Effective student self-awareness and self-monitoring. One of the most important findings from this study is the profound effect of self-awareness and self-monitoring on student ability to persist and succeed in the early college program. Conley (2010) defined self-monitoring as student ability to understand his/her strengths and weaknesses. Student self-awareness indicates student willingness to persist when encountering difficult tasks and the ability to identify a set of strategies that work best in specific situations. Students were able to recognize their mistakes and to avoid them as they progressed within the program. Diane and Abby realized that they were not interested in the medical field. They changed their domains of study and decided to pursue careers outside the medical field. Students also realized that they needed help in their math courses. Conley (2007a) explained that students should understand

how well they have mastered the content or a certain skill. Maya realized that she had to study harder for her college courses. Anthony recognized that he should manage his study time better by “skipping the gym” and avoiding waiting until the night before the exam to study. However, self-monitoring and awareness is not only about recognizing negative academic habits and fixing them. It can also be connected with positive academic achievements. On the positive side, students realized their passion for the medical field when they went through rotations. Their perceived interest in science courses led them to pursue degrees in general or applied science. Students were also aware of the goals they had set forth when they started the program: graduating with a high school diploma and an associate degree or transferring credits to a university. Such findings align with results from the study by Conley and French (2014) who discussed that reflecting on their learning helped students to overcome the challenges they faced.

The discussion of themes regarding academic behaviors leads to the conclusion that the interviewed early college students perceived that they learned and acquired the behaviors necessary for college readiness, such as time-management, study skills, self-monitoring, and self-awareness. Another prevalent theme was student motivation, persistence, and self-efficacy. Both students and teachers referred to the motivation and determination that early college students possessed and that these qualities helped them to undergo the program challenges. Findings from this study coincide with literature that discusses the crucial influence of academic behaviors on student college readiness. Results of this study also contribute to the literature by providing evidence that motivation and self-determination are essential qualities for student academic readiness in college.

Research Sub-Question Seven

The following themes are organized to answer the research sub-question: “How do students perceive that their experiences within the program have helped develop their contextual skills and awareness?” Themes are also connected to literature.

Access to college knowledge. Students reported that the early college provided counseling services and access to information regarding different career choices as well as help applying for universities, financial aid, and scholarships. In addition, the orientation that was provided at the beginning of the program allowed students to understand the procedures that took place at the early college—not only during the first two years of high school courses but also while taking college courses. The orientation also explained to students how to take advantage of the resources available for them at the college. In doing so, the early college was able to support student college knowledge. Conley (2010) described college knowledge as student understanding of the college procedures, norms and processes. College knowledge also includes an understanding of the nature of human and social interactions within the college culture. Considering that 13 out of the 15 interviewed students were first generation college students, it was necessary for the early college to provide this college knowledge for students enrolled within the program. Conley (2010) indicated that admission requirements and financial aid procedures are often difficult to understand and apply by many students. Student interviews showed that the early college counselor and the principal played an important role in developing student contextual skills and awareness by providing seminars and meetings for college applications, scholarships, and financial aid. Data from interviews indicated that teachers were equally involved in developing student contextual skills by preparing students for college admission exams.

Aspiring for postsecondary degree completion. Interviews indicated that contextual skills were emphasized at the early college. All interviewed students said they were interested in a postsecondary degree, are transferring to a four-year institution, and plan to complete their bachelor's degrees. Hooker and Brand (2011) explained that students develop a college-going identity when they are able to stay engaged in school and find college relevant to their future. Other studies that included interviews with graduating early college students revealed that early college exposure prepared students for success in college and increased their college going aspirations (AIR & SRI International, 2009; Edmunds, 2012; Woodcock & Olson Beal, 2013). At this early college, interviewed students perceived that exposure to the college culture and the amount of relevance that they encountered during the five years of the program increased their interest in completing a postsecondary degree. The relevance was manifested in both earning college credits or a postsecondary degree and exposure to career paths. Students' early understanding of the college culture and their ability to connect coursework with future careers allowed students to be determined to go above and beyond what the early college offered and to aspire for a four-year degree. Teachers at the early college mentioned that students were interested in courses that transfer to their universities of choice thus proving that students were thinking ahead and planning for their four-year degree as early as 11th grade.

Negative perceptions of college culture. Early college students and teachers indicated that students were able to experience the college culture partly through being located on a college campus. They had to learn how to navigate the campus and how to manage their schedules in 11th grade. Edmunds (2012) explained that being on a college campus helped students to learn the skills required to be successful in college. Although the transition to taking college courses on the college campus in 11th grade was not considered challenging in terms of

content, a common response among the majority of interviewed students was the difficulty of adjusting to the new college environment. College culture was described by students as intimidating and different from what they were used to in their high school. Considering the crossroad where rigor and the college culture meet, student perceptions provide evidence that rigor within the early college program was positive in the sense that it made students aware of certain aspects of the college culture, such as the fast pace of college courses and the importance of using the resources offered to them on the college campus. However, students felt that the program negatively impacted their adjustment to other features of the college environment, such as taking courses with older students and dealing with college professors. Conley (2010) explained that when students do not understand the college culture, they tend to be frustrated with their college experience which may lead them to drop out of college. One common response was that students were intimidated by having older students in their college courses. Another difficulty students faced within the college culture was communicating with their college professors because they were not used to the college professors in the way they were used to their early college teachers. Ongaga (2010) indicated in his study that early college students revealed lack of confidence in their ability to handle social responsibilities and expectations in college. In her discussion of why students come back to their high school teachers for help, Mrs. Z. explained: “I think it’s just a comfort thing; they’re familiar with us instead of trying to go to the learning lab and meeting a stranger or going to their college professors.” Mrs. Z.’s comment suggests that student contextual skills and awareness—in particular getting used to the college culture—may have been negatively impacted by the well-established student-teacher relationships. Students also indicated that they felt more comfortable with their high school teachers because they had known them for a long time. Some of them were not comfortable with

going to their college professors' office hours and preferred to ask their high school teachers. They indicated that college professors "didn't care" as much as their high school teachers did.

Concluding the discussion on contextual skills and awareness, themes and findings from this study provide evidence that students at the early college perceived acquiring contextual skills as they proceeded in this program. Contextual skills, also known as college knowledge, were manifested in student understanding of college application processes, college admission exams, and in learning the requirements for success in college courses, including using resources on campus. Students also indicated that they aspire for a four-year degree providing further evidence that college knowledge is a result of the program relevance to student academic goals. Although students referred to being familiar with the college culture, they also reported discomfort in working with older peers in college and with college professors, which suggests that students lacked familiarity with the social aspect of college knowledge.

Aligning Student Perceptions within Conley's College Readiness Framework

Most of the themes that emerged from perceptions of interviewed students at the early college align with Conley's framework of college readiness. Emerging themes provided evidence that interviewed students perceived that the early college program has successfully prepared them for college success through mastering the skills needed in college. For example, one theme that supports and extends Conley's framework is represented in student understanding of their cognitive strategies. While Conley indicated that freshman college students usually lack cognitive skills necessary to be college ready, early college students in this study perceived that they possessed cognitive skills and provided evidence of how they applied these skills in their college courses.

Another example of how these themes reveal the value of Conley's framework was evident within the fourth facet of college readiness, or college knowledge. Literature on early college programs revealed that students acquire college knowledge as they enroll in and complete the program requirements. In academic terms, students in this study perceived that they were able to transition successfully to the college work and adapt to fast pace of college courses. However, this was not the case regarding student adjustment to the social demands of the college culture. Student ability to adapt to college culture in this study was limited. Students perceived that they had difficulty working with college professors and with classmates of older age in their college courses. This affirms Conley's theory that student success in college is related to student understanding of college culture.

Although most of the themes that emerged from student perceptions align with the four facets of college readiness, this study generated themes that did not fit within Conley's framework. The themes that did not fit within Conley's framework were those of motivation and student engagement, two themes that both students and teachers talked about in the interviews. While Conley discussed academic behaviors, his framework did not specifically discuss motivation and student engagement in learning. The literature on college readiness discussed the role that motivation plays in student success in college (Kuh, 2007; Robbins et al., 2004). This essential quality for student success in college does not fit within any of the facets of Conley's framework and was perceived by students and teachers as a factor that helped students to overcome the challenges of rigor in this early college program. Although Conley's framework has been effective in portraying student perceptions of their college readiness at the early college in this study, a few findings from this study provided evidence once again that Conley's

framework is “a one size fits all approach” (Welton & Martinez, 2013, p. 200) and that it needs to be augmented in certain areas.

Interplay among the Three R’s Framework and the Four Facets of College Readiness

The discussion of emerging themes provided insight into the research sub-questions for this study and aimed to answer the two main research questions. To answer the first research question—to understand student perceptions of their early college experiences—it was important to understand how students perceived the rigor, the relevance, and the relationships within the program. In addition, to answer the second research question, “How do the early college students perceive that the early college experience has helped build their college readiness skills,” it was necessary to look at how students perceived the impact of their early college experience on each one of the four facets of college readiness. Analysis and discussion of themes from student and teacher interviews provided evidence that the early college framework of rigor, relevance, and relationships has profoundly impacted the four facets of college readiness. Below is an explanation of the connections between the three R’s framework and the four facets of college readiness: cognitive skills, content knowledge, academic behaviors, and contextual skills. These connections are grounded in the experiences described by the students who participated in the study and conclude the findings explained earlier in terms of the impact of the elements of the framework of rigor, relevance, and relationships on the four facets of college readiness.

The relationships among the 3 R’s. In addition to affecting the four facets of college readiness, elements of the 3 R’s framework have impacted each other as perceived by interviewed students at the early college. The following connections conclude how the 3R’s have contributed to this impact.

The rigor and the relationships. Student perceptions of rigor implied that the established relationships with teachers and peers at the early college have helped students deal with and overcome the negative impact of rigor. For example, students reported that relationships with teachers helped support students' learning in their high school courses and when they started their college courses. Data regarding relationships at this early college also provided evidence of parental support and of strong sibling connections. This finding indicates that all these relationships boosted the positive aspect of rigor and enabled students to foresee that the challenging curriculum was one way of preparing them for college.

The rigor and the relevance. While students reported that the curriculum was rigorous, they also perceived that it was relevant to their future academic aspirations as well as to their career goals. The rigor of the college courses was relevant to student interest in earning credits and pursuing a postsecondary degree. In addition, the opportunity to experience the hospital rotations and the many courses in 9th and 10th grade provided students with relevance to future career choices. This connection suggests that the students saw the relevance of the program as supporting their ability to manage the rigor of the program. However, rigor also had a negative impact on the aspect of relevance that is related to student participation in social and extracurricular activities on campus. Students indicated that their participation in extracurricular activities was limited due to the increase in study demands within the rigorous program at the early college. This leads to the conclusion that while the academic and career aspects of relevance had a positive impact on helping students overcome the challenges of rigor, the rigorous curriculum had a negative impact on the aspect of relevance that is related to student involvement in social life on campus and in college activities.

Rigor and the facets of college readiness. Rigor impacted all four facets of college readiness: cognitive strategies, content knowledge, academic behaviors and contextual skills. The following illustrates examples of how rigor has caused this impact.

Impact of rigor on key cognitive strategies. Students attributed their development of cognitive strategies, such as applying knowledge, interpretation, and critical thinking, to the rigorous college preparatory curriculum—although teachers felt that students developed these skills as they grew more mature. According to student perceptions, the rigorous high school curriculum provided students with opportunities to apply many cognitive skills that the students needed to succeed in college courses. When students started their college courses, they felt comfortable with using the cognitive strategies that they learned in high school.

Impact of rigor on key content knowledge. Students at the early college perceived that they were adequately prepared for content knowledge in their college courses due to their exposure to a rigorous curriculum in their high school courses. The curriculum included student exposure to two science courses as early as 9th grade, and then exposure to two more science courses and to college courses in 10th grade. While traditional high school students did not take physics until 11th grade, early college students were required to take physics in 9th grade. Early college students were also required to take anatomy and chemistry in 10th grade, in addition to medical terminology and an allied health college course. This rigorous curriculum embedded the content knowledge that students needed to be successful for college courses in both general science and in applied science disciplines.

Impact of rigor on academic behaviors. Students reported that the rigorous curriculum facilitated the development of time-management skills and other study skills. Students reported that they had to learn how to be organized, punctual, and to put forth enough effort and time for

studying in their college courses to persist and succeed in the early college program. Students who did not have time-management skills struggled in 10th grade and those who did not possess study habits and skills learned that they cannot succeed in the program unless they were able to get used to group study, learn how to take notes, and regularly attend class. Students also reported that they needed to have self-monitoring and self-awareness skills to know their strengths and weaknesses as they progressed within the program and to have the determination to persist when faced with the demands of the program rigor.

Impact of rigor on contextual skills (college culture). The relationship between rigor and college culture was evident in how students perceived that the rigor of the early college helped them get used to the fast pace and the requirements of college courses. Although most students perceived tenth grade as the hardest year in the program, they still felt that it was the rigor of that year that prepared them for college courses. Rigor also had a negative impact on students wherein they experienced difficulty in adjusting to the social demands of the college culture. Students indicated that they had a hard time when they started taking courses on the college campus with older students. They also had difficulty working with college professors. Thus rigor had both a positive and negative impact on student perceptions of the college culture.

Relevance and the facets of college readiness. Relevance also impacted all four facets including key cognitive strategies, content knowledge and skills, academic behaviors and contextual skills and awareness. These are illustrations of the impact of relevance.

Effect of relevance on key cognitive strategies. Students reported that case studies in specialized programs helped students develop problem solving, analysis, and critical thinking skills. The curriculum for applied science degrees exposed students to scenarios in which they had to apply these skills. In addition, students were able to apply the knowledge that they learned

in their government and economics classes because the teachers used authentic learning with real life scenarios. As a result, students were able to analyze this knowledge because they found it relevant to their everyday life. They were also able to apply this knowledge in related college courses.

Impact of relevance on key content knowledge and skills. Hospital rotations and laboratory experiments were identified by students as powerful ways of combining content knowledge and relevance at the early college. Students said that they were able to find relevance in what they learned in their hospital rotations and clinical shadowing experiences as they completed their applied science courses. Students were also able to find the laboratory experiments relevant to their college courses within the general science track. Students talked about the opportunity to transfer knowledge to authentic settings as being beneficial for helping them understand the importance of the course content. Regarding content skills, students stated that their research skills were developed through activities that provided relevance to content and encouraged students to expand their knowledge beyond the textbook. Mrs. Y. asked students to perform a research study in anatomy that was based on a health-related topic of their choice. In addition, students found the writing activities that they performed in their high school courses at the early college to be relevant to the requirements in college courses, particularly that most college courses require frequent writing activities. This emphasis on aligning instructional practices and assessment with the expectations for college and professional work was seen by students as being an important part of their preparation for college.

Effect of relevance on developing academic behaviors. The element of relevance represented in the hospital experience was identified by students as essential in helping them develop independence and confidence. Teachers explained how trusting students to be on their

own in the hospital gave students a sense of independence and responsibility that both the students and the teachers saw as being well aligned with college academic behaviors and with career responsibilities. Students also mentioned that the hospital experience helped them gain confidence in their ability to deal with staff and patients at the hospital and to be accepted in an environment of professionals whom they admired. Being responsible for oneself at the hospital thus contributed to student maturity and independence and improved self-monitoring and self-awareness. Relevance therefore boosted student academic behaviors such as self-monitoring and self-awareness, and helped develop student independence at an early age.

Effect of relevance on contextual skills. Students noted that they learned contextual skills at the early college. They perceived that understanding college knowledge is relevant to their future academic goals of completing a postsecondary degree. Students indicated that they were exposed to the college culture as early as 11th grade and had a taste of what it felt like to be a college student. They also noted that they learned how to study for the fast paced college courses and attempted to adapt to the social demands of college. Students indicated that the early college also provided guidance for students for college application procedures and applying for financial aid and scholarships. This college knowledge was relevant to student goals of completing a postsecondary degree and transferring to a university. However, while the institutional aspects of student college knowledge were developed as a result of program relevance to future academic goals, the social and interpersonal aspects of college knowledge were perceived by students to be negatively impacted. Students failed to participate in extracurricular activities at the early college. The lack of this type of relevance related to activities on the college campus impacted student social participation within the college culture and compromised student contextual skills and awareness.

Relationships and the facets of college readiness. Relationships have impacted three of the four facets of college readiness: content knowledge and skills, academic behaviors and contextual skills. These connections are illustrated next. While this study did not generate data from student perceptions that indicate an impact of relationships on cognitive strategies, the lack of this connection calls for further investigation and can be an area of possible future research.

Effect of relationships on key content knowledge and skills. Students indicated that support from teachers facilitated student learning of content knowledge and skills. The relationship of students with their teachers at the early college was supportive, caring and focused on learning. The nature of these relationships was evident in student reference to how their teachers helped them succeed in every way possible. Students explained how the early college math teacher helped them understand math concepts in their college courses, and how their language arts teacher supported them in writing and revising their college papers. Thus the supportive teacher relationships that students enjoyed helped them learn content knowledge and overcome difficulties in skills that needed improvement such as writing and research.

Interviewed students indicated that the care and support they received from their teachers together with the small school structure were the best aspects of the program. The small school size contributed to the caring aspect of these relationships where teachers knew all students by name and connected with them over a period of five years. In addition to teacher-student relationships that supported learning, students reported that they enjoyed relationships with their peers although these relationships faded away as students started their college courses in junior year. Students still reported that they were able to learn content and work on research papers with their peers in high school. Finally, parental support and the strong relationships parents had with teachers helped students stay on track in the program. Parents supported their student

success by pushing them to succeed and by showing interest in their academic progress such as by showing up to parent-teacher conferences.

Effect of relationships on academic behaviors. Regarding peer –peer relationships, students perceived how peer support in study groups helped students develop effective study habits. Students indicated that they were able to learn the important skill of studying in a group and most of them adjusted well to it. In addition to peer support, teacher support also helped students develop academic behaviors such as using proper time-management skills and being able to monitor one’s progress. Teachers continuously reinforced the importance of time-management and showed students the importance of this skill in college. Teachers also helped students learn study skills such as note-taking, group work and asking for help. They also made sure students are aware of how they are doing in their course work and how they can improve. However, teachers indicated that the support students received at the early college made students avoid the use of their professors’ office hours and ask for help from their early college teachers instead. Thus the strong student-teacher relationships at the early college have negatively impacted student help seeking behaviors at the college—in particular their use of their professors’ office hours.

Effect of relationships on contextual skills. Students indicated that the positive relationships they enjoyed with the counselor and the teachers helped students to develop college knowledge. The counselor and the teachers had an open door policy. The counselor helped students in their career choices and in their college, financial aid, and scholarship applications. The teachers helped prepare students for the SAT and ACT and reinforced the importance of applying for scholarships. Because the students at the early college enjoyed positive supportive relationships with their teachers and their counselors, their ability to acquire college knowledge

was a smooth learning process. However, none of the positive relationships that students had at the early college helped them overcome the difficulties of adapting to the social aspect of the college culture. Students indicated that they were intimidated by older students in their college courses, and had difficulty dealing with professors.

This section illustrated how the elements of the early college framework have affected each other and how each one of the 3 R's has impacted the four facets of college readiness. The above discussion intended to summarize the previously discussed themes and to indicate how students perceived that the rigor, relevance, and relationships have impacted their college readiness skills. In doing so, this section aims to justify the value of connecting the three R's framework to Conley's four facets of college readiness. The significance of these demonstrated connections lies in their applicability to building a meaningful early college experience for students and an environment that helps students be more prepared for college. The connections between the three R's framework and the four facets of college readiness that emerged from this study can be utilized for building an effective curriculum for the early college program.

Rigor is a crucial element of the early college framework and should be carefully applied within a school curriculum. A curriculum is rigorous when it is implemented in a way that sets high standards for student learning. A rigorous curriculum is aligned with the college readiness facets when it provides students with the ability to develop cognitive strategies such as critical thinking and analysis skills. A school curriculum that aligns with college readiness should also provide the proper content knowledge and strengthen student writing and research skills. Dealing with the challenges of rigor requires students to develop academic behaviors such as time management and study skills. In addition, rigor allows students to get used to the fast pace in college. However, a rigorous curriculum should not interfere with student social and

interpersonal development in the academic setting. Relevance is integrated by relating the curriculum to student career choices. Pedagogy at the early college is facilitated through providing opportunities for students to relate their studies to their future careers. While the curriculum at the early college can be rigorous and challenging, providing relevance to academic goals and improving college knowledge can lead to an increase in the number of students enrolling in and graduating from college. Thus relevance becomes a part of the curriculum as students foresee that there is an academic goal that they are pursuing which is postsecondary degree completion. This leads students to learn how to acquire contextual skills and awareness to reach this academic goal. Relevance also helps build a better understanding of the content knowledge when applying content in a career setting. By providing caring and supportive relationships, students can find the support needed to overcome the challenges of rigor and be more able to persevere in their college work. Relationships between students and their teachers and counselors within the school setting should be focused on learning and should lead students to be more interested in understanding content knowledge, mastering academic skills and developing the academic behaviors needed for success. However, nurturing relationships should be carefully implemented to avoid negative consequences that make students highly dependent on their teacher support.

Conclusion

This study has revealed student perceptions of their experiences in the early college program. Students perceived that the early college program adequately prepared them to succeed in college courses through the implementation of rigorous content and adequate preparation in high school courses. While some interviewed students correlated rigor with positive academic experiences, others indicated the negative connotations they perceived of rigor. Rigor was

overcome by motivation, persistence, study skills, and other academic behaviors. These academic behaviors were nurtured by teachers at the early college and by parental support. Students alluded to the role of relationships in building a positive experience at the early college. The small school size helped boost student-teacher and peer relationships. In addition, family support, represented in sibling connections and parental encouragement, was a critical factor in student success. Finally the relevance of the hospital experience to student future career goals, as well as the relevance of the program to future academic goals, allowed students to stay interested in pursuing their studies and in transferring to universities. Extracurricular activities are important in building student character and the lack of these activities in the program negatively impacted the program relevance. All interviewed students were positive about their experiences at the early college. One student said, "I would not imagine myself being anywhere else and would not trade being in the program for anything else." Two out of the 15 interviewed early college students switched from the health field and decided to pursue different careers. These students were still positive about the early college experience particularly regarding the close relationships within the small school environment and the relevance of the hospital experience. Students also appreciated earning and transferring many college credits as well as receiving an associate degree with their high school diploma.

The study also provided evidence of how the early college framework of rigor, relevance, and relationships has affected student college readiness skills. College readiness skills were examined based on Conley's framework that incorporates four facets as indicators of student preparation for college. These facets are: key cognitive strategies, key content knowledge, academic behaviors, and contextual skills. The results of this study indicated a strong relationship between the early college framework and the college readiness facets as perceived

by students graduating from the program. Regarding college readiness, students defined the cognitive skills that they needed to succeed in college and indicated that they used them effectively. Teachers referred to students' young age when starting college courses as a factor that hindered or slowed the development of cognitive skills. Teachers added that students' cognitive skills improved as they proceeded in the program. Students revealed that interest in learning content knowledge was enhanced by the passion that their early college teachers demonstrated in teaching content. There was, however, room for improvement in student development of key content skills—in particular student writing and research skills—to which teachers referred during the interviews. Students demonstrated an ability to develop academic behaviors and skills. They perceived the academic behaviors reinforced at the early college as the most essential aspect that helped them to be college ready. Examples of these behaviors were time-management, study skills, self-monitoring, and self-awareness. Students and teachers also felt that the early college facilitated the transition of its students from high school to college through providing contextual skills and awareness. Students learned how to adjust to a college pace and how to apply for universities. However, student ability to adjust to the social demands of the college culture was limited. Students struggled to integrate in a learning environment with older peers and had difficulty working with their college professors.

Study Implications

Data from student and teacher interviews indicated that the 10th grade acts as a gate-keeper for the early college program in this study; its rigor continues to impact enrolled early college students as indicated by the perceived challenges that the students shared. Interviews provided evidence that counselors and teachers at the early college have excelled in supporting students as they progress through 10th grade. Counselors and teachers however can further help

students by clearly emphasizing the expectations for students participating in the program before they start their sophomore year. Another concern that students expressed was the challenge of being with older students when they started taking courses on the college campus and the difficulties they encountered while working with their college professors. Although students were aware of college standards and of the fast pace of college courses, they still felt pressured to meet the social requirements entailed in college. A clear explanation of the social expectations of college may help students to better understand the college culture and to be more prepared for the social aspect of it.

The strengths of the early college program in this study included the hospital experience that was highly valued by all the students who were interviewed. The hospital rotations were truly the highlight of students' experiences within the program. Students were able to vividly recall the details of their rotations and of clinical shadowing in the hospital setting, and were able to pinpoint the benefits they earned from them. Another strength that the program portrayed was the positive relationships that students were able to establish with teachers. Teachers helped students in going above and beyond just coming to class; teachers explained that students saw a purpose and a goal for being in the program and they worked hard to help them achieve that goal. These two aspects—the hospital experience represented by the relevance framework and the teacher support represented by the relationships framework—were crucial factors in developing student college readiness skills. These skills were mostly developed within the facets of content knowledge and academic behaviors, although cognitive skills and contextual skills were impacted as well. In light of findings from this study, one implication of this study would be the benefit of fostering college readiness by providing experiences for students in a traditional high school setting that are relevant to their career choices—and reinforced by teacher support.

Students who are not ready to make career decisions can still get a glimpse of what future professions look like and decide on whether they are interested in pursuing other careers accordingly.

By making the high school curriculum at the early college more rigorous and more relevant to student life, students developed a passion to learn the content in their science courses and in their applied health concentrations. Student academic behaviors reflected the powerful lessons they learned as they proceeded within the rigorous program and the positive experiences that they encountered while they were completing their college preparatory curriculum. Student perceptions in this program provide evidence that student learning in high school can greatly contribute to later academic engagement and success in college. Early college students also provided evidence that some students consciously think of learning as a purposeful act. In addition, the relationships that students and teachers talked about in this program showed that rigor and relevance can only help prepare students for college when coupled with supportive, caring relationships that are focused on learning. Findings from this study revealed that relationships took many forms, including student-teacher, peer-peer, and parent-teacher relationships. Although supportive teacher relationships possibly contributed to the decreased integration of students in the college culture, the caring teacher and counselor relationships together with parental support and the peer connections that students enjoyed were instrumental in helping students adjust to the rigor of the program and find interest in their learning.

In conclusion, rigor coupled with the relevance of the hospital experience and the supportive relationships established the unique preparation that this early college program provided for students interested in health careers. While Flores and Simonsson (2012) indicated that the rigorous program design in dual enrollment helped students transfer into health

professions, this study suggests that combining rigor with relevant health care experience and supportive relationships can help students persist in health science programs at the early college. Thus, adopting the early college framework by providing a rigorous curriculum while implementing purposeful hands-on experience and building supportive high school structure of the early college high school can be a promising approach for developing meaningful experiences for high school students that are interested in future careers in health care and may lead to reducing student attrition in health professions.

Today's policy makers can benefit from the findings of this study by recognizing the need for combining all elements of the framework of rigor, relevance, and relationships to enhance student college readiness skills and to prepare students in all schools for academic and career success. The 3 R's framework should not only be limited to the early college program. In the previous decade, Willard Daggett revised school curricula and introduced the 3 R's framework of relevance, rigor, and reality-based learning. With an emphasis on higher academic standards and applying what is learned in the classroom, Daggett helped school districts to integrate career disciplines such as health, law, government, and business into academic coursework recognizing that successful schools allow students to apply academic rigor in new ways relevant to student careers. Daggett also referred to the essential role that relationships play in student academic success. He indicated that while rigor and relevance are essential for school success, they only work when they are linked with relationships: "...students are more likely to engage in rigorous learning when they know that teachers, parents, and other students actually care how well they do" (Daggett, 2004, p. 5). Extending Daggett's work, Lambert, Wallach, and Ramsey (2007) who participated in the Small Schools Project found out that when coupled with the appropriate framework, the three R's of rigor, relevance, and relationships produced the best

results in the schools they studied (Lambert, Wallach, & Ramsey, 2007). While Daggett's work and others provided supportive evidence for success of the three R's in schools, the core findings from this study lie in relating the 3 R's to the framework of college readiness and in providing evidence that the college readiness framework works best when combined with the 3 R's. In light of the connections proposed earlier and based on student perceptions, this study provides a framework for college readiness that is helpful in planning a positive and a successful high school experience for all students. This study also hopes to provide a formula that focuses on providing students with adequate preparation for college. Furthermore, this study extends the work that was previously done on college readiness in the sense that it introduces the early college framework, or rigor, relevance and relationships, into the picture. It also adds to the work of Conley because, in addition to the four facets, it explains the impact of another framework, the three R's, on student academic success and college readiness. The connections and the conclusions identified in this study can build a foundation that, if properly implemented, allows students to graduate from high school better prepared for academic success in their college courses and more focused on career goals.

Recommendations for Future Research

This study portrayed the perceptions of early college students immediately after they graduated from the program and before they started their university programs. A longitudinal study can be conducted to follow up with graduating students as they enroll in and complete their university degrees. The longitudinal study can help to clarify whether the college readiness skills that students developed as a result of their experiences within the early college program have been effective in their success as they depart from the program and lose the support provided by its teachers and administrators.

Another recommendation for future research can include following up with the four interviewed students who completed their applied science degrees in this early college program when they enter the workplace in health care. This research could provide evidence in regard to the ways in which students perceive the early college experience as preparing them for success in their chosen careers. Career readiness can be as equally important as college readiness and has been emphasized by Conley (2010). In one of the interviews with the early college teachers, Mr. A. explained:

The concept of this early college isn't always preparing them for a four-year college degree. Some kids will go but the concept is that they'll be ready for the workplace when they're finished with our program. They'll have an associate's degree and a marketable skill... there's nothing wrong with going to work or having a skilled trade.

Forty-one out of the 46 students who enrolled at the early college in 2011 graduated in 2016 and five of them exited the program and went back to their traditional high schools within their school districts. The negative aspects of rigor that students perceived, as well as lack of extracurricular activities, could be some of the reasons that explain why these students did not persist in the program. Other reasons may be a decline in student interest in health care after going through the hospital experience. These factors were alluded to by teachers during the interviews. Following up with students who exited the program can shed light on other aspects of the program that may have not been covered in this study and may help to provide recommendations for stakeholders in the hope of contributing to the program success.

Finally, one possible research venue would be investigating the experiences of students within the early college program and student college readiness skills through theoretical lenses other than the three R's framework and Conley's four facets that were used in this study. While

this study utilized the framework of the early college as one way to examine experiences of early college students and how these experiences impacted student college readiness skills, future studies may report experiences of early college students using other research venues. These venues may include combining quantitative data regarding student academic achievement in the program with student perceptions or comparing the academic achievement and the experiences of students in traditional high schools to those of early college students. While student college readiness was examined in this study using Conley's framework, future studies may also investigate college readiness through another framework or may examine college readiness skills of students within a school structure that is different from that of the early college program.

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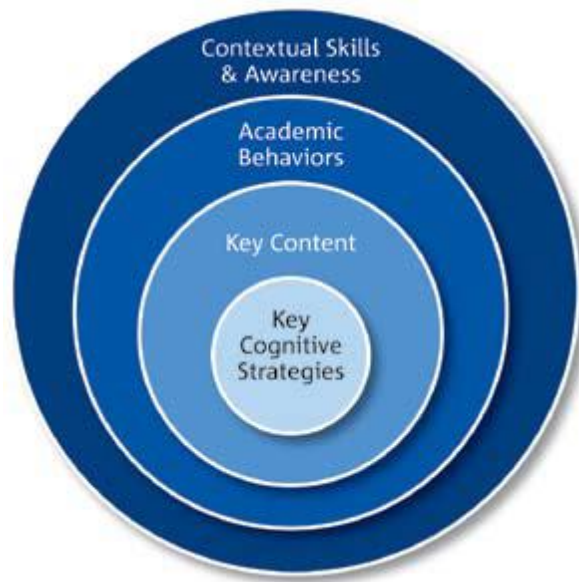
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Appendix A: Conley's four facets of college readiness



Source: Conley (2007a), *Redefining College Readiness*. Eugene, OR: Educational Policy Improvement Center.

Appendix B: Student Interview Questions

1) Background/demographic information:

- Tell me about your family (how many siblings do you have, were you born in the United States, did your parents immigrate to the USA; did your parents attend college...)

2) Enrollment at the Early College:

- Recall the first time you heard about the early college. How did you find out about the program?
- Why were you interested in joining the program?

3) High School/ College Experience/ Rigor

- How do you describe the high school courses in the program? How do you describe your college courses?
- Did you find a difference between your high school classes and your college classes?
(Probe: How are they the same or different?)
- Explain how you were able to handle the load of taking your college and high school courses at the same time.

4) Relevance:

- What are your thoughts of your clinical experience at the hospital?
- What school clubs and activities did you participate in?
- Have you participated in college activities while enrolled at the early college? Explain.

5) Relationships:

- How do you describe your relationship with your early college teachers? With your peers? With administrators? What contributed to this positive/negative relationship in your opinion?
- How was your relationship with your college instructors?

6) Key Cognitive Strategies:

- Tell me how you applied critical thinking in college courses.
- Tell me how you applied analytical thinking and interpretive skills
- Tell me about certain incidences where you applied knowledge that you learned within the program in your college courses?

7) Key Content Knowledge and Skills:

- How do you feel about the content you learn in your science courses at the high school and college and about your applied health courses (if applicable)?
- What do you think of Math?
- What experiences with writing and research did you have at the early college?

8) Academic Behaviors:

- Explain how you feel about studying with other students and about group projects?
- What about taking notes?
- Did you use office hours in college/ ask for help when needed?
- How do you manage your time?
- Tell me about an incidence where you were not doing well in college? Did you keep trying?

- Do you feel that you have the academic behaviors necessary to be a successful college student? (Probe: do you take-notes, study with peers, manage your time)

9) Contextual Skills and Awareness:

- Explain how you felt about the being on the college campus.
- Tell me about how you used resources on campus (tutoring services, library, computer lab)
- Are you planning to enroll in a university program? Specify. (Which program and university are you planning to enroll in?)
- How did the early college program help you apply for universities?
- How did the early college provide you with counseling regarding career options?
- How did the early college prepare you for ACT? SAT? Placement tests?
- How did the early college program help you apply for financial aid and scholarships?
- How many college credits did you earn? How many are you transferring?

10) Future Plans/ Reflections:

- How did the early college help you achieve your future career plans?
- How do you think your dual degree (associate degree and high school diploma) benefits you?
- What aspects, if any, do you like most about the early college program?
- What aspects, if any, do you like least about the early college program?
- What one aspect, if any, would you change about the early college program?
- If you had a friend who is “college ready,” how would you describe him/her?

Appendix C: Interview Questions for Early College Teachers

1) Teaching/ Educational Background:

- What subject(s) do you teach?
- What is your educational background?

2) The 3 R's Framework of the Early College (Rigor, Relevance and Relationships):

- What do students think of the rigorous curriculum at EC?
- What do students think of the clinical experiences at the hospital? Of involvement in college activities?
- How do you describe your relationship with your early college students? What contributes to this positive/negative relationship?

3) The Four Facets of College Readiness:

- How do you define college readiness?
- How do you prepare students for college? What college readiness skills do you take responsibility for in your class?
- How do you address your students' key cognitive strategies (problem solving, critical thinking, analysis, interpretation, reasoning and inquisitiveness)? How do observe students perceive these skills? (Do they understand them or talk about them?)
- How do you address your students' content skills (research and writing)? What are your thoughts about how students perceive these skills?

- How do you perceive your student comprehension of content knowledge in the subject that you teach?
- How do you evaluate your students' academic behaviors or non-cognitive skills (student self-awareness and self-monitoring, study-skills, work habits and time-management skills)?
- Do your students understand college application procedures and admission requirements?
What does the early college provide to support this process?

4) Concluding Questions:

- What do students perceive as positive aspect (s) of the EC?
- What do they perceive as negative aspect (s) of the EC?
- What are, in your opinion, the qualities of a college ready student?

Appendix D: Pre-Nursing Student Schedule

**Pre- Nursing
Student Schedule**

9th Grade		10th Grade		11th Grade		12th Grade		13th Grade	
Fall	Winter	Fall	Winter	Fall	Winter	Fall	Winter	Fall	Winter
Ela 9	Ela 9	Ela 10	Ela 10	Ela 11	Ela 11		ENG 131 3 CR	ENG 132/5 3 CR	
Algebra I	Algebra I	Geometry	Geometry	Algebra II	Algebra II	NCS 100 16 CR	CHEM 131 4 CR	BIO 234 4 CR	BIO 251 5 CR
World Civ	World Civ	US History	US History	Government	Economics		BIO 233 4 CR	HCS 131 3 CR	MATH 110 4 CR
Biology	Biology	Chemistry	Chemistry	AH 120 3 CR	BIO 131 4 CR		SPC 131 3 CR	PSY 253 3 CR	Hum group elect 3CR
Physics	Physics	Anatomy & Physiology	Anatomy & Physiology	PSY 131 3 CR	SOC 131 3 CR				
Allied Health	Allied Health	COLL 101 3 CR	AH 100 4 CR						
		HCS 124 1 CR							

College CR 76 4 4 6 7 16 14 13 12

Appendix E: Surgical Technologist Student Schedule

**Surgical Technologist
Student Schedule**

9th Grade		10th Grade		11th Grade		12th Grade		13th Grade	
Fall	Winter	Fall	Winter	Fall	Winter	Fall	Winter	Fall	Winter
ELA 9	ELA 9	ELA 10	ELA 10	ELA 11	ELA 11	ENG 131 3 CR		ENG 132/5 3 CR	
Algebra I	Algebra I	Geometry	Geometry	Algebra II	Algebra II				
World Civ	World Civ	US History	US History	Government	Economics	BIO 234 4 CR	BFN 141* 3 CR (M)	SRG 209 5 CR (Clin)	SRG 240 4 CR
Biology	Biology	Chemistry	Chemistry	BIO 135 4 CR	BIO 233 4 CR	SRG 101 4 CR	SRG 140 2 CR	SRG 220 4 CR	SRG 290 8 CR (Clin)
Physics	Physics	Anatomy & Physiology	Anatomy & Physiology	HCS 131 3 CR	SSC 131** 3 CR	HCS 103 1 CR	SRG 120 4 CR		
Allied Health	Allied Health	COLL 101 3 CR	AH 100 4 CR				SRG 160 3 CR (M)		
		HCS 124 1 CR							
					Spring		Spring		
							SRG 150 2 CR		
College CR	72	4	4	7	7	12	14	12	12

* elective to meet math requirement

**Students must take one of the courses that satisfy the American Society gen ed requirement. This one of the options.

M Math related class
College classes
HS or College classes

Appendix F: Paramedic Student Schedule

**Paramedic
Student Schedule**

9th Grade		10th Grade		11th Grade		12th Grade		13th Grade	
Fall	Winter	Fall	Winter	Fall	Winter	Fall	Winter	Fall	Winter
ELA 9	ELA 9	ELA 10	ELA 10	ELA 11	ELA 11	ENG 131 3 CR		ENG 135 3 CR	
Algebra I	Algebra I	Geometry	Geometry	Algebra II	Algebra II	AH 120 (M) 3 CR	EMS 100 9 CR	EMS 200 3 CR	EMS 215 4 CR
World Civ	World Civ	US History	US History	Government	Economics	CRJ 131 3 CR	EMS 106 2.5 CR	EMS 205 3 CR	EMS 220 4 CR
Biology	Biology	Chemistry	Chemistry	BIO 233 4 CR	BIO 234 4 CR	HPEA 155 2 CR	EMS 109 2 CR	EMS 210 3 CR	EMS 230 4 CR
Physics	Physics	Anatomy & Physiology	Anatomy & Physiology	HCS 131 3 CR	POLS 131 3 CR	HPE 117 2 CR		EMS 290 4 CR	EMS 295 4 CR
Allied Health	Allied Health	COLL 101 3 CR	AH 100 4 CR						
		HCS 124* 1 CR							
							Spring		Spring
									EMS 225 2 CR
									EMS 240 3 CR
									EMS 299 4 CR
College CR	89.5	4	4	7	7	13	13.5	16	25

Students must be 18 years of age to begin 200 level EMS courses
 Students must meet all prerequisites to take any 200 level EMS courses