

COLLEGE AND CAREER READINESS: EXPLORING RIGOR THROUGH
RELEVANCE AND ITS RELATIONSHIP WITH ADOLESCENT IDENTITY
DEVELOPMENT

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by
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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

COLLEGE AND CAREER READINESS: EXPLORING RIGOR THROUGH
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DEVELOPMENT

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ABSTRACT

The purpose for this study was to examine the relationship between adolescent identity development, relevance, and rigor among high school students. The premise under investigation is rooted in the concept of building rigor through relevance. Students who have engaged in personal exploration and commitment to certain ideological and interpersonal issues, specifically personal and occupational identity (Erikson, 1982; Marcia, 2002; Super, 1980) are purported to find increased relevancy in their coursework (Crumpton & Gregory, 2011) and in turn engage in more rigorous studies. This study used a profile of high school seniors to explore the relationship between adolescent identity development, student participation in relevance building activities, and engagement in academic rigor.

This cross-sectional study utilized quantitative methods to analyze archival survey, transcript, and performance data on student engagement in relevance, rigor, and identity producing activities (Fink, 2009). A Midwest school district, granting access to archival data, had engaged in extensive research on relevance, rigor, and identity. A review of literature resulted in the emergence of six factors related to college and career readiness. The focus on career exploration, adult guidance and support, career planning, occupational identity status, academic intensity, and performance benchmarks were aligned with the research questions for this study.

Findings of the study revealed students had positive experiences with adult guidance and support and career planning. Students reported parents or guardians and teachers as having a significant influence on their career aspirations, while counselors were viewed in a less significant role. Perceptions of career exploration experiences were

reported low, however a lack of workplace experience was found as a key factor in that finding. Students in the study were found to have engaged in overall low levels of academic intensity which was consistent with the literature on academic rigor. A key finding was that adolescent identity status matters in relation to academic rigor and relevance. Exploration of individual passions and interests followed by commitment to an occupational identity was found to be related to engagement in rigor and relevance.

The study provided insight into the relationship between adolescent identity development, relevance, and rigor among high school students. However, additional questions about this relationship emerged during the study. Further research into the role of school counselors as leaders, impact of workplace experience on occupational identity development, exploration of how identity develops over time, analysis of career exploration variables related to identity, and exploration of findings for ACT composite will support more clarity in the arena of college and career readiness.

CHAPTER ONE
INTRODUCTION TO THE STUDY

Background of the Study

The United States has long offered its citizens the hope of the “American Dream” as a reality for all. For more than two centuries, American citizens prospered in relation to the global community. In the twentieth century, education was the key to this hope and a high school education for the masses served as an early benchmark. The return of millions of Americans and the establishment of the G.I. Bill, following World War II, served to push education levels even higher (Symonds, Schwartz, & Ferguson, 2011).

The decades following the 1950’s were filled with domestic and international forces that further influenced educational policies. The Soviet launching of Sputnik 1 in 1957 was a blow to American prowess in the world. Consequently, the National Defense Education Act of 1958 was passed seeking to identify and encourage students to pursue a college education (Schenck, Anctil, Smith, & Dahir, 2012). Increased numbers of college educated citizens was thought to return America to its place atop the global community. The next several decades brought forth reports, studies, and legislation such as the Vocational Educational Act of 1963, *A Nation at Risk* in 1983, *The Forgotten Half* in 1988, the School-to-Work Opportunities Act of 1994, and the No Child Left Behind Act of 2001. These documents caused the educational policy focus to vacillate between vocational preparation and a college preparatory emphasis (Gardner, Larsen, Baker, & Campbell, 1983; Perry & Wallace, 2012; Schenck et al., 2012; William T. Grant Foundation Commission On Work, 1988).

The emergence of a new 21st century global market had a profound impact on the workplace and educational policy in the United States. Not only did it yield amazing changes in communication, information management, and social interaction; it also influenced the role workers played in the organization. Marquardt (2011) recognized the emergence of “learning organizations” (p. 1) that operate by harnessing knowledge as a replacement for “physical labor, minerals, and energy” (p. 12). Workers with the capacity to learn had become an invaluable commodity, which was “the new form of labor in the 21st century” (p. 13). This reality influenced the need for schools to prepare students as lifelong learners, equipped for postsecondary and career success.

The need for a quality education that extends beyond high school is important for individuals and their livelihoods, but also for the vitality of the United States. Recognizing the importance of postsecondary education, President Barack Obama pleaded with Americans during a speech delivered to Congress in 2009. He said, “Tonight I ask every American to commit to at least one year or more of higher education or career training. This can be community college, a four-year school, vocational training, or an apprenticeship. But whatever the training may be, every American will need to get more than a high school diploma” (Symonds et al., 2011, p. 6). It has grown increasingly evident that those who wish to gain access to the “American Dream” in the 21st century must engage in postsecondary education. This marks a stark difference from the reality of the 1970’s when a high school education gave more than 60% of Americans a middle class wage. The current reality is that the skill level required for most middle class wage jobs cannot be attained with a high school education alone (Bangser, 2008; Symonds et al., 2011).

The global society in which the current generation of secondary students have grown and will work for the next several decades promises even more change. The capacity to learn and the overall skills needed for the new global economy are fundamentally different from previous decades (Conley, 2005, 2010; Conley & McGaughy, 2012; Hooker & Brand, 2010; Marquardt, 2011). Schools face the unique challenge of engaging students in the school setting in order to prepare them for their futures in a global society. Students will require rigorous and relevant learning experiences that prepare them for careers that may not exist yet, solving problems that have not even been considered. The rapidly changing global economy placed a premium on postsecondary education, yet “the U.S. has fallen behind many other nations in educational attainment and achievement” (Symonds et al., 2011, p. 1). Many secondary students throughout the United States demonstrate inadequate skills needed for success in the college and career arenas while exhibiting low levels of engagement in rigorous and relevant coursework (Conley, 2005, 2010; Conley & McGaughy, 2012; Venezia & Jaeger, 2013). These deficits are fueled by a lack of engagement and focus on future career aspirations (Bangser, 2008).

The conversation about college and career readiness (CCR) is driven by the belief that 21st century American students face the new global economy, with unique expectations for their ability to utilize certain “21st Century” learning skills (Conley, 2005; Conley & McGaughy, 2012; Marquardt, 2011). A commonly accepted definition for college and career readiness (CCR) is:

The level of preparation a student needs in order to enroll and succeed—without remediation—in a credit-bearing course at a postsecondary institution that offers a

baccalaureate degree or transfer to a baccalaureate program, or in a high-quality certificate program that enables students to enter a career pathway with potential future advancement. (Conley, 2010, p. 21)

Hooker and Brand (2010) suggested CCR also requires a level of developmental maturity which includes self-motivation and goal setting (p. 76). A developing sense of identity provides the framework for exploration and ultimate decision making in regard to career choices (Kosine & Lewis, 2008). Additionally, the ability to think critically and collaborate effectively, while demonstrating quality communication skills, are marquee components of what is believed to be essential for postsecondary success. Also, a significant focus has been placed on core academic skills, such as reading and writing, students will be expected to possess if they hope to succeed in the college and career arena (Conley, 2005, 2010, 2014).

State education departments have been bombarded by a plethora of reports proclaiming key indicators for CCR (Adelman, 2006; Bangser, 2008; Conley, 2005; Symonds et al., 2011; Venezia & Jaeger, 2013). Many states responded by initiating or adjusting CCR policies related to graduation requirements, end of course assessments, and standardized college entrance exams such as the ACT and SAT (Center on Education Policy, 2011). A great deal of trust has been placed in these indicators as quality tools for assessing the CCR of high school graduates. The conversation about CCR has prompted efforts to construct a “bridge” (Adelman, 2006, p. 19) connecting secondary experiences to postsecondary readiness. The U.S. Department of Education’s report “The Toolbox Revisited” (Adelman, 2006) emphasized that the development of key CCR skills “starts in high school, but merely crossing the bridge to college or community college doesn’t

mean the story is over [as] the bridge is not always aligned with the road on the other side” (p. 18). The skill level exhibited and the overall rigor many high school students engage in does not match up with what they will face in most postsecondary experiences (Porter & Polikoff, 2012).

The efforts of educators at all levels have ultimately been focused on building an appropriately aligned bridge over which students can cross successfully. “In 2009, the National Governors Association and the Council of Chief State School Officers sponsored a state-led movement to establish a rigorous set of standards that would prepare students for college and career more consistently from state to state” (Center on Education Policy, 2011, p. 17). Common Core State Standards (CCSS) were a product of this effort to create a set of rigorous performance measures by which all states could be compared. The creation of the CCSS and the promotion of the ideal that all students should be challenged to develop these skills provided a solid foundation for the aforementioned bridge while asserting that successfully accomplishing these standards will result in higher levels of CCR for American students (Adelman, 2006; Conley, Drummond, de Gonzalez, Rooseboom, & Stout, 2011; Venezia & Jaeger, 2013).

Adelman’s (2006) “Toolbox Revisited” emphasized “The academic intensity of the student’s high school curriculum...counts more than anything else...in providing momentum toward completing a bachelor’s degree” (p. 19). The study identified that those deemed to have been successful in their postsecondary endeavors (earning bachelor degrees) had completed a rigorous course of study focused on core and advanced placement courses. Adelman (2006) referred to these courses as “threshold criteria” (p. 19) for postsecondary success. While definitive indicators for college and career

readiness have not been established, the work of Adelman (2006) created a framework for CCR standards such as: performance on standardized tests (ACT, SAT, Compass, or ASVAB), completion of core courses in high school, high school grade point average (GPA), and completion of Advanced Placement (AP) or dual credit courses (Conley, 2010; Porter & Polikoff, 2012; Venezia & Jaeger, 2013).

It has been suggested that completing core and advanced placement courses are "threshold criteria" (Adelman, 2006, p. 19), consequently secondary schools are challenged to engage more students in them. Yet colleges and employers continue to report skill and knowledge deficits in their students and employees. The national high school graduation rates struggle to reach 70%, college graduation rates have been reported as low as 30%, and millions of dollars are spent annually on remedial coursework (Conley, 2010; Porter & Polikoff, 2012; Symonds et al., 2011; Venezia & Jaeger, 2013).

Questions abound related to how schools can better prepare their students for CCR. The data suggested these "toolbox" (Adelman, 1999, 2006) indicators are indeed precursors to success in attaining postsecondary degrees. But it could be argued that they are more of an end versus the means to an end. Their presence suggests graduates have engaged in a rigorous course of study, but very little can be said about what motivated them to engage in such coursework. It is clear researchers can identify traits or outcomes evident in individuals who will likely be successful in the college and career arena (Adelman, 2006; Conley, 2005, 2010, 2014). However, it is worthwhile to investigate what led those individuals to take rigorous math courses or to engage in Advanced Placement courses. While educators, researchers, and policymakers have constructed a

bridge to college and career readiness, many American students are not successful at making the crossing. Efforts to get all students across the bridge will warrant a careful study into what promotes the relevance in school to motivate student engagement in rigorous studies.

Statement of the Problem

Student engagement in rigorous and relevant coursework is thought to be vital in facilitating college and career readiness for secondary students. A study by ACT (2012) identified the contribution specific courses and course sequences made to college readiness. It found that taking full course sequences typically considered “college preparatory” best prepared students for freshman-level college courses. However, the Pathways to Prosperity Project (Symonds et al., 2011) emphasized “a focus on college readiness alone does not equip young people with all of the skills and abilities they will need in the workplace, or to successfully complete the transition from adolescence to adulthood” (p. 4). A central thread in current research suggests the need for more than rigor alone, emphasizing a holistic approach focused on the influence of academic relevance on student engagement (ACT, 2013b; Conley, 2010, 2014; Crumpton & Gregory, 2011; Hooker & Brand, 2010; Oakes & Saunders, 2008; Schneider, 2007; Venezia & Jaeger, 2013).

Unfortunately, “large numbers (of students) say they dropped out (of school) because they felt their classes were not interesting, and that high school was unrelentingly boring. In other words, they didn’t believe high school was relevant, or providing a pathway to achieving their dreams” (Symonds et al., 2011, p. 10). Current literature presents a sound case for a multi-pathway approach to organizing high schools.

Purposeful connections between curricular material and career paths create both rigorous and relevant learning environments to engage and prepare students for both college and career (Conley, 2010; Conley & McGaughy, 2012; Oakes & Saunders, 2008; Perry & Wallace, 2012; Symonds et al., 2011).

Students consistently disengage from their academic endeavors because they are unable to see the connections between coursework and the work world (Crumpton & Gregory, 2011). Secondary school systems have been challenged to engage students in active career exploration early in high school when college and career aspirations are being formed. Likewise, high expectations need to be pushed for all students, not just those viewed as being college bound (Bangser, 2008). Providing effective career counseling services can support students as they develop and explore their interests and identity.

Student exposure to a comprehensive guidance program facilitates important goal setting, which is a key to student motivation and overall engagement. Effective schools organize guidance programs to challenge students to explore their personal identity and career interests through interest inventories, job shadowing opportunities, and career oriented internships (Bangser, 2008; Conley & McGaughy, 2012). Marcia (2002) explained, “The process by which identity is formed consists of decision making and commitment, a process that, at best, is preceded by a period of exploring alternatives” (p. 102). According to his work on identity development, individuals struggle to “find occupational and ideological paths suitable for themselves” (Marcia, 2002, p. 203). He communicated further that the process in which students actively explore their interests “is necessary and positive” (p. 203).

Students who do not actively explore their interests and career options tend to struggle to see relevance in their school experience. However, when students see the alignment of their coursework with personalized career goals, they become more willing to engage in relevant coursework. Adolescents should go through a process of active exploration and subsequent moratorium (disequilibrium) in order to reach a state referred to as “identify achievement” (Marcia, 2002). Initiating career exploration activities early in students’ high school experience will engage them in forming their identities and in turn developing aspirations for postsecondary education and career endeavors (Kosine & Lewis, 2008; Kosine, Steger, & Duncan, 2008; Marcia, 2002; Super & Hall, 1978). School counselors can capitalize on these aspirations to develop relevant course selections and career guidance for high school students (Bangser, 2008; Conley, 2010; Oakes & Saunders, 2008).

The literature has presented a solid case for the connection between student participation in a rigorous course of study and CCR (Adelman, 2006; Bangser, 2008; Conley, 2010; Porter & Polikoff, 2012). Likewise, the literature has provided insight into the value of engaging students in exploration activities in support of identity development. Students who have embarked on the journey of finding their personal passions and interests (Robinson & Aronica, 2009, 2013) experience a positive impact on the relevancy of their coursework (Bangser, 2008; Conley, 2010; Crumpton & Gregory, 2011; Symonds et al., 2011; Hooker & Brand, 2010; Kosine & Lewis, 2008; Marcia, 2002; Super & Hall, 1978). However, there is a gap in the research regarding the relationship that identity development and relevance have on high school student engagement in a rigorous course of study and CCR. While identity development,

relevance, and rigor have been examined independently; the literature is silent regarding how they relate to each other in a secondary school setting.

Purpose of the Study

The purpose for this study was to examine the relationship between adolescent identity development, relevance, and rigor among high school students. The premise under investigation is rooted in the concept of building rigor through relevance. Students who have engaged in personal exploration and commitment to certain ideological and interpersonal issues, specifically personal and occupational identity (Erikson, 1982; Marcia, 2002; Super, 1980) are purported to find increased relevancy in their coursework (Crumpton & Gregory, 2011) and in turn engage in more rigorous studies. This study used a profile of high school seniors to explore the relationship between adolescent identity development, student participation in relevance building activities, and engagement in academic rigor.

State educational agencies have attempted to establish criteria for “college and career readiness” rooted in rigorous standards believed to truly measure the “readiness” American youth exhibit for postsecondary success (Adelman, 2006; Bangser, 2008; Center on Education Policy, 2011; Symonds et al., 2011). Recognizing that not all adolescents are successful in their postsecondary endeavors, it is imperative that educators discover the source of what motivates students to engage in rigorous coursework. Careful examination of the exploration and commitment related to identity development may yield important insights into how relevance serves to motivate students toward rigorous studies. If students engage in rigor through relevance, then levels of college and career readiness may increase significantly.

Developing effective measures to assess levels of relevance will aid in determining the correlation between relevance and rigor. The establishment of such measures for relevance is central to the purpose of this study. Determination of strong correlations between these elements may promote the importance of comprehensive guidance programs (career pathways, job shadowing, internships, etc.) and create a culture focused on college and career readiness (Conley & McGaughy, 2012; Schneider, 2007). This may ultimately promote the need for all students to be actively engaged in exploration and goal setting with a focus on identifying career interests. Finding their purpose and passion (Robinson & Aronica, 2009, 2013) may engage students in rigorous coursework that is relevant to them as individuals.

Research Questions

Within the framework of this study, the following research questions were proposed:

1. To what degree are high school seniors engaged in relevance as measured by:
 - a. Career Exploration
 - b. Adult Guidance and Support
 - c. Career Planning

2. What are the identity statuses for high school seniors as determined by the Objective Measure of Occupational-Identity Status (OMOIS) survey?
 - a. Achieved
 - b. Moratorium
 - c. Foreclosed
 - d. Diffused

3. To what degree are high school seniors engaged in rigor as measured by:
 - a. Academic Intensity scale
 - b. ACT composite scores
 - c. Class rank and grade point average composite
4. What relationships exist between:
 - a. Rigor and Identity
 - b. Relevance and Identity
 - c. Rigor and Relevance

Conceptual Underpinnings for the Study

The primary focus of this work was to examine the key factors that influence CCR among high school students in the United States. The study explored CCR, academic rigor, academic relevance, and adolescent identity development, synthesizing each factor into a complimentary review of literature. The first step included an examination of CCR as a general concept, spanning its evolution from the early 1900's into the 21st century. Second, frameworks of academic rigor were surveyed providing insight into academic intensity and performance benchmarks associated with increased levels of CCR. Third, academic relevance was viewed through elements of career exploration, adult guidance and support, and career planning. Finally, an investigation of adolescent identity development provided key insights into student passions, interests, engagement, and motivation related to academic relevancy among high school students.

An examination of CCR provided insight into its evolution from the Industrial Revolution in the early 1900's to the globalization associated with the 21st century.

Worker skill and education levels at the turn of the 20th century were found to vary significantly from expectations created by the 21st century globalization of knowledge, resources, communication, and labor (Marquardt, 2011). A review of both career and college preparation programs, which were historically separate, provided insight into the contemporary view blending the two into a more common focus, illustrating the interconnectedness of academic rigor and relevance (Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Oakes & Saunders, 2008; Symonds et al., 2011).

A definition for CCR that targeted readiness for continued learning beyond high school graduation set the stage for an evaluation of the current state of CCR in the United States. Reports by Bangser (2008), the Pathways to Prosperity Project (Symonds et al., 2011), and ACT (2013b) revealed significant deficits in engagement and readiness among high school graduates in the United States. The emergence of rigor and relevance as two core themes or frames related to preparing students for higher levels of CCR prompted the need to understand each concept more clearly. A key observation suggested that personal relevancy is vital in the process of engaging students in more rigorous endeavors. It relies on each student understanding their passions and interests, which are key factors in a developing sense of individual identity (Crumpton & Gregory, 2011; Oakes & Saunders, 2008).

A focus on academic rigor revealed the importance of student engagement in high levels of academic intensity as central to increased readiness for postsecondary learning. The focus of academic intensity extended beyond merely completing rigorous core coursework to be eligible for postsecondary learning but rather added key cognitive and behavioral skills as essential for all graduates (Conley, 2005, 2010, 2014; Porter, 2012).

An examination of current literature on academic rigor (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014) provided insight into the components of academic intensity, key performance benchmarks, and the overall impact of rigor on student readiness.

The literature related to academic relevance exposed the importance of developing occupational identity and personal interests among students as a prelude to promoting high levels of CCR. The task of engaging students in the rigorous coursework, recommended previously, requires a concerted effort to build relevance into their experiences. Supporting student perceptions of relevance in their academic experience is a product of personal and career exploration (Blustein, 1997; Crumpton & Gregory, 2011; Kosine & Lewis, 2008; Pink, 2009; Robinson & Aronica, 2009, 2013; Super, 1980; Super & Hall, 1978), systems of adult guidance and support (Bangser, 2008; Conley, 2005, 2010, 2014; Deal & Peterson, 1999; Hooker & Brand, 2010; Kosine & Lewis, 2008; McDonough, 2004; Oakes & Saunders, 2008; Schneider, 2007, 2009; Super, 1980; Super & Hall, 1978; Symonds et al., 2011), and targeted career planning (Conley, 2005, 2010, 2014; Kosine et al., 2008; Oakes & Saunders, 2008; Robinson & Aronica, 2009, 2013; Schneider, 2007, 2009; Tang, Pan, & Newmeyer, 2008).

Identity development is a primary task of the adolescent journey. One of the fundamental challenges of Erikson's (1968, 1982) identity vs. role confusion stage of development is the formation of a person's occupational identity (Kosine et al., 2008). As adolescent experiences with exploration coalesce, varying levels of identity and self-concept emerge (Erikson, 1968). The process of exploration and the ensuing commitment experienced through adolescence will ideally lead to a "strong sense of

identity and a sense of purpose toward their future” (Kosine et al., 2008, p. 134).

Marcia’s (1966) discussion of identity offered key insights into student development of individual interests and ultimately their identity.

The ongoing conversation about relevance and rigor was central to this study, as both are key components of CCR. However, the degree to which students engage in exploration of personal interests and identity was likewise an important part of the conversation. The premise that active identity formation includes increased levels of exploration and commitment supports a greater likelihood that students will be engaged in their coursework. Students who have a developing sense of individual identity are more likely to have goals and aspirations for their future. Coordinated school structures that capitalize on these goals and aspirations can align course plans accordingly. Heightened identity development may result in greater exposure to rigor through relevance.

Design and Methods

This cross-sectional study utilized quantitative methods to collect survey data on student engagement in relevance producing activities (Fink, 2009). Archival descriptive data were retrieved from a Midwest school district. The descriptive data were collected from a convenience sample of 8th semester high school seniors in the Midwest. The relationship between linear interval variables (rigor, relevance, and identity status) was examined using one-way analysis of variance (ANOVA) and the Pearson product-moment correlation coefficient (Field, 2009; Fraenkel, Wallen, & Hyun, 2012).

Assumptions

Operating from the postpositivist worldview, the researcher acknowledged the data collected would not result in definitive findings; however, the design and data analysis of this study sought to “identify and assess the causes that influence outcomes” (Creswell, 2009, p. 7). Objective quantitative analysis of the data guided the researcher to use valid and reliable methods in seeking to understand the data while making claims and relevant statements that “advance the relationship among variables” (Creswell, 2009, p. 7). The collection of data via self-report surveys assumed students would respond with fidelity. Additionally, using a large survey sample supported the assumption that the sampling distribution was normally distributed and consequently valid (Field, 2009).

A key assumption of this research was that all students will need a baseline of skill, knowledge, and experience to be deemed college and career ready. Likewise, each student possesses unique interests and abilities and that it is the responsibility of high schools to offer adequate programming to support student growth. Students who engage in the rigorous and relevant programming offered “make intelligent choices guided by an enlightened sense of self-interest and an understanding of who they are and what they want to become” (Conley, 2010, p. 2).

Definition of Key Terms

A number of key terms were used throughout this study. The following terms represent definitions deemed essential to promote clear communication and understanding throughout this study:

College and Career Readiness (CCR)

College and career readiness refers to the level of preparation a student needs in order to enroll and succeed—without remediation—in a credit-bearing course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program, or in a high-quality certificate program that enables students to enter a career pathway with potential future advancement (Conley, 2010).

21st century learning skills. This term references core skills deemed vital for student success as they enter the postsecondary arena. Key cognitive skills enable students to think critically, communicate effectively, and collaborate with others. Reading and writing skills are fundamental to all learning while self-management, self-awareness, and intentionality are key behaviors related to CCR (Conley, 2010).

Common Core State Standards (CCSS). The CCSS were created by the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO). The standards are rigorous performance measures by which each state's student performance can be measured. Voluntary participation in this curriculum sought to establish a default curriculum to promote standards of CCR across state lines. The standards are characterized as being more narrowly focused on key content knowledge that is processed in an interdisciplinary approach.

Postsecondary. Time period that immediately follows student completion of their high school education. Postsecondary is often referenced as a time period of additional education and work experience. College and career readiness efforts are designed to promote success during this period and beyond.

Secondary. Time period during which students attend formal education, typically considered to be grades six through twelve. Students in this phase of their education are typically in the midst of adolescence, which sets the stage for promoting college and career readiness.

Identity Development

Identity development is a process through which individuals resolve a personal crisis of identity versus role confusion (Erikson, 1968). The adolescent experience of disequilibrium prompts a period in which active exploration of interests and abilities leads to a sense of commitment to ideological and occupational interests (Marcia, 2002). A developing sense of identity provides the framework for exploration and ultimate decision making in regard to career choices (Kosine & Lewis, 2008).

Psychosocial development. This term was used by Erikson (1968) to describe eight stages or tasks through which all individuals pass from birth to old age. Each stage represents a crisis of sorts that shapes the individual throughout life.

Adolescence. Adolescence is viewed as both a chronological period between puberty and early adulthood and any time in the life cycle when an individual explores important life-alternatives with the aim of making commitments (Marcia, 2002).

Disequilibrium. This term describes a naturally occurring period of adolescent crisis or confusion of identity that leads to exploration of interests, values, and beliefs. Disequilibrium is typically initiated by forces of puberty, cognitive development, and social expectations (Marcia, 2002).

Exploration. The term exploration describes the process through which adolescents investigate various “alternatives” and “negotiate a viable future for

themselves” (Marcia, 2002, p. 202). This study references active exploration as engagement in activities such as completing career inventories, career oriented research, job shadowing, and internships.

Identity status

Identity status is a measure of an individual’s exploration of alternatives and commitment to ideological and occupational interests. Marcia (2002) identified the process of identity development based upon Erikson’s (1968) 5th stage of psychosocial development, identity vs. role confusion. Individuals progress between the following four stages:

Identity achieved. This term reflects the status in which individuals have engaged in high levels of exploration and consequently made commitments related to numerous ideological and occupational interests (Marcia, 1966, 2002). The scope of this study used the term to reference individuals who have explored their personal interests and passions, settling on a particular occupational direction or ambition.

Identity diffused. This term reflects the status in which individuals have very low levels of exploration and commitment. They have not experienced forces creating disequilibrium; consequently there is little motivation to explore (Marcia, 1966, 2002). The scope of this study used the term to identify individuals who are not actively exploring their personal interests and passions while being generally ambivalent to that fact.

Identity foreclosed. This term reflects the status in which individuals have very low levels of exploration but high levels of commitment. Individuals in this status have not ventured out to challenge parental values and belief systems; consequently they have

not experienced disequilibrium (Marcia, 1966, 2002). The scope of this study used the term to identify individuals who display a firm drive toward a particular occupational direction or ambition but may lack any connection to their personal interests and passions.

Identity moratorium. This term reflects the status in which individuals have high levels of exploration but little to no commitment. Individuals in moratorium are in a state of disequilibrium and are actively seeking to find balance; consequently they engage in active exploration (Marcia, 1966, 2002). The scope of this study used the term to reference individuals who are actively exploring their personal interests and passions but are unsettled on a particular occupational direction or ambition. This status is associated with high student engagement as a result of exploration and inquiry.

Objective Measure of Ego Identity Status (OMEIS). The OMEIS is a survey instrument developed as a means to identify the identity status of individuals. It was based upon levels of exploration and commitment to certain ideological and occupational beliefs (Adams, 2010).

Objective Measure of Occupational Identity Status (OMOIS). The OMOIS is a survey instrument, adapted from the OMEIS, to narrow the identity status focus to occupational beliefs in order to align with the study. The instrument provided a means to identify the identity status of individuals based upon levels of exploration and commitment to occupational interests (Adams, 2010).

Relevance

Relevance is a core concept in college and career readiness. It represents engagement and ownership that is evident, through intrinsic motivation, when students

set goals and see meaningfulness in their coursework. When students feel coursework is meaningful to their lives, they exhibit academic relevancy. Relevance is a product of student exploration and commitment that leads to value and purpose for academic endeavors (Crumpton & Gregory, 2011). The following key terms represent activities that promote exploration and ultimately relevant experiences in school:

Career exploration. This term references a systematic approach to engage students in active exploration of their passions and interests through a lens of career or vocational aspirations. School systems seek to motivate their students to engage in rigorous and relevant learning experiences. Students who understand their personal interests and passions are often drawn by natural curiosity and intrinsic motivation to engage in active learning in those areas (Blustein, 1997; Crumpton & Gregory, 2011; Kosine & Lewis, 2008; Pink, 2009; Robinson & Aronica, 2009, 2013). A system focused on career exploration will engage students in clubs and/or activities, civic engagement, and career oriented research that is aligned to their career aspirations and goals.

Apprenticeship. Apprenticeships consist of work-based experience in a particular career pathway that may extend over multiple years. These experiences are the culmination of extended career exploration that may begin as early as middle school, with the apprenticeship beginning in the last year or two of high school (Hooker & Brand, 2010; Oakes & Saunders, 2008).

Career interest inventory. Career interest inventories are research based software programs that schools use to start the career exploration process. School counselors and trained teachers assist students and families with interpreting the results. Interest

inventories provide information that is used to point students toward career pathways that the data suggest may be appropriate for them (Conley, 2010).

Internship. Internships consist of work-based experience in a particular career pathway that may last for a semester. Students in these experiences are expected to make connections between academic content and work place learning. Journaling about experiences coupled with communication with their employers and mentors support reflection and processing of these career exploration opportunities (Conley, 2010).

Job shadowing. Job shadowing experiences consist of short term, work-based experiences in a particular career pathway that may last for a day or two. Students in these experiences are expected to make connections between academic content and work place learning. Journaling about experiences coupled with communication with their counselors and mentors support reflection and processing of these career exploration opportunities (Conley, 2010).

Adult guidance and support. A systemic approach to supporting a college and career oriented school culture in which all adults are engaged in promoting CCR focus for all students (Schneider, 2007). School counselors support families, staff, and students in aligning coursework and relevant career oriented experiences with their goals and aspirations (Schenck et al., 2012). A system focused on adult guidance and support will engage students in completing college applications, financial aid documents, and scholarship material while promoting positive perceptions among students that they are supported in their plans or aspirations for after graduation.

Career planning. Career planning is a central tenet to support student pursuit of aspirations and goals that emerge from effective exploration and support systems.

Quality career planning includes alignment of secondary coursework, workplace experiences, college visits, and attendance at college and career fairs to support progress toward stated goals. Student engagement and ownership of career planning supports the authenticity of their interests and career aspirations (Conley, 2005, 2010, 2014; Johnson, Rochkind, Ott, & DuPont, 2010; Kosine & Lewis, 2008; Oakes & Saunders, 2008; Schneider, 2007).

Relevance Activity Factors (RAF). The RAF is a quantitative tool for measuring the degree to which students in this study engaged in relevance building activities. The RAF used individual variables to measure the degree of student participation in exploration activities such as: career interest inventories, career oriented research, conversations with school counselors to discuss aspirations and interests, career focused conversations with parent/guardian, development of a career focused four year academic plan, statement of postsecondary goals, job shadowing, internships, and service learning. A review of the literature supported the cognitive organization of key relevance promoting activities into three groups or factors: (a) career exploration (Appendix A), (b) adult guidance and support (Appendix B), and (c) career planning (Appendix C).

Rigor

Rigor is a core concept in college and career readiness. The demands of the global economy placed significant emphasis on student knowledge and skills upon entry into the postsecondary arena. Rigor represents the challenging academic and cognitive experiences students engaged in during their secondary schooling. Measures of rigor are believed to indicate academic fitness for CCR. The following key terms represent

activities that promote rigorous learning in school (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014):

Academic intensity and performance benchmark profile. The academic intensity and performance benchmark profile used individual variables to identify the degree of student engagement in rigorous activities such as: highest level of math completed, number of AP and IB courses completed, number of dual credit and dual enrolled courses completed, ACT (composite and subject area benchmarks) scores, grade point average, and class rank.

ACT. The ACT is a standardized assessment representing known quantities of performance that provides benchmarking for CCR. This assessment offers insight on performance in multiple disciplines including English, reading, math, and science (ACT, 2013b).

Advance Placement (AP) courses. AP courses consist of a nationally standardized curriculum that is designed to represent college level work. Governed by the College Board, AP course syllabi are reviewed and validated in an effort to maintain consistency of rigor (Conley, 2010). Students may pay a fee to take an AP exam, which may award college credit based on performance. The literature suggested completion of an AP course supports a level of academic intensity which is positively correlated to bachelor degree completion (Adelman, 1999, 2006).

International Baccalaureate (IB) courses. IB courses represent a nationally standardized curriculum that is designed to represent college level work. Governed by the International Baccalaureate organization, IB courses use a consistent curriculum which targets rigor and an inquiry based pedagogy (Conley, 2010). Students may pay a

fee to take an IB exam, which may award college credit based on performance. The literature suggested completion of an IB course supports a level of academic intensity which is positively correlated to bachelor degree completion (Adelman, 1999, 2006).

Class rank. Class rank represents student standing in their graduating class. Student grade point average is used to determine their ranking in the top 5%, 10%, 15%, 20%, etc. Each student is given a percentile ranking.

Core coursework. Core coursework represents student completion of curriculum requirements in core disciplines, earning credit for the course on a transcript. Core disciplines include: communication arts, math, science, and social studies.

Dual credit courses. Dual credit, which is also called dual enrollment, consists of high school students completing coursework that awards both high school and college credit upon completion. Dual credit courses are typically taught on high school campuses, while dual enrollment courses are taught on college campuses. Dual credit and dual enrollment courses are assumed to represent college level academic rigor (Conley, 2010).

End of Course exam (EOC). End of course exams are administered by many states as a measure for student mastery of core content knowledge. These assessments are administered as a summative assessment in core classes. Student performance on EOC's is often used as a measure of college and career readiness (Conley, 2005).

Grade point average (GPA). Grade point average is one of the most widely used indicators for college and career readiness. This is true despite challenges in verifying consistency of grading practices from school to school. Point values are

assigned to grades: A=4, B=3, C=2, and D=1. A grade point average is calculated based on grades earned for each course found on a student's transcript.

Highest level of math. Level of math completed for credit upon graduation from high school. Studies indicated strong correlations between highest level of math completed and successful bachelor's degree completion. Minimal recommendations include Algebra II (Adelman, 1999, 2006), but others suggest students complete up to trigonometry (ACT, 2013b).

Standardized tests. For the purpose of this study, standardized tests were representative of the ACT and SAT tests. These tests are administered to students seeking admission to colleges or universities. The data from the ACT and SAT indicate levels of college and career readiness. ACT created college and career readiness benchmarks that represent minimal ACT test scores in English, Reading, Math, and Science. Students, who achieve benchmark scores based on subject area, are likely to earn a "B" or higher on a freshmen level college course in that subject area (ACT, 2012; Venezia & Jaeger, 2013). The ACT composite score will be used in this study.

Threshold criteria. Threshold criteria represent minimal levels of rigor in which a student should engage as they seek CCR. Adelman (2006) suggested that individuals seeking CCR should complete Algebra II and a fourth core English course as minimum expectations for rigor. Though ACT (2012) differs in stating the mathematics threshold criteria should be Trigonometry, it is clear that the literature support threshold criteria as indicators for postsecondary success (Porter & Polikoff, 2012).

Significance of the Study

Secondary schools in the United States face a legitimate challenge if they hope to positively affect the course of the current educational environment. Given the immensity of change that has come with the new millennium, secondary schools will be challenged to look for new and more effective ways to operate (Adelman, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Marquardt, 2011; Oakes & Saunders, 2008; Symonds et al., 2011). Creating highly rigorous courses with clear “real world” connections will motivate students to engage in learning while challenging them to develop vital 21st century skills (Adelman, 2006; Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Marquardt, 2011). Schools seeking to capitalize on this “rigor through relevance” will engage students in active exploration of their interests and in turn, establish clear goals related to career aspirations. Highly motivated and skilled adolescents will be well equipped to face the challenges of an ever changing global market place.

The intent of this research was to provide empirical data that validate the relationship of relevance and rigor. The consideration of relevance as a key variable in CCR will influence both policy and practice. State and federal funding for programs that support relevant experiences for students will have a positive impact on student preparation for the postsecondary arena. Funding support for authentic and systemic comprehensive guidance programs in high schools will support student exploration and identity development (Kosine et al., 2008; Marcia, 2002; Stone, 2012). The establishment of “relevancy” producing programs will be vital for CCR programs in secondary schools as they will graduate students who have engaged in rigor through

relevance (Adelman, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Symonds et al., 2011; Marquardt, 2011; Oakes & Saunders, 2008).

Summary

The 21st century world has evolved into a new global market. Expectations for workers in this new economy changed dramatically as they competed for jobs. American students had not demonstrated adequate levels of college and career readiness, as colleges and employers reported inadequate knowledge and skills among graduates. Skills to think critically, communicate effectively, and collaborate with peers were lacking. Additionally, core skills in reading, writing, and mathematics had proven inadequate for the new global economy (Conley, 2010).

Researchers identified both rigorous and relevant activities that were believed to promote levels of CCR (Conley, 2010; Kosine & Lewis, 2008; Porter & Polikoff, 2012). However, American students continued to demonstrate low levels of college and workplace readiness. Chapter one presented the background, conceptual framework, purpose, assumptions, and explanation of key terms within the framework of the study. The purpose for this study was to examine the relationship between relevance, rigor, and identity development among high school students. It provided relational data between these variables. The remaining chapters provide additional insight into this study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

A frequently used proverb states, “you can lead a horse to water, but you cannot make it drink” (anonymous). This proverb rings true when discussing high school students and college and career readiness (CCR). Though the Common Core State Standards (CCSS) are well founded in research with positive correlations toward college and career readiness (Conley et al., 2011), that reality is not likely enough to get the proverbial horse to drink! It is important to establish rigorous standards and to monitor student engagement in rigorous courses of study, but countless students continually enter their postsecondary endeavors ill prepared (Conley, 2005, 2010, 2014; Conley & McGaughy, 2012). If the opportunities to engage in rigorous and proven courses of study exist, why don’t more students “drink the water”? It may be an over simplification, but perhaps they need to be made thirsty! A thirsty horse will take little coaxing to indulge in the water because they have an internal desire to do so.

The primary focus of this work was to examine CCR through the lens of relevance, rigor, and identity development. In order to gain an understanding of how these forces interplay with CCR, the study first examined the background, evolution, definition, and current condition of CCR in the United States. Next, an overview of academic rigor was completed by reviewing Adelman’s (1999, 2006) report, *The Toolbox Revisited*; Conley’s (2005, 2010, 2014) *Standards for Success*; and key recommendations from ACT’s (2013b) report titled *The Condition Of College And Career Readiness 2013*:

National. A review of literature related to academic relevance was framed through career exploration (Blustein, 1997; Crumpton & Gregory, 2011; Kosine & Lewis, 2008; Pink, 2009; Robinson & Aronica, 2009, 2013; Super, 1980), adult guidance and support (Conley, 2005, 2010, 2014; Johnson et al., 2010; Schenck et al., 2012; Schneider, 2007; Super, 1980), and career planning (Conley, 2005, 2010, 2014; Johnson et al., 2010; Kosine & Lewis, 2008; Oakes & Saunders, 2008; Schneider, 2007). Finally, an investigation of adolescent identity development included Erikson's (1963, 1968, 1980, 1982) Eight Stages of Psychosocial Development, Marcia's (1966, 2002) Identity Statuses, and Adam's (2010) work with measurement of identity status.

Background and Evolution of College and Career Readiness (CCR)

Mostly influenced by economic conditions and technological advancement, CCR looked different in the 21st century than it did in the early 1900's. The characteristics of the work force related to skill and education level varied based on these forces. A brief discussion of this evolution from the early 1900's to post WWII and on to the 21st century yields important insight into the condition of CCR and how the current definition has emerged (Conley, 2005, 2010, 2014; Marquardt, 2011; Oakes & Saunders, 2008; Perry & Wallace, 2012; Symonds et al., 2011).

Early 1900's: Industrial Revolution

Expectations for educational attainment and general demands on the work force during the early 1900's were influenced significantly by the American Industrial Revolution. New technology resulted in prolific mechanization of the production process. Mass production and the assembly line reduced expectations for skilled artisans resulting in millions of jobs for unskilled laborers. Consequently, the workforce had little

demand for education and the scientific management processes of the period viewed workers as mere components of the industrial machine with no need to actively think or solve problems (Perry & Wallace, 2012; Taylor, 2011). During this period, few Americans attained a high school diploma and a college education was reserved for the privileged. Scarcely five percent of high school students went to college, and they were mostly from the upper economic classes (Conley, 2005).

Post WWII Era

The period following World War II initiated changes in both skill level expectations for American workers and educational attainment. Education was the key to the “American Dream” and a high school education was the goal for most people. The return of millions of American men and the establishment of the G.I. Bill, following World War II, served to push education levels even higher. The high school graduation rate grew to 80% and college attendance drastically increased (Conley, 2005). Coupled with the flourishing post-war economy and America’s new prominent role in the global market, jobs abounded throughout the country (Symonds et al., 2011).

The decades following the 1950’s were filled with domestic and international forces that greatly influenced educational policies. The Soviet launching of Sputnik 1 in 1957 was a blow to American prowess in the world. Consequently, the National Defense Education Act of 1958 was passed seeking to identify and encourage students to pursue a college education (Schenck et al., 2012). Policy makers believed more college educated citizens would return America to its place atop the global community. The next several decades brought forth reports, studies, and legislation such as the Vocational Educational Act of 1963, *A Nation at Risk* in 1983, *The Forgotten Half* in 1988, the School-to-Work

Opportunities Act of 1994, and the No Child Left Behind Act of 2001. These documents caused the educational policy focus to vacillate between vocational preparation and a college preparatory emphasis (Gardner et al., 1983; Perry & Wallace, 2012; Schenck et al., 2012; Threton, 2007; William T. Grant Foundation Commission On Work, 1988). Regardless of whether students were challenged to pursue an education through vocational or college avenues, policy motivation appeared to be rooted in a desire to make the nation more competitive on the emerging global playing field. While altruistic motivations may have driven some policy makers, it seems most likely that individual market forces played the biggest role in promoting higher academic standards and accountability among American schools (Stone, 2012).

21st century

The 21st century economy and technological advancements created unprecedented changes in the expectations for workforce skill levels and educational attainment. The combination of technology, television, trade, and travel resulted in the intertwining of people across the globe. The globalization of knowledge, resources, communication, and labor dramatically changed the landscape of the 21st century. American corporations invested trillions of dollars abroad while foreign investors represented more than 10% of U.S. manufacturing. Foreign corporations such as Toyota led the auto industry in sales while an American corporation, McDonald's, served nearly 60 million people a day in 120 different countries. The globalization of the economy created a new set of expectations for American enterprise as well as individuals hoping to compete for jobs in the new market (Marquardt, 2011; Perry & Wallace, 2012; Symonds et al., 2011).

The sheer volume of information available via the internet became inconceivable, yet it continued to grow at a rapid rate. Enhanced technology and the internet supported the transfer of data at phenomenal rates, such that the entire contents of the Library of Congress could be transferred online in a matter of minutes (Marquardt, 2011). Organizations and workers were expected to have the capacity to sort and manage this information in support of their given purposes. Consequently, workers were challenged to become consumers of knowledge with the skill to think and solve problems in a continuously changing work environment. Technology transformed the workplace by replacing demand for routine skills with an extreme demand for problem-solving and communication skills (Rothman, 2012). Those who were continuous learners and who possessed these skills were invaluable commodities into the 21st century.

The work world itself was impacted by these forces. Equipped for rapidly changing technology and the agility to operate in an environment where change was the norm, successful companies focused on what they did best while building "strategic alliances" (Marquardt, 2011, p. 8) with other companies. This practice of collaboration among independent companies allowed for the maximization of resources as they shared capacity, innovation, and capital (Marquardt, 2011). Workers who were able to collaborate effectively were well positioned within the global market place.

The 1900's provided a plethora of opportunity for American workers to persist in unskilled labor and industrial markets. However, "technology and globalization led to an economy based on knowledge" (Marquardt, 2011, p. 11) in which industrial workers scarcely represent 25% of the labor force. Knowledge and the capacity to be a continuous learner equipped individuals to be vital resources for their respective

organization, replacing physical labor, minerals, and energy in that capacity (Marquardt, 2011). Workers, who developed their knowledge base and skills as critical thinkers, contributed innovative and creative solutions to problems facing their organization as well as the global community.

Marquardt (2011) proclaimed that members of the 21st century workforce have evolved from requiring "repetitive skills to knowing how to deal with surprises and exceptions, from depending on memory and facts to being spontaneous and creative, from avoiding risk to taking risk, from focusing on policies and procedures to building collaboration with people" (p. 13). The transformation of workers in this manner provided them with significant influence and overall power in the work world. However, it also created an increased pressure on both their education prior to entering the workforce and their capacity to continue learning upon entering the workforce (Bangser, 2008; Conley, 2005; 2010; Marquardt, 2011; Symonds et al., 2011).

Corporations increasingly shopped for skilled and unskilled labor internationally. Developing countries provided a significant portion of the world's workforce, while industrialized countries provided the jobs. Increasing numbers of skilled labor worldwide created the need for American workers to also be prepared, if they hoped to compete globally for jobs (Marquardt, 2011). The high school diploma was no longer adequate to prepare students for a middle class wage earning job. All Americans have been challenged to engage in learning beyond high school to not only support their individual well-being but also that of the United States' workforce (Bangser, 2008; Conley, 2005, 2010, 2014; Marquardt, 2011; Symonds et al., 2011).

Recognizing the importance of postsecondary education, President Barack Obama pleaded with Americans during a speech delivered to Congress in 2009. He said the following: “Tonight I ask every American to commit to at least one year or more of higher education or career training. This can be community college, a four-year school, vocational training, or an apprenticeship. But whatever the training may be, every American will need to get more than a high school diploma” (Symonds et al., 2011, p. 6). It has grown increasingly evident that those who wish to gain access to the “American Dream” in the 21st century must engage in postsecondary education. Unlike previous periods in American history, the high school diploma is no longer enough to insure a middle class wage.

The changing role of workers in the 21st century marketplace was driven by global competition. Unlike previous periods in American history, knowledge and the ability to wield it in the workplace gave workers increased influence within their organizations. However, the skills needed to fulfill this responsibility as both keeper of knowledge and active learner required rigorous training (Marquardt, 2011).

The new role for workers created a shift in perspective for viewing them within the organization. The old industrial model viewed labor as an inanimate component of the overall organizational structure, but the new perspective casts labor as a vital and interactive player in the very survival of organizations (Bolman & Deal, 2008; McGregor, 2011; Perry & Wallace, 2012; Taylor, 2011). The transformation of roles and expectations for workers placed great responsibility on both the worker and the school systems charged with the task of preparing them for success beyond high school graduation. A citizenry capable of operating in the global marketplace, demonstrating

mastery of critical thinking, collaboration, and communication skills is well positioned to achieve success in the 21st century.

College and Career Readiness

The emergence of the global community created a unique situation for both individual workers and the organizations for which they worked. Workers found themselves in a virtual competition for quality employment in a market that pitted labor against itself for the most efficient and effective means of production. The worker was challenged to be appropriately trained to meet demands set by their employer. Failure to be competitive as a worker resulted in unemployment and ultimately a liability to the national economy. The economic impact of non-competitive workers is compounded when jobs are lost to workers in other countries. The entire nation has a vested interest in creating policies, practices, and procedures that promote the highest level of readiness for the American workforce (Bangser, 2008; Conley, 2005, 2010, 2014; Stone, 2012; Symonds et al., 2011). College and career readiness (CCR) has emerged as a buzz word among educators. Individuals who are deemed ready for college and career will be successful as learners and ultimately contribute in the new global marketplace. The remaining portion of this section will establish a working definition for college and career readiness, discuss the current state of CCR in the United States, and wrap up with four keys to promoting CCR.

College and Career Readiness (CCR) Defined

It was referenced previously that the decades following the 1950's were filled with domestic and international forces that impacted educational policies. The policies were influenced by a multitude of agendas such as national pride, economic prowess,

national security, and domestic well-being (Stone, 2012). As a result of these social and political forces, the focus shifted frequently between a career and college emphasis (Gardner et al., 1983; Perry & Wallace, 2012; Schenck et al., 2012; William T. Grant Foundation Commission On Work, 1988). The current definition of CCR is best explained by a review of career preparation, college preparation, and the current perspective which views college and career preparation as the same (Bangser, 2008; Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Symonds et al., 2011).

Career preparation. Traditional vocational schools were focused on training students to work in particular career fields such as welding, heating and air conditioning, and auto repair. School counselors worked with students to identify their individual interests and aptitudes to support career options. Highly relevant training equipped students to enter the workforce upon completion of the program. While these programs provided students with options to enter the workforce, they were stereotyped as being very low in academic rigor (Oakes & Saunders, 2008). Lower achieving students, often minority or disadvantaged, were frequently placed in these schools to help them progress toward graduation. The reputation career prep schools developed resulted in a gap between their programs and college preparatory programs. In many high schools, “vocational students were mostly separated from college-bound students. This model, with its assumptions about the separation of career and college preparation, remained strongly rooted in high schools throughout the 20th century” (Conley & McGaughy, 2012, p. 28). Students who were college bound often avoided career prep programs fearing poor preparation for college level work (Bangser, 2008; Conley, 2005, 2010, 2014; Oakes & Saunders, 2008; Symonds et al., 2011).

A national focus on student preparation and overall ability to contribute to the workforce was driven by The Vocational Educational Act of 1963, *A Nation at Risk* in 1983, *The Forgotten Half* in 1988, and the School-to-Work Opportunities Act of 1994 (Gardner et al., 1983; Schenck et al., 2012; William T. Grant Foundation Commission On Work, 1988). This series of policy and legislation exposed the stereotypes, often realities, associated with career preparation programs. Consequently, a concerted effort was made to systematically increase the academic rigor evident in their curriculum. A name change to Career and Technical Education (CTE) symbolized this shift and the effort to redefine career preparation programs (Bangser, 2008; Conley, 2005, 2010, 2014; Oakes & Saunders, 2008; Symonds et al., 2011).

College preparation. The idea of college preparation, prior to the 1990's, existed in isolation from career preparation. The goal of college prep programs was to engage students in rigorous core academic coursework. Students completed coursework, in each discipline, that supported critical thinking skills while developing key capabilities in reading and writing. College prep programs sought to provide students with a level of academic rigor associated with college coursework. High school students completed courses recognized by colleges and universities in hopes of earning college credit as well as increasing odds of being accepted to selective universities. A few examples of these courses include: Advanced Placement (AP), International Baccalaureate (IB), and dual credit options. While students in college preparation programs were exposed to great depths of content knowledge and rigorous activities, they often lacked relevance building application to their personal interests and passions (Bangser, 2008; Conley, 2005, 2010, 2014; Oakes & Saunders, 2008; Symonds et al., 2011).

College and career preparation. The evolution of the workplace from the early 1900's to the 21st century greatly increased expectations for workers as learners and custodians of knowledge (Marquardt, 2011). Many of these expectations matched up with the same expectations found in the higher education arena (Conley, 2005, 2010, 2014). Contemporary perspectives converge on the reality that college and career readiness are one in the same. It was stated clearly in ACT's report *The Forgotten Middle* (ACT, 2008) that "college readiness also means career readiness. While not every high school graduate plans to attend college... [we must] ...educate all high school students according to a common academic expectation, one that prepares them for both postsecondary education and the workforce" (p. 1). The most rapidly emerging career fields, which can be attained with a high school diploma, yield a wage above the poverty line, and offer advancement, will require similar knowledge and skills as is expected of a first year college student. College and career readiness implies that graduates possess the skills to be successful in the workforce or college setting. Recent literature consistently suggests that rigorous academic and relevant career exploration experiences are essential to preparing students for their postsecondary lives (Bangser, 2008; Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Oakes & Saunders, 2008; Symonds et al., 2011).

The combination of college and career readiness under a single definition requires several considerations from both the college and career perspective. Academic rigor should be systematically framed in relevant career applications, integrating strong academic content into career oriented classes (Bangser, 2008; Oakes & Saunders, 2008). Engaging students in personal exploration of multiple career pathways provides needed information and experiences to support their career planning and goal setting. Students

can be exposed to the practical application of academic material while also avoiding premature and ill-informed career decisions (ACT, 2008; Conley, 2005, 2010, 2014; Haimson & Deke, 2003; Oakes & Saunders, 2008; Symonds et al., 2011).

Contemporary perspectives connect college readiness and career readiness (ACT, 2008; Conley, 2005, 2010, 2014; Oakes & Saunders, 2008). Complexities of the global marketplace have created an increased demand for graduates to be ready for continued learning after high school, regardless of whether this learning takes place in college as a prelude to work or on the job immediately after graduation from high school. The heightened demands placed upon graduates have promoted the need to possess key skills before entering the postsecondary arena. These skills represent the capacity to think critically, communicate effectively, collaborate with peers, and exhibit creativity in problem solving. Independent of whether graduates engage in a two year, four year, or vocational school, their opportunities for success beyond high school will be greatly enhanced if they possess these skills (Bangser, 2008; Conley, 2005; Conley & McGaughy, 2012; Marquardt, 2011).

To conclude, Conley (2010) provided a definition for college and career readiness that is widely accepted among prominent authorities in the field (ACT, 2013b; Bangser, 2008; Symonds et al., 2011; Venezia & Jaeger, 2013):

The level of preparation a student needs in order to enroll and succeed—without remediation—in a credit-bearing course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program, or in a high-quality certificate program that enables students to enter a career pathway with potential future advancement. (p. 21)

The knowledge and skill development associated with this definition is dependent upon individual aspiration, motivation, and goal setting as key factors in promoting readiness (Crumpton & Gregory, 2011; Oakes & Saunders, 2008). Consequently, CCR is firmly grounded in components of both academic rigor and personal relevancy for students.

Current State of CCR in the United States

The definition provided for CCR sets a high standard for preparation of all students upon entry into their postsecondary endeavors. The challenge facing school systems and the students they serve is “the vast majority of high school students aspire to some kind of postsecondary education, yet far too many of them enter college without the basic content knowledge, skills, or habits of mind they need to succeed” (Venezia & Jaeger, 2013, p. 117). Likewise, many high school students who choose to enter the workforce right out of high school do not meet employer standards in areas such as: attendance, teamwork and collaboration, problem solving, following directions, and taking initiative (Bangser, 2008; Conley, 2010). Brief reviews of *Preparing High School Students for Successful Transitions to Postsecondary Education and Employment* (Bangser, 2008), *Pathways to Prosperity* (Symonds et al., 2011), *Condition of College and Career Readiness 2013: National* (ACT, 2013b), general data on college remediation rates, and the “four keys to college and career readiness” (Conley, 2014) provide a general overview of the current state of CCR in the United States.

Bangser report. Bangser’s (2008) core concern with the condition of CCR in the United States was related to preparation for postsecondary education and the world of work. He reported “high school students’ experiences too often fail to prepare them for postsecondary education or for the rigors of work in an information-based economy” (p.

4). Special attention should be paid to increasing the level of rigor, relevance, and engagement of high school curriculum, while emphasizing a focus on students who have traditionally faced barriers to successful postsecondary transitions. Employers reported that students fail to meet many of their standards in academic areas. Additionally, vital employability skills such as attendance, teamwork and collaboration, and work habits are lacking (Bangser, 2008, p. 4).

Bangser (2008) recommended that schools intervene with students early in their developmental processes in hopes of building appropriate aspirations aligned to their interests. Seeking to draw upon student interests, the integration of strong academic content with career oriented activities may engage students at increased levels. Student engagement in rigorous and relevant coursework may expose students to CCR gateway courses such as Algebra II (Bangser, 2008; Adelman, 2006; Porter & Polikoff, 2012).

Pathways to Prosperity Project report. The 21st century ushered in a globalized community possessing unprecedented technology. The speed of knowledge transfer and growth created an extremely competitive marketplace. Education emerged as the ticket to economic success. *Pathways to Prosperity* (Symonds et al., 2011) painted a picture of the U.S. as having fallen behind many other nations in educational attainment and achievement and the impending fate of millions of Americans who were ill prepared to compete in the new economy. Recognizing the characteristics of this “forgotten half” (William T. Grant Foundation Commission On Work, 1988), the report explored options to be taken in laying out a “pathway to prosperity” for all Americans.

The emergence of “a more demanding labor market” (Symonds et al., 2011, p. 2) produced many new jobs. However, the majority of the new jobs required education

levels that extended beyond high school. It was this reality in 2009 that urged President Obama to issue his challenge for Americans to pursue education beyond high school “to get more than a high school diploma” (Symonds et al., 2011, p. 6). In 1973, only 28% of Americans had education levels beyond high school. By the issuing of this report in 2011, the number had grown to 59% of the American workforce. While that may be a celebration at one level, *Pathways to Prosperity* (Symonds et al., 2011) focused on the declining number of jobs available to those with only a high school diploma or less and the reality that millions of Americans had still not prepared themselves to compete. Approximately 41% of Americans faced possible exclusion from participating in the “American Dream” (p. 2).

Adding to the challenges of the new labor market, American employers reported that young adults entering the workplace lacked key skills for success. The report emphasized that “college readiness alone does not equip young people with all of the skills and abilities they will need in the workplace” (Symonds et al., 2011, p. 4). It was suggested that more than half of high school graduates were lacking skills such as oral and written communication, critical thinking, and professionalism. The report revisited some of the gaps that exist between career readiness and college readiness, thus highlighting the challenge of adequately preparing young people for life beyond high school.

Career preparation placed value on “career planning, previous work experience, decision-making, listening skills, integrity, and creativity” (p. 4). However, these skills were not evident in college readiness programs. A growing focus on developing students’ sense of purpose, positive identity, and healthy habits promoted a more holistic

approach to building CCR. A balance between soft and hard skills or relevance and rigor, continued to drive the CCR focus in the 21st century (Symonds et al., 2011, p. 4).

Preparation of all American students through the approach of college and career readiness, as a combined effort, may move more students toward increased readiness. Supporting programs that combine rigorous academic courses framed in relevant applications to the workplace increase the likelihood of engaging more students in their learning. Learning beyond high school is important to student viability in the workplace. *Pathways to Prosperity* (Symonds et al., 2011) concluded that the college and career preparation process is most effective when personalized. With 70% of high school graduates entering college within two years, but only 40% exiting with a degree of any type, it is evident the existing process is not working well. Many students report they do not see the connection between their academic program of study and “tangible opportunities in the labor market” (Symonds et al., 2011, p. 5). A holistic approach to guiding students to identify their personal interests and passions will aid in directing them down a personalized path to prosperity.

ACT college readiness indicators. The ACT Corporation has been measuring student performance on key college and career readiness indicators since 1959. In recent years, these indicators have represented nationally and internationally benchmarked scores in English, reading, math, and science. *The Condition of College & Career Readiness* (ACT, 2013b) is ACT’s annual report on the college readiness of students in a given graduating class. The reports are available for individual states as well as a national report which reflects overall readiness of all students tested. The data reported for the 2013 graduating class represented 54% of the overall class. The ACT has been

adopted as an end of high school assessment by many states, which will increase the percentage of students tested. A more comprehensive picture of student readiness related to the four benchmarks will become evident as more students are tested. The inclusion of additional students, who may not fit the traditional college-bound description, will most likely result in decreased percentages of overall readiness as measured by the ACT (2013b).

Data from student performance on the ACT exams are used to establish the “college readiness benchmarks”, which predict the likelihood of student success in credit-bearing first-year college courses corresponding to each tested subject area (ACT, 2013b). The benchmarks are the minimum scores needed on subject area tests (English, Reading, Math, and Science) to predict a 50% chance of obtaining a B or higher or about a 75% chance of obtaining a C or higher in corresponding credit-bearing first-year college courses (ACT, 2013b, p. 5). Figure 1 provides the current ACT benchmarks for each subject area and the corresponding college course.

College Course	Subject Area Test	ACT Explore Benchmark	ACT Plan Benchmark	ACT Benchmark
English Composition	English	13	15	18
Social Sciences	Reading	16	18	22
College Algebra	Mathematics	17	19	22
Biology	Science	18	20	23

Figure 1. ACT College Readiness Benchmarks. Adapted from ACT, The Condition of College And Career Readiness 2013: National (2013b, p. 31).

Operating on the definition for CCR provided previously, it is important to predict student performance in the college arena. The ACT assessment data provide insight into the number and percentage of students who can be deemed ready for college level

coursework and correlating workplace learning skills discussed previously. The use of this benchmark data not only supports the evaluation of academic program effectiveness, but also affords schools with opportunity to identify individual student performance gaps in time for remediation prior to graduation.

The percentage of students taking college preparatory classes has increased in the past two decades; however, little improvement on ACT performance has been noted.

Figure 2 depicts student performance from 2009-2013 on each of the four benchmarks.

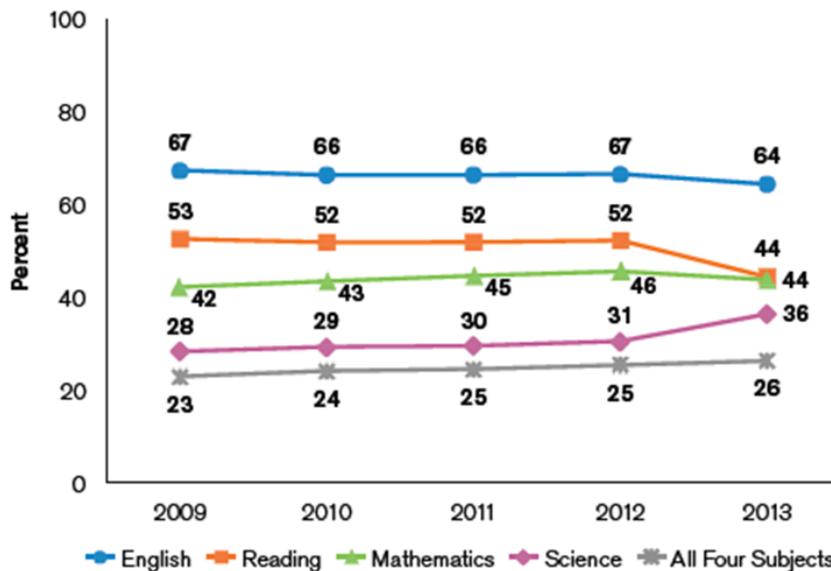


Figure 2. Percent of ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks, 2009-2013. Graph reads: Between 2009 and 2013, the percentage of ACT-tested high school graduates who met the ACT College Readiness Benchmark in English decreased from 67% to 64%. Note: Reading and Science Benchmarks were updated in 2013. Reproduced from *ACT, The Condition of College And Career Readiness 2013: National* (2013b, p. 2).

The percentage of students meeting all four benchmarks increased slightly between 2009 and 2013. Just over one in four (26%) ACT-tested high school graduates met all four

ACT College Readiness Benchmarks in 2013, compared to 23% doing so in 2009 (ACT, 2013b, p. 2).

Student performance on the ACT declined slightly between 2009 and 2013 (see Figure 3), with most of the decrease seen in 2013. It is important to note that approximately 22% more high school students took the ACT during this time with increasing levels of diversity (ACT, 2013b). “ACT Composite score averages ranged between 21.1 and 20.9 points during this time. The four subject score averages (English, Reading, Mathematics, and Science) showed similar changes in absolute value” (ACT, 2013b, p. 16).

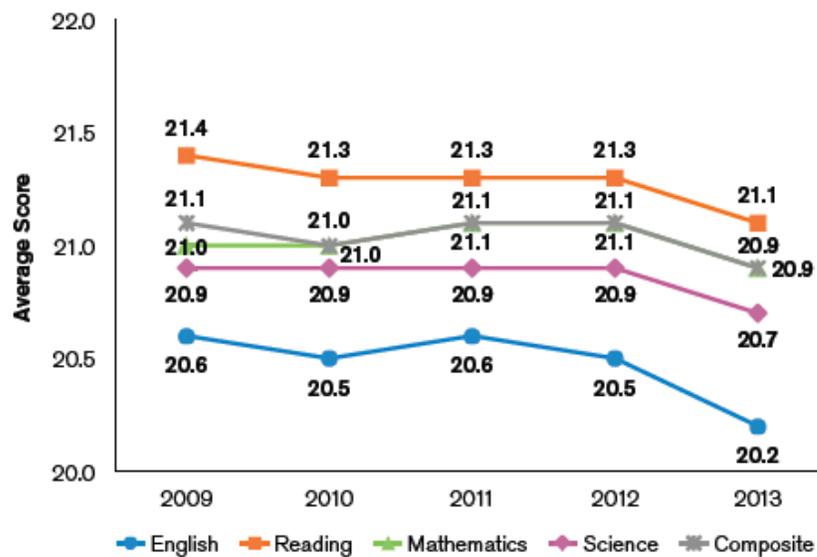


Figure 3. Average ACT Scores, 2009-2013. Graph reads: Between 2009 and 2013, the average ACT Reading score for all high school graduates decreased slightly from 21.4 to 21.1. Reproduced from ACT, *The Condition of College And Career Readiness 2013: National* (2013b, p. 16).

ACT (2013b) has been evaluating student progress related to college readiness since the early 2000’s. The insight provided by student performance on ACT’s (2013b)

college readiness benchmarks may serve as a catalyst for increased efforts to engage students in more academically intense coursework. The literature affirms a focus on academic intensity as a key indicator of student postsecondary success (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). ACT (2013b) seeks to inform and guide CCR improvement efforts by providing assessments to measure and identify key performance skills for the generation in the midst of their education. With additional states electing to administer the ACT to all graduating seniors, ACT's college readiness data will "better reflect the entire US graduating class, providing a glimpse of the emerging educational pipeline" (ACT, 2013b, p. 3).

In addition to the focus on academic intensity, ACT (2013b) acknowledged the "importance of additional complementary factors for college readiness and success, including student academic behaviors and the level of students' interest in their chosen major or career" (2013b, p. 3). The picture of student readiness becomes clearer when educational systems carefully monitor student academic performance with an eye toward their holistic well-being, suggesting both rigor and relevance are vital to support student readiness (ACT, 2013b).

Remediation rates. It is approximated that between 30 to 60 percent of students entering college require remediation. Students "may be accustomed to moving through material slowly and methodically, providing the correct answer rather than the thoughtful one, writing as little as possible, and never ever rewriting an assignment" (Conley, 2005, p. xii). ACT (2013b) reported remediation rates as being even higher. Among the members of the 2013 graduating class who completed the ACT, only 26% were

successful in meeting all four of their CCR benchmarks. Consequently, it is presumed nearly three of four students will require remedial coursework in at least one benchmark subject area. It is important to note only 54% of the 2013 graduating class completed the ACT. While portions of the remaining 46% may have completed the SAT or another standardized assessment, it is unknown how these students would perform on the aforementioned benchmarks. A more comprehensive effort to assess all students against a common benchmark will provide more accurate measures of remediation rates and CCR (ACT, 2013b).

An inconsistency has become evident when looking at student success in high school as measured by grade point averages and completion of core coursework. Even students who had success in high school required remedial coursework in their postsecondary endeavors (Conley, 2005). Students who performed well in high school coursework and completed a prescribed course of study often struggled to manage the rigors of postsecondary coursework. Inconsistencies between remediation rates and high school achievement can be attributed to a variety of factors such as: poorly aligned standards between secondary and postsecondary schools, lower expectations among high school teachers, and failure to persist in rigorous core coursework into the senior year (Adelman, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Symonds et al., 2011).

The National Assessment of Educational Progress (NAEP) gave reason to believe American students are not performing well when compared to national standards. The NAEP provides an achievement level of basic, proficient, or advanced. The level is “based on input from a broadly representative panel of teachers, education specialists, and members of the general public. Students determined to be proficient or advanced

have demonstrated a competency over challenging subject matter that would be expected of entering college students” (Venezia & Jaeger, 2013, p. 118). Just 38% of twelfth-grade students were awarded a proficient or better score on the reading assessment in 2009 and only 26% reached that level in mathematics (Venezia & Jaeger, 2013, pp. 118-119).

Postsecondary institutions have made a common practice of requiring first year college students to complete assessments to determine the need for remediation. In addition to the ACT and SAT admissions tests, the ACCUPLACER and COMPASS placement tests determine the need for remediation prior to starting college coursework. The placement test programs each have specific tests that are used for assessing different levels of student need for remediation (Fields & Parsad, 2012; Venezia & Jaeger, 2013). “Overall, 71 percent of postsecondary education institutions reported using some mathematics test and 53 percent some reading test in evaluating student need for remediation in those two subject domains” (Fields & Parsad, 2012, p. 23).

Secondary school systems have been challenged to promote increased levels of CCR, which implies the need to reduce remediation in first year college students. In an effort to address student remediation prior to graduation, California utilized eleventh-grade assessments as indicators of students’ readiness for college-level work in the state university and community college systems. Seniors were notified of their performance prior to starting their senior year. If they were not meeting performance expectations, their schedule was adjusted to place them in appropriate coursework. The goal was to remediate students before graduation in anticipation of a successful entry into postsecondary learning the following year. Students, whose performance met CCR

benchmarks, were placed in college level coursework to support their transition to college as well (Venezia & Jaeger, 2013).

Four Keys to College and Career Readiness.

Recognizing the complexity of CCR and drawing upon nearly two decades of research, Conley (2010, 2012, 2014) developed a functional organization of four key facets that support increased levels of CCR. Emphasizing the importance of each of the four keys, Conley (2010) stated:

Nothing is potentially more powerful than enabling students to take control of their own learning and preparation by providing them with longitudinal information on how close to college and career ready they are along each of these four dimensions. (p. 23)

His four-part conceptual model, which has evolved into the “four keys to college and career readiness” (Conley, 2010, 2012, 2014, p. 55), includes key cognitive strategies, key content knowledge, key learning skills and techniques, and key transition knowledge and skills.

Key cognitive strategies. Key cognitive strategies are related to thinking skills required to see connections of information within an interdisciplinary context. These strategies reflect student ability to think critically in predictable and unpredictable situations. Traditional high school instruction may decontextualize information, teaching students what to think, whereas key cognitive strategies enable students to know how to think. Conley (2010) explained that students who are truly ready for college and career possess “patterns of thinking that lead to the development of a variety of specific ways to approach and attack challenging learning situations” (p. 33). Research on the key

cognitive strategies resulted in “remarkably consistent findings” (Conley, 2014, p. 56) of these expectations in first year college courses and occupational training programs across the disciplines. The key cognitive strategies include problem formulation, research, interpretation, communication, and an emphasis on precision and accuracy (Conley, 2010). Conley (2014) suggested that students who can successfully utilize these cognitive strategies are well equipped for the intellectual challenges associated with college and career.

Key content knowledge. Key content knowledge refers to what students know and their comprehension of foundational concepts of core subjects. Conley (2014) found students need to understand the structure of knowledge within each core subject area. An important part of the structure he referred to includes the “big ideas” (p. 65) within each subject and how these ideas are connected to frame their overall study of the subject. When students are able to see the big picture of how particular disciplines or even multiple disciplines are interconnected, they experience what Conley (2005) called “intellectual coherence” (p. 79).

Intellectual coherence enables students to gain insight more effectively and to retain what they are learning, “they are vastly better prepared for college than students who have no idea how the pieces they are learning fit into a whole” (Conley, 2014, p. 65). Foundational skills of writing and reading were included within this key. Conley (2010) acknowledged the significant value of reading as a mode of communication and learning key content knowledge. Likewise, he emphasized writing as the “medium by which student thinking is expressed and assessed most frequently” (2010, p. 36).

Key learning skills and techniques. Student success in postsecondary learning endeavors is contingent upon their ability to possess true ownership of their learning, which is enhanced by specific “teachable” learning skills and techniques (Conley, 2014, p. 72). Efforts to develop students as independent and efficient learners support their journey to become lifelong learners. Educational environments that place students at the center of learning activities provide them the opportunity to truly have ownership of their learning. The traditional learning model which placed the teacher at the center, with students operating as passive participants, has led to low levels of engagement. Conversely, Conley (2014) reported improved achievement among students who display authentic ownership of their learning. The process of moving from the traditional teacher centered model requires a paradigm shift for teachers, but it also necessitates fostering “intersecting skills and dispositions” (p. 73) among students. Conley (2014) identified goal setting, persistence, self-awareness, motivation, help-seeking, progress monitoring, and self-efficacy as important skills and dispositions related to developing student ownership of their learning.

Student ownership of their learning is a key step in preparing for increased levels of CCR, but students will also need “a set of techniques to succeed in challenging and demanding learning situations” (Conley, 2014, p. 78). Several learning techniques have been highlighted as important for all students: time management, study skills, test taking strategies, note taking strategies, memorization strategies, strategic reading techniques, collaborative learning skills, and proficiency in utilizing technology. The ability to learn is a vital personal asset for both higher education and general workplace readiness. Students, who demonstrate ownership of their personal learning while continually

enhancing their actual learning techniques, will be well equipped to compete in the dynamic environment of the 21st century (Conley, 2010, 2014; Marquardt, 2011).

Key transition knowledge and skills. The concept of CCR revolves around the idea of ensuring that students graduate from secondary schools prepared for what they will face beyond high school. Given the climate of international competition and the challenge for all students to pursue postsecondary learning, it is imperative this transition be successful for both the well-being of individuals and the economic condition of the United States (Bangser, 2008; Conley, 2005, 2010, 2014; Symonds et al., 2011). Researchers have produced numerous findings related to the rigorous endeavors associated with success in postsecondary learning (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). However, it has become evident that taking the right courses in high school merely makes students “college eligible” (Conley, 2014, p. 87).

To truly be ready for postsecondary success, students need to have goals and aspirations that will drive their next steps. They need to realize “the significance of the fact that they are about to embark on a life transition, one of the most significant and wrenching transitions they will ever face” (Conley, 2014, p. 87). This reality sets the stage for a brief discussion of Conley’s (2014) five aspects of key transition skills all graduates will need to possess: contextual, procedural, financial, cultural, and personal.

Contextual. Students need to develop an understanding of the context surrounding admissions requirements for most postsecondary institutions. It is also important for students to understand the alignment between the postsecondary institution to which they are applying and their personal interests and aspirations. “Students who

know what they want to do with their future are better able to make the decisions necessary to arrive at the point of being fully prepared for college courses by the time they leave high school” (Conley, 2014, p. 89). Aspirations provide a key guide to what options students may pursue in postsecondary learning.

Helping students explore their aspirations is an important first step in preparing for this life transition. Attaining appropriate cognitive skills, content knowledge, and learning strategies are important components of the rigor needed for CCR; however, it is only the first half of CCR. While students do not need to select a specific career in high school, “they need to be honing in on what interests and engages them and where they want to expend time and energy to become skilled” (Conley, 2014, p. 89). Establishing the contextual aspect of each student’s transition from secondary to postsecondary learning creates high levels of academic relevancy and ensuing engagement in the overall process (Bangser, 2008; Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Hooker & Brand, 2010; Symonds et al., 2011).

Procedural. The procedural aspect of students’ transition to postsecondary learning can be a challenge for all families, regardless of whether they are the first generation to attend college or not. School systems need to be proactive and purposeful in supporting both parents and students in the application process. Starting as early as middle school, the transition is much more productive when students and their families are well prepared for the multitude of timelines and tasks to be completed. Students who understand the role of GPA and admissions tests in applying for college are able to take ownership of their personal readiness. Additionally, students should be informed of the value scholarship and admission boards place on extracurricular activities, volunteerism,

work experience, and various other unique experiences (Conley, 2005, 2010, 2014; Oakes & Saunders, 2008).

Financial. The financial aspect of postsecondary learning is certainly a hurdle for many students, but it often becomes an unnecessary barrier for other students. Part of the challenge for families is related to a lack of awareness of the overall costs associated with postsecondary education. Correspondingly, these families do not prepare adequately to pursue financial options for funding their student's learning beyond high school. The process of educating families about the financial aspect of college is most effective when it begins in the middle school years. This timeline affords families the opportunity to both learn the process and actually pursue resources for these future expenses. It takes a systematic and sustained focus by all school stakeholders to educate and support students as they transition to postsecondary learning (Conley, 2005, 2010, 2014; Oakes & Saunders, 2008).

Cultural. Students need to be aware of the formal and informal aspects of college culture in order to gain admission to and navigate within the postsecondary system. A key to this cultural aspect that students benefit from understanding is related to the assumptions and expectations college instructors have regarding their first year students. College professors "assume students are independent, self-reliant learners who take ownership of the learning process and their lives" (Conley, 2014, p. 92). Students who present themselves in this manner are more likely to benefit from the support and respect of their professors (Conley, 2005, 2010, 2014; Oakes & Saunders, 2008).

Personal. Many of the skills Conley (2014) emphasized for students who display ownership of their learning are vital personal traits during the transition process.

Students who actively set goals and motivate themselves to accomplish them will be successful in postsecondary settings. Their persistence and attention to personal progress will serve them well in advocating for their own well-being. When they face a situation that may have a negative impact on them personally, they will be more likely to have the self-confidence to confront the problem. These skills are important for students as they transition to the postsecondary school environment (Conley, 2005, 2010, 2014).

Summary of College and Career Readiness

The capacity of the United States to persist as a leader in the global market while maintaining its economic prowess will depend on its ability to harness "knowledge-based, high-tech industries" (Marquardt, 2011, p. 11). A key component of this challenge is to train and equip a workforce capable of the critical thinking, communication, collaboration, and creativity needed in those industries. However, the literature makes it clear that American students are struggling to meet benchmark standards for CCR (ACT, 2013b; Bangser, 2008; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Symonds et al., 2011; Venezia & Jaeger, 2013).

The emergence of college and career readiness as being the same (Conley, 2005, 2010, 2014; Conley & McGaughy, 2012) has identified the interconnectedness of rigor and relevance. The relevance and experience based focus of career preparation blended with the rigors of a college preparatory program of study has created the new norm for CCR in the United States. Armed with a new definition for CCR, the four keys to college and career readiness, and charged with the reality of poor performance, secondary schools, postsecondary institutions, and employers have embarked on a quest to create a "pathway to prosperity" (Symonds et al., 2011) for all Americans.

The push for student exposure to rigorous coursework has created questions regarding best practices to engage students in such coursework. The answer was rooted in the academic relevancy of coursework and programs as a whole. In order for schools to reach a critical mass of students authentically engaged in a path toward CCR, it can be presumed that both rigor and relevance will be required. Lippman, Atienza, Rivers, and Keith (2008) asserted that efforts to promote rigor and relevance occur simultaneously but independently of each other. Recognizing the developmental components of adolescence during the high school years and the value of joining rigor and relevance together in support of that development, Lippman, et al. (2008) opened the door to a more in-depth analysis of relevance as it related to CCR (Adams, 2010; Erikson, 1968; Marcia, 2002). The conversation regarding the relationship between rigor and relevance prompted further investigation into each concept.

Rigor

Academic rigor has been considered the key to preparation of students for college level coursework upon graduation. The emergence of the 21st century global economy expanded the focus of academic rigor to include both college and career readiness. Exposing all students to a rigorous course of study was thought to prepare them for college level coursework and a rewarding career afterward (ACT, 2013b; Adelman, 2006; Conley, 2005; Porter & Polikoff, 2012). To more fully understand rigor and the unique relationship it has with relevance, a review of rigor was completed. The review explored the findings of both Adelman's (1999, 2006) *The Toolbox Revisited* and Conley's (2005, 2010, 2014) *Standards for Success*. The review is concluded with a brief overview of ACT's (2013b) recommendations related to rigor.

The Toolbox Revisited

The Toolbox Revisited, a longitudinal study from 1988 to 2000, was completed for the U.S. Department of Education (Adelman, 2006). Using the most recently completed national grade-cohort longitudinal studies conducted by the National Center for Education Statistics, the study followed a nationally representative cohort of students from their 8th grade year in 1988 to 2000. The data collection included critical components of high school and college transcripts coupled with regular interviews with the students. It was noted that the transcript data are the principal sources for the academic history observed (Adelman, 2006).

The Toolbox Revisited (Adelman, 2006) was designed as a replication of *Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment* (Adelman, 1999). The original study, published by the U.S. Department of Education, based its analysis on a national cohort of 10th grade students from 1980 to 1993 allowing 11 years to enter higher education, attend a 4-year college, and complete a bachelor's degree (Adelman, 1999). Researchers questioned whether the findings of the 1993 cohort study would hold up to the 2000 cohort (Adelman, 2006). Examination of key findings from both studies illustrated consistency with *The Toolbox Revisited* (Adelman, 2006) serving to fine tune a number of the findings.

Insights from the study resulted in the emergence of three categories related to academic rigor which had a significant impact on degree completion: core curriculum, threshold courses, and academic intensity. Among the demographic characteristics, socioeconomic status was the only item found to be significantly associated to degree completion. Gender and race/ethnicity were never significant in the analysis used for this

study, though their indirect effects may have emerged through other statistical models (Adelman, 2006). Each of the categories will be discussed as it relates to the influence of academic rigor on CCR.

Core curriculum. Both studies identified student completion of rigorous core courses as vital to postsecondary success. “What you study, how much of it, how deeply, and how intensely has a great deal to do with degree completion” (Adelman, 2006, p. 108). Adelman (2006) found that students who had completed a bachelor’s degree during the course of the study shared similar courses on their high school transcripts. He determined that students, who complete the number and type of credits shown below, graduated from college at significantly increased rates when compared to their peers. Adelman’s (2006) report recommended that college bound students complete the following number and type of courses in high school:

- 3.75 or more Carnegie units of English;
- 3.75 or more Carnegie units of mathematics;
- highest mathematics of either calculus, pre-calculus, or trigonometry;
- 2.5 or more Carnegie units of science or more than 2.0 Carnegie units of core laboratory science (biology, chemistry, and physics);
- more than 2.0 Carnegie Units of foreign languages;
- more than 2.0 Carnegie Units of history and social studies;
- 1.0 or more Carnegie Units of computer science;
- more than one Advanced Placement course; and
- no remedial English; no remedial mathematics (Adelman, 2006, p. 19).

Threshold courses. Adelman (2006) referred to the courses, shown above, as “threshold criteria” (p. 19) for postsecondary success. Assuming the majority of high schools can actually offer these courses, students would benefit greatly by taking them. Many students who engaged in this level of curricular intensity actually accumulated much more than these threshold criteria. Ninety-five percent of students reaching all of the threshold criteria were successful in earning bachelor’s degrees (Adelman, 2006).

While the collective whole of core curriculum contributes to the academic readiness of students, the highest level of mathematics studied in secondary school had the strongest continuing influence on bachelor's degree completion. Students who completed mathematics coursework beyond Algebra 2 were twice as likely to complete a bachelor's degree (Adelman, 2006). Completing the prescribed number of math courses was an important recommendation, but ensuring that students complete courses beyond Algebra 2 was a key indicator of college readiness. Additionally, students who engaged in a math class during their senior year performed better toward degree completion (Adelman, 1999, 2006).

The completion of at least six college credit hours of dual enrolled or dual credit coursework during high school was also a key predictor of degree completion. Adelman (1999, 2006) identified that students who accumulated at least 20 college credit hours by the end of their first academic year in college were significantly more successful in completing their bachelor’s degree. Individuals who completed some college credit hours in high school were more likely to reach the 20 credit hour milestone as first college year students. Adelman (2006) referenced the number of college credits

completed by students in his study, “six is good, nine is better, and 12 is a guarantee of momentum” (p. xx) toward degree completion.

Academic intensity. Among many findings from the studies, one seems to be most prominent, “the academic intensity of the student’s high school curriculum... counts more than anything else... in providing momentum toward completing a bachelor’s degree” (Adelman, 2006, p. 19). The studies identified that those deemed to have been successful in their postsecondary endeavors (earning bachelor degrees) had completed a rigorous course of study focused on core and advanced placement (AP) or International Baccalaureate (IB) courses. Adelman (1999) reported that rigorous “high school curriculum reflects 41% of the academic resources students bring to higher education” (p. 21) with test scores, class rank and academic GPA rounding out at 30% and 29% respectively.

Absent the perspective of relevance building activities to be discussed later, Adelman (1999, 2006) asserted that schools do not have the ability to change student intentions or perceptions. Nor are schools able to influence affective forces impacting student academic choices. Generally speaking, the choices students make about transferring between colleges, changing majors, or quitting school are beyond the realm of influence for collegiate institutions. However, Adelman (1999, 2006) proposed that secondary school systems can exercise influence through increased academic intensity by engaging students in appropriate coursework. He clarified, “but counting Carnegie units in English or science is not the same as describing and validating what students have learned, and whether that learning links smoothly to the performance expectations of the postsecondary world” (Adelman, 2006, p. xvii).

A bridge between high school and higher education is necessary and should be constructed by purposeful alignment of course expectations. While the bridge may not always align between the two educational levels, it is recommended that students begin crossing while in high school. This crossing is best initiated through academic intensity of the student's high school curriculum (Adelman, 1999, 2006).

Academic intensity is emphasized as the most significant factor in predicting which students will be successful in postsecondary learning (Adelman, 1999, 2006). To support student engagement in academically rigorous and intense coursework, Adelman advocated for secondary schools to prepare courses that have been appropriately aligned with postsecondary expectations. This alignment will require postsecondary institutions to foster active and supportive partnerships with secondary schools to aid the process of curricular alignment and communication of expectations. Adelman (2006) recommended the first year of postsecondary education should begin in high school. If courses such as AP or IB are not available, then students should engage in dual credit or dual enrolled courses totaling at least six credit hours. By engaging in collegiate level coursework, academic intensity is more likely to be attained and students will become more familiar with the higher expectations before being immersed in a full academic load in college.

Academic intensity that is framed in core curriculum, with an eye toward completing key threshold coursework, captures the crux of Adelman's (1999, 2006) reports. Students need to be challenged to engage in rigorous studies in preparation for more rigorous studies beyond high school. However, Adelman (1999, 2006) failed to address factors related to motivation and engagement. His work was noticeably devoid of relevance in the process of pushing students to engage in an academically intense

course of study. He acknowledged this oversight, stating “the elaborate connections between student background characteristics, social and psychological predispositions, initial perceptions and responses to a particular postsecondary environment, strength of goal commitments, etc.” (Adelman, 2006, p. 84) are simply beyond the scope of this longitudinal study.

Standards for Success

David Conley (2005, 2010, 2014) is a leading researcher in the domain of college and career readiness. He authored several books on CCR including *College Knowledge* (2005), *College and Career Ready* (2010), and *Getting Ready for College, Careers, and the Common Core* (2014). The primary findings of his books were based upon Standards for Success, a research project he designed and directed between 1998 and 2001. The project was sponsored by the Association of American Universities and the Pew Charitable Foundation. Conley (2005, 2010, 2014) also founded and directed the Center for Educational Policy Research (CEPR) and the Educational Policy Improvement Center (EPIC). Both entities actively researched policy issues involving college and career readiness. During the past two decades of research on CCR, Conley’s (2005, 2010, 2014) focus evolved from targeting key cognitive skills and knowledge (2005) needed for college success to active consideration of the intellectual coherence (2010) and personalization of learning (2014) necessary in each student’s academic journey. The following section will explore Conley’s (2005, 2010, 2014) balanced approach to promoting rigor and relevance followed by a discussion contrasting college eligibility and college readiness (Conley, 2014).

Balanced approach to promoting rigor and relevance. Conley's (2005, 2010, 2014) work provided a balanced approach in comparison to Adelman's (1999, 2006) unilateral focus on academic rigor. Conley (2010) acknowledged the need for both rigor and relevance in the American school system as he discussed the comprehensive high school:

The fundamental assumption of the comprehensive high school model, the backbone of the twentieth-century American secondary school, is that students have different interests and abilities and that high schools should offer a range of programs in response to these differences. Students then make intelligent choices guided by an enlightened sense of self-interest and an understanding of who they are and what they want to become. (p. 2)

The emergence of the 21st century global economy reignited interest in this definition. Unfortunately, the model of the comprehensive high school described above does not exist systematically across the United States and certainly not for the masses.

Independent of affluence or poverty, a portion of the population attends progressive schools that provide students with opportunities to explore their personal interests and abilities. However, engaging coursework designed to be both relevant and rigorous is not the norm for most American students. The majority of students have historically found themselves in tracks determined by either vocational or college ambitions. This was true because the current definition of CCR, which seeks to combine college and career under an umbrella of rigor and relevance, has not been commonly used (Bangser, 2008; Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Oakes & Saunders, 2008; Venezia & Jaeger, 2013). Conley (2010) discussed the challenge of

unifying the two concepts in suggesting “a helpful first step...is to think in terms of *postsecondary readiness*, not college admission, and in terms of *career readiness* in place of work preparedness” (p. 5).

College eligibility vs. college readiness. The traditional pathway provided college bound students with guidance to make them eligible for college while students planning to enter the workforce immediately after graduation received workplace training. Though workplace training provided high levels of relevance for students, it traditionally lacked the rigor necessary for success in college. Conversely, college bound students may have experienced the rigors to perform certain college level tasks; but they often failed to see the interconnectedness or coherence of their learning, lacking overall relevance in their studies (Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Oakes & Saunders, 2008). Conley (2010) proclaimed, “The new reality is that students need a program that integrates high academic challenge with the exploration of a range of career options and opportunities” (p. 6).

While more students today aspire to go to college, somewhere between 30% and 60% of students who get into college require remedial education once there. The problem is that high schools are preparing students to be college-eligible not college-ready (Bangser, 2008; Conley, 2005, 2010, 2014, 2014; Porter & Polikoff, 2012; Symonds et al., 2011; Venezia & Jaeger, 2013). Students, who are deemed college-eligible, may meet admissions requirements, but it will be difficult for them to be considered truly ready for postsecondary success unless they can meet the expectations of entry-level college courses (Conley, 2005, 2010, 2014). Current processes or measures used in determining whether a student is college and career ready include a review of

titles of coursework completed in high school, grade point average (GPA) and class rank, performance on standardized assessments, performance in college level courses, and baccalaureate level general education requirements completed (Adelman, 1999, 2006; Bangser, 2008; Conley, 2005, 2010, 2012, 2014; Hooker & Brand, 2010; Porter & Polikoff, 2012).

Titles of coursework completed in high school. Titles of high school coursework were often used to determine if the appropriate coursework had been completed. The implication was that completing particularly rigorous coursework would make a graduate more ready for college. Federal studies, such as Adelman's (1999, 2006), concluded a challenging high school curriculum is the strongest CCR indicator for success. However, Conley (2010) argued inconsistent standards cause challenges to preparing all students to be CCR. Conley (2005) attempted to address this issue by suggesting options for reliable academic intensity. He believed Advanced Placement (AP) and International Baccalaureate (IB) courses offered rigorous curriculum focused on college level expectations. The curriculum in AP and IB courses was not only standardized at the national level, but they also required externally graded assessments. The high standards set by each set of courses were monitored by objective scoring to ensure schools maintained the academic intensity as designed in the curriculum. Students who were successful in completing coursework of this nature were believed to be more adequately prepared for college level coursework (Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Hooker & Brand, 2010; Porter & Polikoff, 2012; Radunzel & Noble, 2012).

Grade point average (GPA) and class rank. High school grade point average (GPA) and class rank have been longstanding metrics used in determining the level of

student readiness for college. The GPA and class rank are likewise frequently used determinants of student eligibility for various scholarships. High school class rank is a product of each student's GPA in relation to their high school cohort of graduates; consequently the two are closely tied. Studies have found correlations between high school GPA's and success in first year coursework in college (ACT, 2013a, 2013b; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Radunzel & Noble, 2012; Sanchez, 2013). However, national increases (in the average high school GPA) have not aligned to steady scores on nationally standardized assessments such as the ACT. The reliability of a high school GPA as an indicator of college readiness has waned slightly in recent years; however, it is still deemed to be effective in identifying the highest achieving students (ACT, 2013a; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Radunzel & Noble, 2012).

Performance on standardized assessments. Standardized assessments, such as the ACT and SAT, serve as reliable measures of CCR (ACT, 2013a, 2013b; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Radunzel & Noble, 2012; Venezia & Jaeger, 2013). Multiple studies have established positive correlations between student performance on the ACT and successful degree completion. ACT established college readiness benchmarks in four subject areas: English, Reading, Math, and Science. Students who successfully meet benchmark scores in a given subject area have at least a 75% chance of earning a C or better in entry level college coursework associated with the particular subject area. These gauges of probability highlight the emerging importance of assessing knowledge and skills as a measure of CCR (ACT, 2013b; Conley, 2010). The higher a student performed on these assessments suggested increased levels of

confidence in their chances of successfully completing a college degree (ACT, 2013a, 2013b; Radunzel & Noble, 2012; Sanchez, 2013).

Performance in college level courses. The need for remedial coursework among students in their first year of college is a significant barrier to degree completion. Only 17% of students who require remedial coursework in reading are successful in completing a bachelor's degree (Conley, 2010, p. 27). It is increasingly important for high schools to assess student performance on benchmark standards, such as ACT's College Readiness Benchmarks (ACT, 2013b), while there is still time for remediation in high school. The quest to prepare all students for learning beyond high school will require preparation through challenging and meaningful coursework.

Adelman (1999, 2006) emphasized the value of student engagement in academic intensity, while in high school, as a key factor in successfully progressing toward postsecondary degree completion. Additionally, he emphasized the importance of completing at least 20 credit hours in the first year after graduation from high school. Students who engage in college level coursework in high school, such as dual credit or dual enrolled courses, are able to move forward with Adelman's (1999, 2006) recommendations while demonstrating the capability to handle coursework of this nature. Assuming the dual credit or dual enrolled courses maintain high levels of rigor aligned to college expectations (Venezia & Jaeger, 2013), students will benefit from the academic intensity as well as potentially making progress toward the 20 credit hour milestone (Adelman, 1999, 2006; DeMaria, 2013).

Baccalaureate level general education requirements. Students who completed a full complement of core coursework while in high school were better equipped for

success in their postsecondary education (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012). ACT (2013b) considered core curriculum expectations to be four years of English and three years each of math, science, and social studies. Adelman (1999, 2006) suggested the core should not only include additional math, science, and social studies courses, but also courses in foreign language, computer science, and speech. Conley (2005) warned against an over-emphasis on college readiness or eligibility as measured by the completion of core coursework exclusively. His caution was motivated by the reality that many students, who complete a college preparatory program of study, continued to struggle upon entering their postsecondary education (Conley, 2005, 2010, 2014). Nonetheless, significant studies demonstrated strong correlations between the completion of core college preparatory courses in high school and successful degree attainment (Adelman, 1999, 2006; ACT, 2013b; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Venezia & Jaeger, 2013).

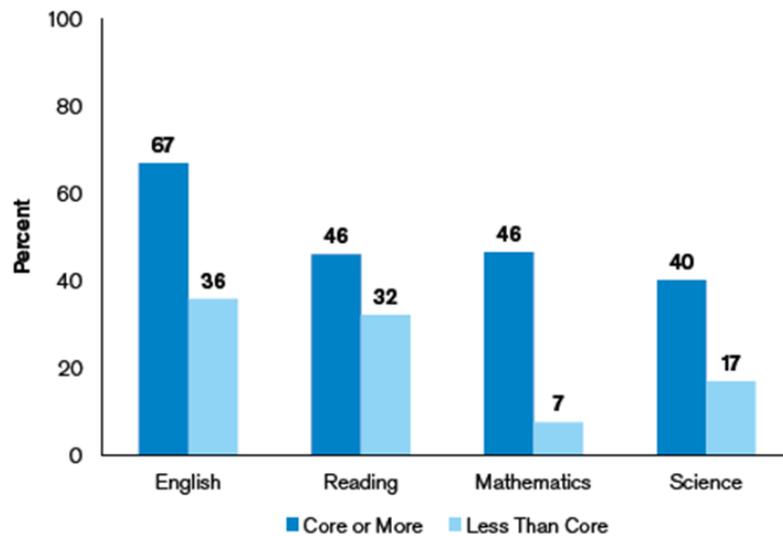
Conley (2005, 2010, 2014) provided a more balanced approach to rigor, placing appropriate emphasis on the relevance of learning experiences. While he communicated the value of rigorous learning opportunities, he likewise promoted intellectual coherence to build connections between the rigorous content and personal learning experiences. The task of checking the appropriate boxes along the route to college admission only results in eligibility for college. However, student engagement in rigorous coursework framed in relevant settings will yield higher levels of readiness than a mere focus on eligibility (Conley 2005, 2010, 2014).

CCR and the ACT

The ACT is a standardized assessment representing known quantities of performance that provides benchmarking for CCR. This assessment offers insight on performance in multiple disciplines including English, reading, math, and science. Current trends to identify performance deficits at earlier ages created a demand for early assessment and subsequent remediation (ACT, 2013b). ACT plays an active role in the arena of research on CCR. The following section includes a review of ACT's correlational data on student completion of core coursework and corresponding ACT benchmark scores followed by ACT's recommendations for promoting increased CCR in secondary schools.

Correlations of ACT College Readiness Benchmarks to completion of core coursework. Research from ACT provided valuable insight for schools seeking to guide their students to be more adequately prepared for postsecondary opportunities. Among these recommendations is a focus on rigorous core coursework. Their data indicated positive correlations between completion of core courses and performance on CCR benchmarks (see Figure 4). ACT's national report, *The Condition of College and Career Readiness* (2013b), stated "Within a subject area, graduates who took a core curriculum or more in high school were more likely to meet the corresponding ACT College Readiness Benchmark in 2013 than graduates who took less than a core curriculum" (p. 6). The core curriculum included four years of English and three years each of mathematics, science, and social studies. Among the four subject areas, math was the most significant factor related to completion of core curriculum. Students who

completed at least three years of mathematics performed 39 percentage points better on the ACT math section than students completing less than three years of mathematics.



*Figure 4. Percent of ACT-Tested High School Graduates Meeting ACT Readiness Benchmarks by Number of Years of Courses Taken Within Subject, 2013. Graph reads: In 2013, 67% of ACT-tested high school graduates who took at least a core high school curriculum in English met the ACT College Readiness Benchmark in English, whereas 36% of graduates who took less than a core curriculum in English did so. Reproduced from ACT, *The Condition of College And Career Readiness 2013: National* (2013b, p. 6).*

Recommendations from ACT 2013 report. ACT assessed 1.8 million students across the United States in 2013 with only 26% of them meeting CCR benchmark standards on each of the four subjects (ACT, 2013b). Given the fact that 31% of ACT tested students failed to meet any of the ACT College Readiness Benchmarks in 2013, it seems imperative that action be taken to improve student readiness. Ascribing to ACT’s definition for CCR, it is asserted that more than 500,000 students “were not prepared

academically for first-year college courses in English Composition, College Algebra, Biology, and social sciences” (ACT, 2013b, p. 24). ACT has engaged in decades of research, seeking to measure CCR among American students and most recently to enhance student preparation for their postsecondary endeavors. The following section represents suggestions ACT has endorsed that states, districts, schools, and classrooms can initiate to increase the college and career readiness of their students (ACT, 2013b).

Infusing a culture of postsecondary success. ACT (2013b) suggested that all students be exposed to a rigorous core curriculum to support increased levels of CCR. Regardless of whether a student is planning to attend college or enter the workforce upon graduation from high school, they will all benefit from increased expectations for engagement in challenging coursework (ACT 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Oakes & Saunders, 2008; Porter & Polikoff, 2012). College readiness and workforce training should include similar expectations for academic intensity and general persistence. These expectations should be comparable in rigor and clarity of purpose because high-quality education or training after high school is increasingly vital to the success of all students (ACT, 2013b).

Ensuring access to rigorous high school courses. ACT’s (2013b) correlational study of student completion rates for core coursework and performance on their College Readiness Benchmarks strongly suggests that all students be engaged in a rigorous course of study. “Having rigorous and aligned standards, coupled with a core curriculum, will adequately prepare students only if the courses are truly challenging” (ACT, 2013b, p. 24). Conley (2005, 2010, 2014) promoted the idea of being more than just eligible for college, but to truly be ready. The readiness Conley (2005, 2010, 2014) referenced is

rooted in a balance between exposure to academic rigor and personal relevancy (Porter & Polikoff, 2012). It is clearly more important for students to take the right kinds of courses rather than merely the right number of courses (ACT, 2013b).

Supporting early monitoring and intervention. The conversation regarding remediation rates and general student CCR prompted conversations about how to best prepare students (ACT, 2013b; Adelman, 1999, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). A commonsense recommendation was made by ACT (2013b) in suggesting interventions as early as elementary and middle school. Utilizing assessments to identify performance gaps early, while adequate time exists to remediate prior to entering the postsecondary arena, supports increased readiness among students (ACT 2013b). The ACT series of assessments, which include the EXPLORE, PLAN, and ACT provide data on student performance which can be used in this manner. Acting on the demand for early identification of performance gaps, ACT developed the ASPIRE test which will span grades three through ten. The ASPIRE was designed to provide longitudinal data on student performance in support of early identification and remediation (ACT, 2013b).

The ACT report (2013b) recognized the process of supporting student readiness longitudinally is multifaceted. Complementary factors such as academic behaviors and interest in a chosen major or career field influence student motivation in school. The combination of these factors “provide a more meaningful picture of readiness” (ACT, 2013b, p. 3). The ACT report (2013b) stated, “To best prepare students for success, the educational system must monitor student progress and intervene using this holistic view of college readiness” (p. 3).

Early preparation. Academic intensity has emerged as a key factor in promoting increased levels of readiness for college and career endeavors (ACT 2013a, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). ACT (2013b) emphasized the value of exposing students to increased levels of rigor in elementary and middle school. Further emphasizing the need to engage students in the middle school years, The ACT report (2008) stated “the level of academic achievement that students attain by 8th grade has a larger impact on their college and career readiness by the time they graduate from high school than anything that happens academically in high school” (p. 2).

An examination of ACT’s (2013b) college and career readiness benchmark data revealed that fewer than 20% of eighth grade students, who completed the EXPLORE test, successfully met each of the four college readiness benchmarks while 24% failed to meet a single benchmark. According to the ACT report (2013b), more than 80% of eighth grade students will fall short of having the knowledge and skills needed for postsecondary learning upon graduation. The reality of this data suggests that many students may have access to successful futures after high school, but low levels of readiness through eighth grade may have already shut doors to college and career readiness (ACT 2008). The data provided clear emphasis on the need for schools to be diligent in engaging students in academically rigorous studies prior to high school.

Summary of Rigor

Contemporary perspectives acknowledge the interconnectedness of college and career readiness with engagement in academic rigor as a vital component of postsecondary readiness. Workplace demands have created expectations for learning

which is on par with college learning. Being college ready implies career ready, primarily because of the necessity for postsecondary education. Complexities of the global marketplace created an increased demand for graduates to be ready for continued learning after high school, promoting the need for graduates to possess key skills before entering the postsecondary arena (Marquardt, 2011). These skills represent the capacity to think critically, communicate effectively, collaborate with peers, and exhibit creativity in problem solving. Independent of whether graduates engage in a two year, four year, or vocational school, their opportunities for success beyond high school will be greatly enhanced if they possess these skills (Bangser, 2008; Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Marquardt, 2011; Venezia & Jaeger, 2013).

The literature strongly suggests students who engage in an academically intense course of study while performing well on key performance benchmarks exhibit increased levels of readiness for postsecondary learning (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). A synthesis of the literature related to rigor revealed that academic intensity is manifest through core coursework, key threshold courses, and college level courses such as AP, IB, dual credit, and dual enrolled courses. Key performance benchmarks represented in the literature include standardized assessments, grade point average (GPA), and class rank (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). A table representing rigor with the components of academic intensity and performance benchmarks is available in Appendix D.

Relevance

Research on CCR has had a major focus on academic rigor over the past decade. The volume of literature on academic rigor related to CCR is significant and has certainly had a major impact on state and federal accountability systems (ACT, 2008, 2013a, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Radunzel & Noble, 2012; Venezia & Jaeger, 2013). While measures of academic intensity and benchmark performance are well rooted in educational policy related to CCR, the data have increasingly suggested the need for an expanded focus beyond rigor. The consistent tenor of research in recent years has emphasized the need for more than rigor alone, suggesting a holistic approach focused on the influence of academic relevance on student engagement (ACT, 2013b; Conley, 2010, 2014; Crumpton & Gregory, 2011; Hooker & Brand, 2010; Oakes & Saunders, 2008; Schneider, 2007; Venezia & Jaeger, 2013). The notion of a relationship between rigor and relevance in regard to CCR warranted a review of additional research related to the idea of relevance.

Engaging students in rigorous coursework requires a concerted effort to build relevance into their experiences. Those who have engaged in active exploration of personal interests and passions display self-awareness and engagement that motivates them toward more rigorous effort (Adams, 2010; Bangser, 2008; Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Erikson, 1963; 1968, 1980; Symonds et al., 2011; Kosine et al., 2008; Marcia, 1966; Oakes & Saunders, 2008; Robinson & Aronica, 2009, 2013; Super & Hall, 1978). Daniel Pink (2009) discussed intrinsic motivation and innate creativity as powerful forces in human motivation. Individuals are intrinsically motivated to explore new things and driven by an innate curiosity to discover their individual

interests and passions (Blustein, 1997; Crumpton & Gregory, 2011; Pink, 2009; Robinson & Aronica, 2009, 2013).

Conley (2005, 2010, 2014) wrote extensively about the knowledge and skills students need as they enter the postsecondary arena. While his focus on CCR remained consistent in regard to the value of academically rigorous skills and endeavors, he added an emphasis on student self-interest and personal discovery of future aspirations. He stated, “The fundamental assumption of the comprehensive high school model...is that students have different interests and abilities and that high schools should offer a range of programs in response to these differences” (Conley, 2010, p. 2). To more fully understand the factors which influence the sense of relevance among adolescents, a review of the literature related to the exploration of individual interests and passions was needed. Career exploration, systems of adult guidance and support, and career planning were three frameworks used in the course of examining relevance.

Career Exploration

School systems seek to motivate their students to engage in rigorous and relevant learning experiences. Students who understand their personal interests and passions are often drawn by natural curiosity and intrinsic motivation to engage in active learning in those areas. Aligning school experiences for each student to their individual interests and passions has a profound impact on their learning (Blustein, 1997; Crumpton & Gregory, 2011; Kosine & Lewis, 2008; Pink, 2009; Robinson & Aronica, 2009, 2013). The process of supporting student discovery of their individual interests and passions requires an understanding of how interests are developed and how schools have been successful in facilitating this discovery. A review of current literature on exploration of personal and

career interests followed by a discussion of Super's (1980) life-span, life-space theory of career development provides insight into career exploration within a secondary school setting.

Exploration of personal and career interests. The transition from high school to college and career endeavors requires a degree of focus on behalf of each student. Absent a sense of individual identity and interests, aspirations may be poorly aligned with postsecondary plans. Students benefit from “early and ongoing exposure to experiences and information necessary to make informed decisions when selecting a college or career that connects to academic preparation and future aspirations” (Lee & Bell, 2011, p. 10).

Active exploration exposes students to a variety of opportunities and experiences that support a growing sense of who they are and what they aspire to become. Reflection on experiences in light of personal interests and aspirations supports quality decisions related to college and career options. School cultures that support students in both personal and career exploration best equip them to make decisions about their future aspirations and goals (Bangser, 2008; Conley, 2010, 2014; Conley & McGaughy, 2012; Erikson, 1980; Kosine et al., 2008; Hughes & Karp, 2004; Lee & Bell, 2011; Lippman et al., 2008; Schneider, 2007, 2009).

Personal exploration. The adolescent task of exploring alternatives, in the quest to understand one's self, is important for individuals transitioning into postsecondary opportunities (Erikson, 1963, 1968, 1980). Personal exploration is often manifest in schools through career interest inventories, class research, career oriented clubs, adult conversations, and various activities such as job shadowing and internships (Bangser, 2008; Conley, 2005, 2010, 2014; Hooker & Brand, 2010; Lee & Bell, 2011; Lippman et

al., 2008; Oakes & Saunders, 2008; Schneider, 2007, 2009). Personal exploration and discovery of individual passions and interests creates an intrinsic drive that motivates students to engage in relevant learning with an enlightened sense of direction and efficacy (Crumpton & Gregory, 2011; Pink, 2009; Robinson & Aronica, 2009, 2013). Quality learning experiences and self-efficacy are critical factors that impact the development of career aspirations in high school students (Tang, Pan, & Newmeyer, 2008).

Career exploration. Successful career guidance programs capitalize on the experiences of personal exploration to align and coordinate student aspirations with their postsecondary options. Workplace experiences afford students opportunities to not only learn about norms for behavior, but also the educational requirements to enter the particular career field (Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Hooker & Brand, 2010; Kosine & Lewis, 2008; Lee & Bell, 2011; Oakes & Saunders, 2008; Schneider, 2007, 2009; Tang, Pan, & Newmeyer, 2008). Personal contacts in the work world were reported by students as being more helpful than worksite tours or school-based activities (Bangser, 2008, p. 11). A college-going culture has a significant influence on student exploration and ultimately the development of individual identity. A strong sense of self and personal identity provides important fuel to the fire of aspiration, goal setting, and overall sense of relevancy in school endeavors (Schneider, 2007).

Super's career development. Donald E. Super (1953, 1954) was a pioneer in career development research. His work was foundational in the 1950's and continued to contribute to the body of literature on career development for more than five decades (1973, 1980; Super & Hall, 1978; Super, Osborne, Walsh, Brown, & Niles, 1992). Super

(1953, 1954, 1973) introduced the concept of individuality and the value of matching individual characteristics, interests, and ambitions to particular occupational positions (Savickas, 1997). The name of his approach to career development evolved over the years from career development theory to developmental self-concept theory, but the current life-span, life-space theory has persisted (Savickas, 1997). Super's (1980) life-span, life-space theory suggested individuals move through five stages of career development from childhood into adulthood: growth, exploration, establishment, maintenance, and disengagement.

Despite the change in name of theoretical approach, Super's quest remained constant as he sought to provide insight to guide people in finding career opportunities that match their "abilities and interests" (Savickas, 1997, p. 248). Herr (1997) asserted that Super's views served as a stimulus to change career developmental perspectives from seeing vocational or occupational choice as less of a singular event to more of a "process of maxi- and minichoice by which persons forge a career" (p. 239). The first two stages of Super's (1980) theory, growth and exploration, represent important elements of the adolescent experience with career development. The following section examines both growth and exploration as explained in Super's (1980) life-span, life-space approach to career development.

Growth stage. The growth stage represents a period of time that starts in childhood and early adolescence in which the individual begins to develop their vocational self-concept. Experiences with family, school, and community expose the individual to various occupations while promoting a level of autonomy. Kosine (2008) believed these experiences foster growth in "work-related skills and habits" (p. 230)

while promoting relationships that may serve as vocational role models. The growth stage initiates the discovery of personal interests and abilities while setting the stage for exploration (Kosine & Lewis, 2008; Patton & McMahon, 2006; Super, 1980).

Exploration stage. Exploration holds a marquee place in the adolescent experiences of middle and high school students as they engage in career development. Adolescence “is the period in which exploratory behavior is the most common of the observed career behaviors” (Super & Hall, 1978, p. 336). Individuals increase their knowledge of adult roles while experimenting to find what fits best for them as individuals. Blustein (1997) advocated for counselors to promote an exploratory attitude or culture that might encourage individual growth and discovery. He likewise suggested that exploration prepared young people to be flexible and agile for the rapidly changing world. Super’s (1978) theory of career development established growth and exploration as core to discovery of individual interests and abilities. The self-awareness and knowledge born of exploration supports an understanding of the requirements for particular occupations being pursued (Kosine & Lewis, 2008).

Adult Guidance and Support

The emergence of the 21st century global market placed school counselors in a pivotal role for American students. Expectations to support student growth in a combined college and career arena increased demands on counselors who already managed a multitude of student and administrative responsibilities. Key responsibilities of school counselors involved supporting individual students as they engage in exploration of personal interests and appropriately rigorous coursework while also participating in relevance building career activities (Bangser, 2008; Conley, 2005, 2010,

2014; McDonough, 2004; Oakes & Saunders, 2008; Schneider, 2007, 2009). The sheer volume of these tasks proved to be extremely challenging. Many students reported receiving little help from their counselors in preparing for postsecondary experiences. As the need for focused and well planned career guidance became increasingly vital, the role of the school counselor was scrutinized and often depicted as being ineffective (Schenck et al., 2012; Johnson, 2012; Johnson et al., 2010).

While the exploration process is largely an individual experience, Super (1978) recognized that the experience is not devoid of outside influence. In fact, he acknowledged the environment or context in which an individual operates can “both limit and facilitate individual development” (p. 336). Viewing exploration as a function of organizational setting, Super (1978) proposed the organization effectively influences career development based on their “provisions for career exploration and planning” (p. 336). Engaging the larger school community to support adolescent exploration through means such as mentoring, job shadowing, or internships provide excellent “modeling and vicarious learning” (Blustein, 1997, p. 263) opportunities for young people. Exploration leads to a maturation of career development as “the individual crystallizes his or her career interests by narrowing choices, specifies a vocational choice, and then implements the choice by making it a reality via training, education, and work” (Kosine & Lewis, 2008, p. 231).

School counselors face an extremely important challenge of meeting the college and career readiness needs of their students. Current literature suggests this challenge may be a responsibility of school counselors, but the full burden of responsibility does not rest on them alone. The creation of a college and career oriented culture within

schools will share this responsibility in a more efficient and effective manner (Bangser, 2008; Conley, 2005, 2010, 2014; Deal & Peterson, 1999; Symonds et al., 2011; Hooker & Brand, 2010; Kosine & Lewis, 2008; McDonough, 2004; Oakes & Saunders, 2008; Schneider, 2007, 2009).

It has grown increasingly clear that many students and their families see the need for pursuing college after high school. However, many families lack an awareness of the options available to them as well as what it takes to prepare adequately for postsecondary learning (Hooker & Brand, 2010). Schools have the responsibility to promote a culture that engages all stakeholders in the process of supporting student exploration, planning, and execution of personalized goals and ambitions (Schneider, 2007).

While school principals set the tone for overall school culture (Deal & Peterson, 1999), school counselors are often charged with the responsibility to establish the career guidance culture. Unfortunately, the priority tasks assigned to school counselors are often administrative in nature. Many counselors are overburdened with scheduling and standardized assessment followed by prevention programs to address dropouts, drugs, pregnancy, suicide, and a multitude of personal crises (McDonough, 2004). The reality of time demands on school counselors made it increasingly important for the entire school community to pull together in support of students. More students will be influenced by forming a culture of high expectations, quality mentorship programs, and establishing key CCR activities (Bangser, 2008; Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Johnson, 2012; McDonough, 2004; Schneider, 2007).

Culture of high expectations. A school culture that supports quality counseling programs with an emphasis on rigor and high expectations for all students will see more

students ready for college and career (Bangser, 2008). The promotion of a college-going culture requires each stakeholder to communicate a common message of “high educational expectations, academic performance, and college attendance” (Schneider, 2007, p. 7) for all students. A culture of high expectations will encourage all students to engage in challenging courses such as AP, IB, or dual credit. This level of academic intensity will greatly enhance their preparation and overall opportunity to earn a postsecondary degree (Adelman, 1999, 2006).

A major challenge for counselors is to support student exploration of their individual career interests while connecting even a minimum understanding of the educational requirements for that work. Students in all socio-economic statuses tend to struggle with making connections between their ambitions and the necessary academic expectations for a particular career field (Schneider, 2009). A school environment that promotes expectations for high levels of academic achievement while providing appropriate encouragement and support is “an essential precondition for college attendance” (McDonough, 2004, p. 9).

Mentorship programs. The adolescent journey through high school can be challenging if not paralyzing for many students. However, mentorship programs have proven to be helpful in supporting student transitions throughout high school (Conley, 2005, 2010, 2014; Johnson, 2012; Schneider, 2013). High school affords students multiple opportunities for change with ensuing stress. Transition from middle school to high school, exploration of career aspirations, and the decisions surrounding postsecondary plans require support and guidance if students are going to be successful in each phase. Schneider (2007) presented a multi-tiered mentoring program that provides

the necessary supports through each phase of high school. The tiered approach includes proximal peer mentorship, distal college mentorship, and career mentorship.

Proximal peer mentorship operates much like a big brother or big sister program in which 11th and 12th grade students are assigned to 9th and 10th grade students. The older students serve as role models for their younger peers. The relationship is symbiotic in many ways as both the mentor and mentee benefit from conversations “about their courses, college-preparatory activities, employment activities, and their relationship to future jobs” (Schneider, 2007, p. 10). Proximal peer mentoring supports the college-going culture by beginning conversations about college early in high school while also creating a focus on future aspirations (Conley, 2005, 2010, 2014; Schneider, 2007).

Distal peer mentoring provides support for the transition period from high school to college by fostering a relationship between college students and high school students. The fostering of a distal peer mentoring relationship is based upon the mentee’s interests and abilities. Mentors expose their high school mentee to key information about college admissions, typical college courses, and the time management challenges associated with college. Vital experiences from the distal peer relationship include observations of a legitimate academic load, validation of why high school courses matter, and the value of learning effective study skills in high school (Schneider, 2007).

Career mentoring capitalizes on young working professionals who donate their time and energy to spend time with high school students, seeking to help them gain a realistic perspective of the workplace. Mentees learn about the educational requirements and financial opportunities for various professions. The marquee benefit of student engagement in career mentoring is closely related to Super’s (1980) career development

theory. When individuals engage in career exploration, it helps them “crystallize” (Schneider, 2007, p. 11) their career aspirations.

Key CCR activities. The process of establishing a fully integrated college and career oriented culture has been most successful in schools that institutionalize certain CCR activities (Schneider, 2007). Key activities that have been successful in schools with high college-going rates include: advisory periods, systematic college search and preparation programs, and targeted learning about career opportunities. These key activities work together to support student preparation for transition from high school to the college and career arena (Conley, 2005, 2010, 2014; Lee & Bell, 2011; Hughes & Karp, 2004; Oakes & Saunders, 2008; Schneider, 2007, 2009).

The use of regular advisory times within the school day is one of the most common components found in college-going cultures. High school students rarely have the same teacher for multiple classes, so the practice of assigning an advisory teacher provides a level of stability that might otherwise be lost. Schools that utilize an advisory period often enlist all staff members as advisors in order to lower the student to advisor ratio. Many counselors struggle with caseloads that are too large to manage (Conley 2005; Johnson et al., 2010). Advisors offer personalized attention which serves to stand the gap for these counselors. Aside from relationship building and support, advisors share information on key activities related to college preparation, monitor academic progress, coordinate interventions as needed, and provide general encouragement in the career exploration journey (Conley, 2005, 2010, 2014; Hughes & Karp, 2004; Lee & Bell, 2011; Oakes & Saunders, 2008; Schneider, 2007).

The process of preparing all students for success in the postsecondary arena requires a unified effort on behalf of all stakeholders. Schools with the highest college-going rates have institutionalized processes to ensure maximum exposure and support for their students. Systematic college search and preparation programs support students in finding postsecondary institutions that are aligned to their individual aspirations while also introducing them to multiple iterations of practice entrance exams. Supporting students as they complete applications for admissions, financial aid, and scholarships is vital in completing key logistical tasks which are often barriers for students. Coupled with this clear guidance and support in the financial aid area, students are exposed to nearly all the facets of their postsecondary transition while under the supportive umbrella of their high school (Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Hooker & Brand, 2010; Lee & Bell, 2011, Oakes & Saunders, 2008; Schneider, 2007, 2009).

Adults play an important role in engaging students in targeted learning about employment opportunities. Frequent conversations with school counselors, advisory teachers, or parents serve to challenge student thinking about career goals and aspirations. Additionally, the coordination of career fairs, job shadowing and internship opportunities, lunch meetings with working professionals, and college visits support a culture which is focused on student exploration and planning for their futures (Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Hooker & Brand, 2010; Lee & Bell, 2011; Oakes & Saunders, 2008; Schneider, 2007, 2009).

Career Planning

School counselors play a key role in facilitating students' exploration of personal interests, passions, and overall career development. This is especially true at the high

school level because students are more actively engaged in planning and implementing their postsecondary career options (Tang, Pan, & Newmeyer, 2008). The goal of career planning is to establish individualized goals that engage students in maximum levels of academic intensity (Adelman, 1999, 2006) through planning and preparation. Career planning is intended to capitalize on students' college and career aspirations by aligning aspirations with appropriately rigorous studies (Lee & Bell, 2011). College and career readiness standards are intended to match the level of expectations found in entry-level college courses, consequently students need to plan to take appropriately rigorous coursework (Adelman, 1999, 2006).

The number of American high school students who aspire to earn a college degree has increased significantly in the past decade (ACT, 2013b; Adelman, 1999, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Symonds et al., 2011). The challenge facing many students is a misalignment of career ambitions with their understanding of the educational requirements to make their ambition a reality. Schools that have established effective college-going cultures are most successful in capitalizing on the energy of ambitious adolescents to increase engagement in rigorous and relevant studies. Students with aligned ambitions are most likely to embark on a journey toward their career goals, choose appropriate postsecondary opportunities, and make educational and work decisions that lead to the achievement of their goals (Conley, 2005, 2010, 2014; Kosine et al., 2008; Oakes & Saunders, 2008; Robinson & Aronica, 2009, 2013; Schneider, 2007, 2009; Tang, Pan, & Newmeyer, 2008).

Career planning is a central tenet to support student pursuit of aspirations and goals that emerge from effective exploration and support systems. Quality career

planning includes alignment of secondary coursework, workplace experiences, college visits, and attendance at college and career fairs to support progress toward stated goals. Student engagement and ownership of career planning supports the authenticity of their interests and career aspirations (Conley, 2005, 2010, 2014; Johnson et al., 2010; Kosine & Lewis, 2008; Oakes & Saunders, 2008; Schneider, 2007).

Summary of Relevance

Exploration of personal interests and commitment to certain occupational and ideological beliefs have emerged as significant forces in promoting student engagement and motivation in their academic endeavors (Adams, 2010; Blustein, 1997; Conley, 2005, 2010, 2014; Erikson, 1963, 1968, 1980, 1982; Kosine & Lewis, 2008; Marcia, 1966, 2002; Oakes & Saunders, 2008; Schneider, 2007; Super, 1953, 1954, 1973, 1980; Super & Hall, 1978; Tang, Pan, & Newmeyer, 2008). College and career readiness rates benefit from a culture of high expectations when students engage in rigorous coursework they view as relevant in preparing them for their future endeavors. A synthesis of the literature revealed that individual identity emerges through active exploration of personal and career interests, systematic adult guidance and support, and aligned career planning. A table representing relevance with the components of career exploration (Kosine & Lewis, 2008; Super, 1953, 1954, 1973, 1980; Super & Hall, 1978), systematic adult guidance and support (Conley, 2005, 2010, 2014; Kosine et al., 2008; Oakes & Saunders, 2008; Schneider, 2007), and aligned career planning (Conley, 2005, 2010, 2014; Johnson et al., 2010; Kosine et al., 2008; Schneider, 2007) is available in Appendixes A, B, and C.

Identity Development

The conversation around CCR is steeped in reference to rigor and relevance. However, it has become evident that individual interests and passions drive engagement. The emergence of individual identity is central to understanding what motivates a person to engage in rigor through relevance. Robinson and Aronica (2009, 2013) discussed individual discovery of personal aptitudes and passions, which are fueled by certain attitudes and pursuit of opportunities. In the course of their work, they defined “the Element... [as]...the meeting point between natural aptitude and personal passion” (Robinson & Aronica, 2009, p. 21). Individuals who are in their element have had the opportunity to explore their personal passions and what they are good at, allowing them to not only do what they love, but to do it well (Robinson & Aronica, 2009). Finding one’s element allows them to, “...connect with something fundamental to their sense of identity, purpose, and well-being” (Robinson & Aronica, 2009, p. 21).

The education system is charged with the responsibility to help people find their natural talents and abilities. School processes can aid students in unlocking their unknown aptitudes through exploration and creative expression, but instead individual talents of many students are stifled, “killing their motivation to learn” (Pink, 2009; Robinson & Aronica, 2009, p. 16). Recognizing that many adults are not interested in the work they do and the “growing numbers of students who feel alienated by the education system...” (Hooker & Brand, 2010; Robinson & Aronica, 2013, p. xiii), it has grown evident that people need help finding their personal passions and interests. The quest to find one’s element is a journey with many detours and stops along the way. The process of exploring individual passions and interests is dynamic as influences from varying opportunities and circumstances come into play (Robinson & Aronica, 2013, p. 26).

Individuals with a healthy sense of who they are and what they aspire to become are well equipped to face the challenges of life. A positive identity affords individuals with a clear vision of the personal future to which they aspire, while stimulating the confidence, self-efficacy, and sense of purpose that motivates them in life (Adams, 2010; Erikson, 1963, 1968, 1980, 1982; Kosine et al., 2008; Marcia, 1966, 2002; Pittman, 2010). The critical role of identity development during adolescence was made clear in Erikson's (1963, 1968, 1980, 1982) Eight Stages of Psychosocial Development, which provided key insight into the theoretical process of identity development. Marcia (1966, 2002) expanded on Erikson's (1963) work to suggest individuals can be placed in varying statuses of identity development. Adams (2010) continued to build on the research base of identity development as he established the Objective Measure of Ego-Identity Status (OMEIS), which assessed where individuals were in the process of identity development. The following section examines each of these three works.

Erikson's eight stages of psychosocial development

Erikson (1963, 1968, 1980, 1982) was a key researcher and theorist in the domain of psychosocial development. His work evolved from an ego psychoanalytic framework in the course of becoming foundational to the world of human developmental psychology. Erikson's (1963, 1968, 1980, 1982) theory of psychosocial development included eight stages or crises through which all individuals pass from birth to old age. Each of the stages is associated with chronological life cycles or developmental periods and represents a crisis of sorts that shapes the individual throughout life.

The stages of psychosocial development are certainly associated with life cycles; however, various factors often impact how individuals move through each stage. Erikson

(1963, 1968, 1980, 1982) reported that success or failure in a formative stage will impact the individual's experience in later stages. The environment has a definite impact on individuals as they move through the stages of psychosocial development. Marcia (2002) discussed intergenerational mutuality in which "adults rely on children to confirm them in their growing sense of generativity, and children rely on adults to aid them in their developmental tasks of trust, autonomy, initiative, industry, and identity" (p. 199). The literature on CCR acknowledged the need to expand the focus beyond mere coursework, taking a holistic view of students which included their psychosocial development (ACT, 2013b; Conley, 2014; Erikson, 1968; Venezia & Jaeger, 2013). The eight stages of psychosocial development include trust vs. mistrust, autonomy vs. shame and doubt, initiative vs. guilt, industry vs. inferiority, identity vs. role confusion, intimacy vs. isolation, generativity vs. stagnation and ego integrity vs. despair. The fifth stage provides insight into adolescent identity development. Identity development is a primary task of the adolescent journey, which consists of varied levels of exploration and commitment to certain ideological and occupational beliefs (Erikson, 1963, 1968, 1980, 1982). A brief review of the fifth stage of psychosocial development provides insight into the characteristics of exploration and commitment in successful identity development.

Identity versus role confusion. One of the fundamental challenges of Erikson's (1963; 1968) identity vs. role confusion stage of development is the formation of a person's occupational identity (Kosine et al., 2008). Identity formation plays a significant role in personality development in adolescence, leading to a successful and healthy adult life (Erikson, 1968; Lippman et al., 2008). As adolescent experiences with

exploration coalesce, varying levels of identity and self-concept emerge (Erikson, 1968; 1980). The process of exploration and the ensuing commitment experienced through adolescence ideally leads to a “strong sense of identity and a sense of purpose toward their future” (Kosine et al., 2008, p. 134).

Exploration. Adolescent exploration of personal interests and aspirations is central to successful identity development. Young people have an innate desire to explore, seeking to find a meaningful and fulfilling sense of themselves (Pink, 2009; Robinson & Aronica, 2009, 2013). The process of exploration among adolescents is viewed as critical in “promoting general identity formation and helping teens to develop a sense of vocation” (Kosine & Lewis, 2008, p. 229). Erickson (1982) emphasized the importance of environmental influences on identity development, “If the social setting fails to offer any viable alternatives, all this can lead to a sudden and sometimes ‘borderline’ regression” (pp. 73-74) to earlier stages in the psychosocial development process. Erikson (1968) believed the adolescent drive toward identity development is vital to individuals as “there is no feeling of being alive without a sense of identity” (p. 130). Validating the role of adolescent career exploration, Erikson (1968) emphasized that “the inability to settle on an occupational identity...most disturbs young people” (p. 132).

Commitment. The process of exploration is an indicator that an adolescent is actively engaged in the crisis of identity versus role confusion. Aided by a supportive environment, exploration persists until the young person finds an alignment between their individual passions and vocational or ideological experiences (Erikson, 1968; Robinson & Aronica, 2009, 2013). When the adolescent discovers this alignment, they often reject

childhood traits in exchange for a commitment to their new found identity. The affirmation of and commitment to their new identity is often at the expense of childhood identifications and the societal images associated with childhood (Erikson, 1982). Erikson (1982) stated "...a pervasive sense of identity brings into gradual accord the variety of changing self-images that have been experienced during childhood... and the role opportunities offering themselves to young persons for selection and commitment" (p. 73).

Marcia's identity statuses

Marcia (1966, 2002) studied Erikson's (1963, 1968, 1980, 1982) research, seeking to better understand identity development. During the course of his study, he recognized ego identity and identity diffusion as polar opposites in the identity versus role confusion stage of psychosocial development (Marcia, 1966). Erikson (1963) viewed this crisis as a time of increasing occupational and ideological commitment among adolescence. Individuals progressed through this crisis by moving from diffusion to an affirmed occupational and ideological identity. Marcia (1966) found that Erikson's (1963) discussion of identity crisis failed to address "criteria for determining degree of ego identity" (p. 551). He sought to establish a continuum of identity development that could characterize individual's status based on two variables: crisis and commitment. Crisis was interchanged with exploration to describe the "engagement in choosing among meaningful alternatives" (Marcia, 1966, p. 551). Commitment was related to the level of personal investment an individual displayed to certain occupational and ideological beliefs. Marcia's (1966) original study utilized semi-structured interviews and an incomplete-sentence instrument to place individuals in one of four statuses based upon

their level of exploration and commitment. The four identity statuses included identity achieved, moratorium, foreclosed, and diffused.

Exploration is critical in the course for general identity formation and discovery of vocational alignment (Kosine & Lewis, 2008). Marcia's (1966) discussion of identity offered key insights into student development of individual interests and ultimately their identity. He explained, "The process by which identity is formed consists of decision making and commitment, a process that, at best, is preceded by a period of exploring alternatives" (Marcia, 2002, p. 202). As mentioned previously, Marcia (2002) suggested that individuals moving through identity formation can be found in one of four identity "statuses" based on the level of exploration and commitment demonstrated at a given time: achieved (high exploration-high commitment), moratorium (high exploration-low commitment), foreclosed (low exploration-high commitment), and diffused (low exploration-low commitment). Each of Marcia's (1966, 2002) identity statuses will be discussed followed by a brief discussion of environmental influences on identity development.

Achieved. Individuals in the identity achieved status have successfully traversed the identity crises (Erikson, 1963, 1968, 1980, 1982) and emerged with a commitment to an occupation and ideology. These individuals have explored multiple occupational or career options and made a decision of their own volition. While the decision made by these individuals may have been the product of input and guidance from parents or other influencers, the decision was ultimately owned by the individual. Those in the achieved status have likewise engaged in reflection and evaluation of past values and beliefs, settling on their own ideology which drives their goals, expectations, and actions.

Sudden shifts in their environment or personal circumstances would not likely have a significant impact on these individuals' sense of identity (Marcia, 1966, 2002).

Moratorium. The moratorium status represents individuals who are in the midst of the crisis associated with identity versus role confusion (Erikson, 1963, 1968, 1980, 1982). Marcia (1966) described these adolescents as being in “an active struggle” (p. 552) to make commitments about their personal interests, ambitions, and overall belief system. This active exploration sometimes elicits a level of stress or tension in their interaction with others. Moratorium is important and necessary for individuals to experience in the course of reaching the achieved status. Parental influences serve as valuable guides during this exploration phase, but the individual seeks to find compromise or balance between them, societal forces, and their personal aptitudes (Marcia, 1966). The struggle to find the balance between childhood ideologies and those experienced and owned as an adolescent often result in the stress and tension addressed previously. Marcia (2002) described this period of imbalance as “disequilibrium” (p. 202). Disequilibrium is illustrated in the bewildered or confused state of many adolescents. It is a product of their preoccupation with answering both conscious and unconscious questions related to who they are, what they want to become, and what actions are right for them (Marcia, 1966, 2002).

Foreclosed. Foreclosure characterizes individuals who have not engaged in the identity versus role confusion crisis (Erikson, 1963, 1968, 1980, 1982), yet communicate firm commitment to certain occupational and ideological beliefs. The absence of any authentic personal exploration differentiates foreclosure from the achieved status. Childhood or parental influences affect the identity of most all individuals; however, the

process of identity development typically establishes a clear deliniation between those influences and the individuality of an achieved person. It is difficult to differentiate between the two when examining a person in the foreclosed status. The occupational aspirations and ideological beliefs of foreclosed individuals may be firm, if not rigid. However, they are often the product of “becoming what others have prepared or intended him to become as a child” (Marcia, 1966, p. 552). Their ideological beliefs, goals, expectations, and actions reflect the fulfillment of familial, cultural, or societal expectations which have been pressed upon them. The authenticity of a foreclosed person’s identity may be challenged as they progress into adulthood and face further crisis associated with Erikson’s psychosocial development (Erikson, 1963, 1968, 1980, 1982).

Diffused. The identity diffused status represents individuals who may or may not have engaged in an identity crisis period (Erikson, 1963, 1968, 1980, 1982). The key characteristic of these individuals is a general lack of commitment to any occupational ambitions. Their apathy regarding occupational interests is also manifested in their disinterest in ideological matters. They display little drive toward individual goals, expectations, and actions. While a particular occupational interest may be professed, they exhibit no sense of ownership for the decision and seem willing to change readily if their circumstances change. Individuals in the diffused status have not engaged in active exploration of personal interests or ambitions and do not appear to be concerned with that reality (Marcia, 1966, 2002).

Environmental influences can play a significant role in identity development. During the course of identity development, individuals vary as to the sequence followed

in moving through statuses. Most individuals start out as foreclosed given their adherence and acceptance of parental values and plans. When they “find their childhood values and occupational directions...challenged and disequibrated” (Marcia, 2002, p. 202), they enter moratorium. Moratorium leads adolescents to explore various “alternatives” and to “negotiate a viable future for themselves” (Marcia, 2002, p. 202). The most common and likely the best sequence for individuals to follow is the foreclosure–moratorium–achievement path. Adults have a responsibility to support and influence the identity journey. Marcia (2002) stated, “Most of us see ourselves in the role of ‘growers’ and our adolescents as those for whose growth we take some responsibility” (p. 199). He explained further that young people “have an inherent growth potential, and it is our task to provide the conditions necessary to enable that potential to flourish” (p. 199).

Adolescence challenges many childhood values and behaviors as the young person moves from the freedoms and fantasy of childhood into the reality of responsibility that comes with adulthood. Marcia (2002) supported this claim when he stated “childhood principles and plans must be reformulated” (p. 202). Marcia (2002) warned against seeking to “disequilibrate” (p. 203) an individual who is stuck in foreclosure. He suggested, “If the naturally occurring disequilibratory forces of puberty, cognitive development, and social expectations have not sufficed to initiate a process of exploration...we would be better off to wait...” (p. 203) for natural experiences to influence them.

Adam’s objective measure of ego-identity status (OMEIS)

Adams (2010) made a significant contribution to the field of identity development through the creation of a self-report measure called the objective measure of ego-identity status (OMEIS). Marcia (1966) introduced the idea of four identity statuses as discussed previously, but his methodology for identifying individual statuses was cumbersome and labor intensive. The use of “complex interviews and scoring procedures with lengthy manuals” (Adams, 2010, p. 2) was the primary means for identification of statuses, which slowed data collection, increased costs, and limited sample sizes for general research in the field (Adams, 2010; Balistreri, Busch-Rossnagel, & Geisinger, 1995). Adams recognized the need for a more expeditious method to collect data on identity statuses.

In 1979, Adams’ (2010) research team utilized Marcia’s (1966) framework to devise a 24 item self-report measure of ego-identity for use with adolescents and adults. The OMEIS was revised in 2010 and has been the most prominently used measure of identity formation among adolescents and adults for the past 30 years, appearing in “over 1,000 published studies” (Adams, 2010, p. 2). The OMEIS is based on “the assumption that exploration and commitment are a relatively conscious activity and can be measured approximately as well by a self-report questionnaire as by an interview” (Adams, 2010, p. 36). The OMEIS survey used a measure of student exploration and commitment to place them into an identity status. The four ego-identity statuses were determined based upon degrees of exploration and commitment. The OMEIS consists of six items for each of the four identity statuses, resulting in a total of 24 items or questions. Each item is responded to by the participant on a 6-point Likert scale that forces agreement or disagreement and then level of agreement within one of the two opposite perspectives (Adams, 2010; Field,

2009; Fink, 2009; Fraenkel et al., 2012). Instrument validity and reliability have been evaluated multiple times since 1979.

The revised OMEIS validity and reliability was analyzed by a study of 2000 students at the University of Guelph. The study was designed to construct a measure of ego-identity ideologies focusing on politics, religion and occupation, but the primary intent of the analysis was to establish “new reliability and validity estimates of the modified scale items” (Adams, 2010, p. 80). The OMEIS continues to serve the research community as a foundational instrument for measuring identity.

Summary of Identity Development

The literature suggested students who demonstrate a maturing sense of individual identity and personal interests will also demonstrate more aligned goals and aspirations for their future (Adams, 2010; Blustein, 1997; Conley, 2005, 2010, 2014; Erikson, 1963, 1968, 1980, 1982; Kosine & Lewis, 2008; Marcia, 1966, 2002; Oakes & Saunders, 2008; Schneider, 2007; Super, 1953, 1954, 1973, 1980). Environmental conditions play a vital role in setting the stage for exploration and supporting adolescent discovery of their individual passions, interests, aspirations and ultimately their sense of identity (Robinson & Aronica, 2009, 2013). Degrees of exploration and commitment serve as measures used in determining individual identity statuses which include achieved, moratorium, foreclosed, and diffused (Adams, 2010; Kosine & Lewis, 2008; Marcia, 1966, 2002).

The challenge facing schools related to CCR is often rooted in a lack of engagement and overall motivation in coursework. The literature indicates students who have a maturing sense of their individual identity and personal interests are intrinsically motivated to engage in activities which are aligned to their passions and aspirations

(Blustein, 1997; Conley, 2005, 2010, 2014; Erikson, 1963, 1968, 1980, 1982; Kosine & Lewis, 2008; Marcia, 1966, 2002; Oakes & Saunders, 2008; Pink, 2009; Robinson & Aronica, 2009, 2013; Schneider, 2007; Super, 1953, 1954, 1973, 1980; Super & Hall, 1978). This intrinsic motivation suggests students will have a greater drive to learn if they find schoolwork relevant to their future success (Crumpton & Gregory, 2011, p. 42; Oakes & Saunders, 2008; Pink, 2009; Robinson & Aronica, 2009, 2013).

Summary

The capacity of the United States to persist as a leader in the global market while maintaining its economic prowess will depend on its ability to build and maintain a highly competitive workforce into the 21st century (Marquardt, 2011). The expectations placed upon workers in this new century require the ability to learn and think in new ways. A key component of this challenge is to train and equip a workforce capable of the critical thinking, communication, collaboration, and creativity needed in those industries.

The literature made it clear that American students are struggling to meet benchmark standards for CCR (ACT, 2013b; Bangser, 2008; Conley, 2005, 2010; Symonds et al., 2011; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). Expectations for workforce readiness have established high standards for both college and career oriented programs (Conley, 2005, 2010; Conley & McGaughy, 2012), which has identified the interconnectedness of rigor and relevance. The relevance and experience based focus of career preparation blended with the rigors of a college preparatory program of study has created the new norm for CCR in the United States. Motivated by the emergence of a new definition for CCR and the reality of poor performance,

secondary schools, postsecondary institutions, and employers have sought to create a “pathway to prosperity” (Symonds et al., 2011) for all Americans.

The key to this “pathway to prosperity” (Symonds et al., 2011) is found in a balance between academic rigor and relevancy. Students are best equipped for postsecondary learning experiences when they are engaged in the academic intensity associated with a rigorous course of study (Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012). However, the literature on academic relevancy asserts students need to develop a clear sense of their personal identity and interests before authentic engagement can be experienced (Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Erikson, 1963, 1968, 1980; Kosine et al., 2008; Marcia, 1966; Oakes & Saunders, 2008; Robinson & Aronica, 2009, 2013; Super & Hall, 1978). The establishment of learning environments that provide students with opportunities to engage in career exploration and planning, oriented around personal interests and ambitions, will open the door to engagement in higher levels of academic rigor. Rigor is a vital component of CCR, but it has grown apparent that it is achieved through the promotion of relevance.

The preceding review of literature has established the basis and framework for this study of college and career readiness. The primary focus of this work was to examine the key factors that influence CCR among high school students in the United States while exploring CCR, academic rigor, academic relevance, and identity development. Chapter Three provides an extensive description of the quantitative research design and methodology used to address the purpose of the study. The findings of the study are presented in Chapter Four. Finally, a discussion of the results,

limitations, implications for practice, and recommendations for further research are presented in Chapter Five.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

Introduction

The emergence of a new 21st century global market had a profound impact on the workplace and educational policy in the United States. Not only did it yield amazing changes in communication, research of information, and social interaction, it also influenced the role workers played in the workplace. Marquardt (2011) recognized the emergence of “learning organizations” (p. 1) that operate by harnessing knowledge as a replacement for “physical labor, minerals, and energy” (p. 12). Workers with the capacity to learn had become an invaluable commodity, which was “the new form of labor in the 21st century” (p. 13). This reality influenced the need for schools to prepare students as lifelong learners, equipped for postsecondary and career success.

The global society in which the current generation of secondary students have grown and will work for the next several decades promises even more change. The capacity to learn and the overall skills needed for the new global economy are fundamentally different from previous decades (Conley, 2005, 2010; Conley & McGaughy, 2012; Hooker & Brand, 2010; Marquardt, 2011). Schools face the unique challenge of engaging students in the school setting in order to prepare them for their futures in a global society. Students will require rigorous and relevant learning experiences that prepare them for careers that may not exist yet, solving problems that have not even been considered. Many secondary students throughout the United States demonstrate inadequate skills needed for success in the college and career arenas while

exhibiting low levels of engagement in rigorous and relevant coursework (Conley, 2005, 2010; Conley & McGaughy, 2012; Venezia & Jaeger, 2013). Student engagement in rigorous and relevant coursework is thought to be vital in facilitating college and career readiness (CCR) for secondary students. A study by ACT (2012) identified the contribution specific courses and course sequences made to college readiness. This study found that taking full course sequences typically considered “college preparatory” best prepared students for freshman-level college courses. However, the Pathways to Prosperity Project (Symonds et al., 2011) emphasized “...a focus on college readiness alone does not equip young people with all of the skills and abilities they will need in the workplace, or to successfully complete the transition from adolescence to adulthood” (p. 4).

Students who engage in career exploration activities such as completing career inventories, career oriented research, job shadowing, internships, etc., will begin to see relevance in their coursework (Bangser, 2008; Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Kosine & Lewis, 2008; Oakes & Saunders, 2008; Venezia & Jaeger, 2013). Students who do not actively explore their interests and career options often fail to see relevance in their school experience (Crumpton & Gregory, 2011). However, when students see the alignment of their coursework with personalized career goals, they become more willing to engage in relevant and rigorous coursework. Adolescents should go through a process of active exploration and subsequent moratorium (disequilibrium) in order to reach a state referred to as “identify achievement” (Marcia, 2002). Initiating career exploration activities early in students’ high school experience will engage them in forming their identities and in turn developing aspirations for postsecondary education

and career endeavors (Kosine & Lewis, 2008; Kosine et al., 2008; Marcia, 2002; Super & Hall, 1978).

Unfortunately, “large numbers [of students] say they dropped out [of school] because they felt their classes were not interesting, and that high school was unrelentingly boring. In other words, they didn’t believe high school was relevant, or providing a pathway to achieving their dreams” (Symonds et al., 2011, p. 10). Current literature presents a sound case for a multi-pathway approach to organizing high schools (Oakes & Saunders, 2008). Purposeful connections between curricular material and career paths create both rigorous and relevant learning environments to engage and prepare students for both college and career (Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Symonds et al., 2011; Oakes & Saunders, 2008; Perry & Wallace, 2012).

Students consistently disengage from their academic endeavors because they are unable to see the connections between coursework and the work world (Crumpton & Gregory, 2011). Secondary school systems have been challenged to engage students in active career exploration early in high school when college and career aspirations are being formed. Likewise, high expectations need to be pushed for all students, not just those viewed as being college bound (Bangser, 2008; Conley, 2005, 2010, 2014; Symonds et al., 2011). Providing effective career counseling services can support students as they develop and explore their interests and identity (Conley, 2005, 2010, 2014; Hooker & Brand, 2010; Kosine & Lewis, 2008; Lee & Bell, 2011; Schneider, 2007; Super, 1980; Super et al., 1992).

The literature has presented a solid case for the connection between student participation in a rigorous course of study and CCR (Adelman, 2006; Bangser, 2008;

Conley, 2010; Porter & Polikoff, 2012). Likewise, the literature has provided insight into the value of engaging students in exploration activities in support of identity development. Students who have embarked on the journey of finding their personal passions and interests (Robinson & Aronica, 2009, 2013) experience a positive impact on the relevancy of their coursework (Bangser, 2008; Conley, 2010; Crumpton & Gregory, 2011; Hooker & Brand, 2010; Kosine & Lewis, 2008; Marcia, 2002; Super & Hall, 1978; Symonds et al., 2011). However, there is a gap in the research regarding the relationship that identity development and relevance have on high school student engagement in a rigorous course of study and CCR. While identity development, relevance, and rigor have been examined independently, the literature is silent regarding how they relate to each other in a secondary school setting.

The remainder of this paper provides an overview of the design and methodologies employed in the study. A brief description of the purpose for the study precedes a listing of the four research questions guiding the inquiry. The research design section includes a description of the population and sampling techniques followed by data collection and instrumentation methods implemented in the study. Data analysis processes and statements to address reliability and validity are followed by a section on limitations and assumptions. This study was intended to provide insight into the relationship between relevance, rigor, and identity development of adolescents in a high school setting.

Purpose of the Study

The purpose for this study was to examine the relationship between adolescent identity development, relevance, and rigor among high school students. The premise under investigation is rooted in the concept of building rigor through relevance. Students who have engaged in personal exploration and commitment to certain ideological and interpersonal issues, specifically personal and occupational identity (Erikson, 1982; Marcia, 2002; Super, 1980), are purported to find increased relevancy in their coursework (Crumpton & Gregory, 2011) and in turn engage in more rigorous studies. This study used a profile of high school seniors to explore the aforementioned relationship between adolescent identity development, student participation in relevance building activities, and engagement in academic rigor.

Three frameworks were applied to examine the relationship between adolescent identity development, relevance, and rigor. Relevance was assessed by the Relevance Activity Factors (RAF). The RAF was a survey (Appendix F) which included a series of 26 items organized within three factors: career exploration, adult guidance and support, and career planning (Appendixes A, B, and C). The RAF measured the degree of student engagement and exposure to relevance promoting activities. The Objective Measure of Occupational-Identity Status (OMOIS) measured occupational identity status through a survey (Appendix F) including 24 items (Appendix E) adapted from the Objective Measure of Ego-Identity Status (OMEIS) developed by Adams (2010). The OMOIS placed each student in one of Marcia's (2002) four identity statuses: achieved, moratorium, foreclosed, and diffused. Rigor was assessed by academic intensity and performance benchmark (AIPB) scales, which identified the degree of student

engagement and performance in academically rigorous endeavors. Academic intensity reflected the completion of key coursework including: threshold and core courses, Advanced Placement or International Baccalaureate courses, and dual credit or dual enrolled courses. Performance benchmarks included ACT composite scores and a composite of grade point average and class rank (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012).

Research Questions

Within the framework of this study, the following research questions were proposed:

1. To what degree are high school seniors engaged in relevance as measured by:
 - a. Career Exploration
 - b. Adult Guidance and Support
 - c. Career Planning
2. What are the identity statuses for high school seniors as determined by the Objective Measure of Occupational-Identity Status (OMOIS) survey?
 - a. Achieved
 - b. Moratorium
 - c. Foreclosed
 - d. Diffused
3. To what degree are high school seniors engaged in rigor as measured by:
 - a. Academic Intensity scale
 - b. ACT composite scores
 - c. Class rank and grade point average composite

4. What relationships exist between:
 - a. Rigor and Identity
 - b. Relevance and Identity
 - c. Rigor and Relevance

Design for the Study

This cross-sectional study utilized quantitative methods to collect archival survey, transcript, and performance data on student engagement in relevance, rigor, and identity producing activities (Fink, 2009). Self-report descriptive data were originally collected from a convenience sample of high school seniors in the Midwest and made available to the researcher for analysis. Additionally, transcript data were collected for the sample population to inform academic intensity and performance benchmarks. Each of five high schools surveyed was within the same school district. The relationship between linear interval variables (RAF and AIPB) was examined using the Pearson product-moment correlation coefficient (Field, 2009; Fraenkel et al., 2012). Three separate one-way analysis of variance (ANOVA) were used to determine whether significant differences exist between the means of student identity statuses (OMOIS) and the three relevance activity factors (RAF). Three additional one-way ANOVA's were used to determine whether significant differences exist between the means of student identity statuses (OMOIS) and the three factors of rigor (AIPB).

Operating from the postpositivist worldview, the researcher acknowledged the data collected would not result in definitive findings; however, the design and data analysis of this study sought to “identify and assess the causes that influence outcomes” (Creswell, 2009, p. 7). Objective quantitative analysis of the data guided the researcher

to use valid and reliable methods in seeking to understand the data while making claims and relevant statements that “advance the relationship among variables” (Creswell, 2009, p. 7).

A significant volume of literature has addressed the problem related to American students’ lack of preparation for postsecondary endeavors (Adelman, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Gardner et al., 1983; Porter & Polikoff, 2012). Likewise, the literature addressed rigor and relevance as key variables in the process of engaging students in school and influencing CCR (Adelman, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Hooker & Brand, 2010; Kosine et al., 2008; Oakes & Saunders, 2008; Symonds et al., 2011). The literature provided a great deal of quantifiable data on rigor; however, the preponderance of data on relevance was qualitative. This may account for the gap in empirical data comparing the two variables. A maturing sense of individual identity has been associated with more aligned goals and aspirations and ultimately an increased sense of relevance among adolescents (Adams, 2010; Blustein, 1997; Conley, 2005, 2010, 2014; Erikson, 1963, 1968, 1980, 1982; Kosine & Lewis, 2008; Marcia, 1966, 2002; Oakes & Saunders, 2008; Schneider, 2007; Super, 1953, 1954, 1973, 1980). The researcher collected archival student data to make a contribution of quantitative empirical data to current literature. This data will inform the relationship between relevance, rigor, and identity status.

The archival data included in this study consisted of survey, transcript, and performance results for the sample of 8th semester seniors. The school district providing the researcher with access to archival data had engaged in collecting survey data from their students as a means to benchmark and monitor district progress on CCR initiatives.

The original collection of data via survey benefited this study as it aided the researcher in generalizing “from a sample to a population so that inferences can be made” (Creswell, 2009, p. 146) about how relevance, rigor, and identity status are related. The collection of archival data consisting of self-report surveys assumed students had responded with fidelity. Additionally, the number of students represented in the archival data provided a large survey sample, which supported the assumption that the sampling distribution was normally distributed and consequently valid (Field, 2009). Surveys afford the researcher an economical opportunity to manage a large sample size with relative ease and speed in data collection (Creswell, 2009).

Population and Sample

The population of the study consisted of high school seniors in their 8th semester of high school. Members of this population had nearly completed their entire secondary school experience and had an increased likelihood of exposure to the variables included in this study. Due to the enormity of this population and resource limitations of the school district administering the survey, a convenience sample of 8th semester high school seniors was selected to participate in the survey (Creswell, 2009; Fink, 2009). The sampling of students to take the survey was the product of what seniors were present at school on the date designated for administration of the survey. The convenience sample size was 500 eighth semester seniors. The sample size was adequate to reduce the standard error. Standard error is a product of the differences that exist naturally between the sample and population (Fink, 2009). Additionally, larger sample sizes have a positive impact on validity because it is assumed the sampling distribution was normally distributed and valid (Field, 2009).

Data Collection and Instrumentation

The purpose for this study was to examine the relationship between relevance, rigor, and identity status among high school students. This cross-sectional study utilized quantitative methods to analyze archival survey, transcript, and performance data on student engagement in relevance, rigor, and identity producing activities (Fink, 2009). The school district, granting access to the archival data mentioned above, had engaged in extensive research on factors influencing relevance, rigor, and identity. Their research was motivated by the desire to improve student readiness for college and career. The product of their work was the development of a personalized diploma related to CCR. The data collected in their survey included each student's identification number, which aided in linking survey data to archived coursework and performance data in the district data warehouse. Their intent was to establish and monitor benchmark CCR metrics related to the diploma project. Their focus on career exploration, adult guidance and support, career planning, occupational identity status, academic intensity, and performance benchmarks aligned with the research questions for this study.

The archival data were collected via a 52 question self-report survey (Appendix F) and a review of student transcripts and performance. The data were grouped within six categories: career exploration, adult guidance and support, career planning, occupational identity status, academic intensity, and performance benchmarks. The data were examined using three instruments: (a) the Relevance Activity Factors (RAF), (b) the Objective Measure of Occupational-Identity Scale (OMOIS), and (c) academic intensity performance benchmarks (AIPB). The RAF recognized career exploration, adult guidance and support, and career planning as factors to inform the researcher on the

level of engagement in relevance building activities and aided comparison within the study. The questions associated with occupational identity status were derived from the Objective Measure of Ego-Identity Status (OMEIS), with adaptations to narrow the identity status focus to occupational identity versus politics, religion, and occupation (Adams, 2010). The adapted version of the OMEIS was named the Objective Measure of Occupational-Identity Status (OMOIS). The AIPB utilized archival transcript and performance data to examine academic intensity and performance benchmarks. These instruments aided comparison within the study by organizing data on degrees of student engagement in rigor and relevance while indicating student identity status. This section provides an overview of data collection procedures and instrumentation.

Data collection procedures. The cross-sectional self-report survey data were collected from a convenience sample of 500 eighth semester high school seniors from five Midwest high schools within a single school district. Each high school collected the data as a product of their district initiative to establish CCR benchmarks related to career exploration, adult guidance and support, career planning, occupational identity status, academic intensity, and performance benchmarks among their senior students. The process followed by the schools in the course of data collection included the following: (a) letter sent to principals providing details of the survey (Appendix G), (b) letter sent to parent or guardian of senior students providing details of the survey and requesting consent to participate (Appendix H), (c) statement made to each participant providing details on the survey and requesting consent to participate (Appendix I), (d) surveys were made available via an internet link to Survey Monkey ([surveymonkey.com](https://www.surveymonkey.com)) (Appendix

F), and (e) school staff provided student access to computers with internet connectivity for the purpose of completing the surveys via Survey Monkey (surveymonkey.com).

Survey Monkey is a commercial online tool for data collection. The service permits customized survey production and distribution via the internet. Data were downloaded to a spreadsheet for analysis and entry into the district data warehouse (Creswell, 2009). Surveys included student identification numbers which were used by the district for linking survey data to additional archived coursework and performance data within the district data warehouse. The purpose for this linkage was to aid in establishing and monitoring benchmark CCR metrics. The school district maintained electronic records of the survey data as well as transcript and performance data in its data warehousing system.

The process of acquiring the archival survey, transcript, and performance data required gatekeeper permission. In response to a written request by the researcher (Appendix J), the district's Associate Superintendent of Secondary Education granted permission to access, analyze, and publish findings in this university research project (Appendix K). Data were downloaded to a spreadsheet for analysis (Creswell, 2009).

Relevance activity factors (RAF). The Relevance Activity Factors (RAF) used individual variables to measure the degree of student participation in exploration activities such as: career interest inventories, career oriented research, conversations with school counselors to discuss aspirations and interests, career focused conversations with parent/guardian, development of a career focused four year academic plan, statement of postsecondary goals, job shadowing, internships, and service learning. A review of the literature supported the cognitive organization of key relevance promoting activities into

three factors or subscales (Appendixes A, B, and C): (a) career exploration, (b) adult guidance and support, and (c) career planning (Bangser, 2008; Conley, 2005, 2010, 2014; Marcia, 2002; Kosine et al., 2008; Perry & Wallace, 2012; Super & Hall, 1978; Symonds et al., 2011; Venezia & Jaeger, 2013). The aforementioned cognitive organization was tested for internal reliability using Cronbach alpha (Field, 2009; Fraenkel et al., 2012). Each of the three subscales: career exploration (alpha = .74), adult guidance and support (alpha = .81), and career planning (alpha = .71) were analyzed to determine if significant and acceptable levels of internal consistency were present, with an alpha above .70 (Field, 2009).

The RAF acknowledged career exploration, adult guidance and support, and career planning as factors to inform the researcher on the level of student engagement in relevance building activities and aided comparison within the study. The RAF was represented on the 52 question survey by 26 items targeted on relevance producing activities as indicated above. Items included closed questions and were responded to by the participant through 6-point Likert scales that forced agreement or disagreement and then level of agreement within one of the two opposite perspectives (Field, 2009; Fink, 2009; Fraenkel et al., 2012).

Objective measure of occupational-identity status (OMOIS). Occupational identity status was determined by the Objective Measure of Occupational-Identity Status (OMOIS), a survey adapted from the Objective Measure of Ego-Identity Status (OMEIS). The original version was created in 1979 and revised by Adams (2010). The OMEIS assessed participant identity status based upon measures of ego-identity ideologies focused on politics, religion, and occupation. The scope of this research did not include

politics and religion, consequently instrument reference to those ideological components were replaced with ideas of occupational aspiration, goals, passions, interests, and future orientation. Identical sentence stems were used, replacing reference to politics and religion with the aforementioned terms as logic and syntax permitted. Maintaining structures of the original survey was a priority in the development of the OMOIS.

The adaptations, evident in the OMOIS, proved to narrow the ideological focus of the OMEIS to “occupation” versus expanding it beyond the original scope.

Consequently, many qualities from the original instrument were maintained. It is asserted that characteristics of validity and reliability can be attributed similarly between instruments. A review of the OMEIS highlights many of these assertions. The OMEIS has been “used in over 1,000 published studies and has been recognized as one of the most widely utilized measures of identity formation among adolescents...” (Adams, 2010, p. 2). The original instrument has been used as a valid self-report measure of ego-identity status for more than thirty years. It is based on “the assumption that exploration and commitment are a relatively conscious activity and can be measured approximately as well by a self-report questionnaire as by an interview” (Adams, 2010, p. 36).

The OMEIS survey used a measure of student exploration and commitment to place students into an identity status. The OMOIS used the same measures of exploration and commitment to place students into identity statuses based upon occupational ideologies. Four occupational-identity statuses were determined based upon degrees of exploration and commitment. The four statuses are defined as (a) diffusion: very low exploration and commitment, (b) foreclosure: very low exploration and high commitment, (c) moratorium: high exploration and very low commitment, and (d)

achieved: high experience with exploration and high commitment (Adams, 2010; Erikson, 1980; Marcia, 2002). The OMEIS consists of six items for each of the four identity statuses, resulting in a total of 24 items or questions. Each item is responded to by the participant on a 6-point Likert scale that forces agreement or disagreement and then level of agreement within one of the two opposite perspectives (Adams, 2010; Field, 2009; Fink, 2009; Fraenkel et al., 2012). The OMOIS utilized the same process as described above. Instrument validity and reliability have been evaluated multiple times since 1979.

The revised OMEIS validity and reliability were analyzed by a study of 2000 students at the University of Guelph. The study was designed to construct a measure of ego-identity ideologies focusing on politics, religion, and occupation, but the primary intent of the analysis was to establish “new reliability and validity estimates of the modified scale items” (Adams, 2010, p. 80). Adams (2010) explained that a factor analysis was completed “using orthogonal rotation...to determine if the four identity statuses were independent factors” (p. 80). Each of the four factors, representing diffused, foreclosed, moratorium, and achieved, had loadings at or above .70, which indicated significant weighting for each item on the individual factors. Relative independence among the four identity status scale scores was supported as “correlations among the four factor scores were .22 or less” (p. 80). Internal reliability was tested using Cronbach alpha (Field, 2009; Fraenkel et al., 2012). Each of the 6 items represented in the four identity status subscales demonstrated significant and acceptable levels of internal consistency: diffusion (alpha = .88), foreclosure (alpha = .84), moratorium (alpha = .91) and achieved (alpha = .90). Cronbach alpha (Field, 2009;

Fraenkel et al., 2012) was used with data from the OMOIS to affirm the symmetry between instruments in both validity and reliability: diffusion (alpha = .77), foreclosure (alpha = .82), moratorium (alpha = .90) and achieved (alpha = .83).

Academic intensity and performance benchmark (AIPB). The academic intensity and performance benchmark (AIPB) profile used individual variables to identify the degree of student engagement in rigorous activities such as: highest level of math completed, math in senior year, completion of core coursework, number of AP and IB courses completed, number of dual credit and dual enrolled courses completed, ACT composite scores, class rank, and grade point average (GPA). A review of the literature supported the cognitive organization of key rigor promoting activities into three subscales: (a) academic intensity, (b) ACT composite scores, and (c) class rank/grade point average composite (Adelman, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012).

The academic intensity and performance benchmark profile informed the researcher on the level of student engagement in rigor building activities and aided in making comparisons within the study. Archival transcript and performance data on students provided insight into individual performance and engagement in rigorous activities. The archival data consisted of seven variables targeted on rigor as indicated above. The researcher used a scoring rubric (Appendix D) to assign each factor or subscale a score based on corresponding variables. The academic intensity subscale score was based upon the completion of core and threshold courses. Scores ranged from one to five with higher scores suggesting increased engagement in academic intensity. The performance benchmarks included ACT composite scores and a composite of class

rank and GPA. Composite scores on the ACT ranged from one to 36. Class rank was expressed as a percentile, and students were placed into quintiles accordingly. Variability in local grading practices impact consistency when comparing GPA's between schools; consequently, class rank was used as the base score for a class rank/GPA composite subscale. Not all students are ranked by their high school; consequently, GPA was used as the secondary measure for placement into a quintile (Adelman, 1999, 2006). Adelman (1999, 2006) reported a .84 correlation between class rank and GPA quintile scales. The researcher used continuous and interval scales for each item to support comparisons within the study (Field, 2009; Fink, 2009).

Human Subjects Protection

The Institutional Review Board (IRB) at the University of Missouri approved the research plans contained in this study. Procedures for minimizing participant risks and protecting vulnerable populations were at the core of this review. The data collected and analyzed in the course of the study were retrieved from an archived data warehouse in cooperation with the participating school district. The majority of study participants were minors, consequently measures to protect their interests were taken. At no time was information included in the study which could identify individual participants. The researcher had no direct contact with participants.

The researcher completed the IRB process required by the participating school district before conducting the study. The researcher acquired the archival survey, transcript, and performance data by seeking gatekeeper permission. In response to a written request by the researcher (Appendix J), the district's Associate Superintendent of

Secondary Education granted permission to access, analyze, and publish findings in this university research project (Appendix K).

Data Analysis

All statistical analyses in the study were conducted using Statistical Package for the Social Sciences (SPSS) 19.0 edition for Windows statistical software. The objective of this analysis was to answer the four research questions presented earlier in this chapter. Each research question and the corresponding analysis are addressed below.

Research question 1 (RQ1). To what degree are high school seniors engaged in relevance as measured by: (a) career exploration, (b) adult guidance and support, and (c) career planning? An initial step in the data analysis process for RQ1 was the completion of a frequency distribution, which included the mean and standard deviation for each variable and subscale. This was valuable in understanding and assessing the properties of the distribution of scores. Reliability and internal validity for each of the three subscales, career exploration (alpha = .74), adult guidance and support (alpha = .81), and career planning (alpha = .71) were tested using Cronbach alpha. The 26 items associated with these subscales were tested to ensure significant and acceptable levels of internal consistency, with an alpha above .70 (Field, 2009).

Survey questions or variables were aligned with the three subscales as illustrated in Appendixes A, B, and C. Questions within the RAF instrument assessed either level of agreement with a given question stem or frequency of a particular experience. Levels of agreement items included closed questions and were responded to by the participant through 6-point Likert scales that forced agreement or disagreement and then level of agreement within one of the two opposite perspectives (Field, 2009; Fink, 2009; Fraenkel

et al., 2012). Participant responses on the frequency of experience items were likewise set on a 6-point scale. Subscale mean and standard deviation were calculated for use in further analysis within the study.

Research question 2 (RQ2). What are the identity statuses for high school seniors as determined by the Objective Measure of Occupational-Identity Status (OMOIS) survey: (a) achieved, (b) moratorium, (c) foreclosed, and (d) diffused? An initial step in the data analysis process for RQ2 was the completion of a frequency distribution, which included the mean and standard deviation for each variable and subscale. This was valuable in understanding and assessing the properties of the distribution of scores as well as for placement of students in the appropriate identity status. Reliability and internal validity for each of the four subscales, achieved ($\alpha = .83$), moratorium ($\alpha = .90$), foreclosed ($\alpha = .82$), and diffused ($\alpha = .77$) were tested using Cronbach alpha. Though the 24 items included in the OMOIS were adapted from the OMEIS, which had well established reliability and validity, each item associated with these subscales were tested to ensure significant and acceptable levels of internal consistency, with an alpha above .70 (Field, 2009).

Participant responses were analyzed to place them in one of Marcia's (2002) four identity statuses based on the process implemented with Adams' (2010) OMEIS instrument. Participant responses resulted in scores that ranged from six to 36 on each of the four statuses. Cutoff scores were determined based on the mean and standard deviation for each subscale. The mean plus the standard deviation provided the cutoff score for placement in a particular status. Participants were placed in a status if they met the cutoff score for that subscale. The cutoff scores used in this study were based on

Adams' (2010) most recent analysis and are as follows: achieved = 29, moratorium = 22, foreclosure = 22, and diffused = 21. Participants who failed to meet a cutoff score or who met the cutoff score in more than two statuses were placed in an "undifferentiated status" (Adams, 2010, pp. 38-39). The "transition status rule" (Adams, 2010, p. 39) was applied for participants who met the cutoff score in two statuses. Using the transition status rule, individuals are placed in the lower of two statuses with low to high going from diffusion, foreclosure, moratorium, and achieved. Upon validation of the OMOIS and placement in an identity status, participant raw subscale scores for each of four statuses were used in further analysis.

Research question 3 (RQ3). To what degree are high school seniors engaged in rigor as determined by: (a) academic intensity scale, (b) ACT composite scores, and (c) class rank and grade point average (GPA) composite? An initial step in the data analysis process for RQ3 was the completion of a frequency distribution, which included the mean and standard deviation for each variable and subscale. This was valuable in understanding and assessing the properties of the distribution of scores. The archival data used in RQ3 consisted of six variables targeted on rigor. The researcher used a scoring rubric (Appendix D) to assign each factor or subscale a score based on corresponding variables. The academic intensity subscale score was based on the completion of core and threshold courses. Performance benchmarks included ACT composite scores and a composite of class rank and GPA.

Academic intensity subscale scores were determined by awarding each student a score through transcript analysis. Using archival transcript data, the researcher determined whether a student had completed each of five academic intensity criteria.

When the completion of a particular criterion was verified, a point was recorded for their academic intensity scale score. A maximum subscale score of five suggested engagement in increased levels of rigor (Appendix D). The five academic intensity variables include:

1. Highest level of math completed equals or exceeds Algebra II
2. Math course completed in senior year
3. Completion of core coursework
4. AP/IB Course(s) completed
5. Dual Credit or dual enrolled course(s) completed

Student performance on the ACT resulted in a composite score ranging from one to 36. The score is a valid reflection of the student's academic performance and potential for success in future college level coursework. Students scoring 36 represent the 99th percentile of seniors taking the assessment. Individual composite scores were used as variables in this analysis.

Class rank and GPA are closely connected, as GPA is the determinant for class rank. Class rank was expressed as a percentile, and students were placed into quintiles accordingly. Class rank for each of the five participating high schools was used in making quintile groupings. After grouping by school was completed, the data were merged back into the entire sample population to support analysis in RQ3. Variability in local grading practices impact consistency when comparing GPA's between schools; consequently, class rank was used as the base score for a class rank/GPA composite subscale. Not all students are ranked by their high school; consequently, GPA was used as the secondary measure for placement into a quintile (Adelman, 1999, 2006).

Research question 4 (RQ4). What relationships exist between: (a) rigor and identity, (b) relevance and identity, and (c) rigor and relevance? The analysis for RQ4 was completed using one-way analysis of variance (ANOVA), Pearson product-moment correlation coefficients, and Pearson chi-square tests of independence. The mean for each subscale associated with rigor, relevance, and identity was used in the comparison.

Three separate one-way analysis of variance (ANOVA) were used to determine whether significant differences exist between the means of student identity statuses (diffused, foreclosed, moratorium, and achieved) and the three relevance activity factors (career exploration, adult guidance and support, and career planning). For example, a one-way ANOVA was used to compare the mean of career exploration to each of the four identity statuses, seeking to determine if a significant difference exists. The one-way ANOVA was replicated for both the adult guidance and support and career planning subscales of relevance.

Three additional one-way ANOVA's were used to determine whether significant differences exist between the means of student identity statuses (diffused, foreclosed, moratorium, and achieved) and the three subscales of rigor (academic intensity scale, ACT composite scores, and class rank/grade point average composite). For example, a one-way ANOVA was used to compare the mean of academic intensity to each of the four identity statuses, seeking to determine if a significant difference exists. The one-way ANOVA was also replicated for the ACT composite scores and class rank/grade point average composite subscales of rigor.

Pearson product-moment correlation coefficients (Field, 2009; Fraenkel et al., 2012) were used to understand the relationship between relevance and rigor. Nine

analyses were performed to examine the relationship of means between the three subscales of relevance (career exploration, adult guidance and support, and career planning) and the three subscales of rigor (academic intensity scale, ACT composite scores, and class rank/grade point average composite). Significant relationships were determined based on correlation coefficients of greater than .5, with an alpha value of .05 (Field, 2009; Fraenkel et al., 2012).

A Pearson chi-square test of independence was used to investigate further into the relationship between composite class rank and identity status. Cross-tabs with chi-square analysis provided insight into whether categorical variables were associated. Significance levels were set ($p < .05$) as a threshold for declaring associations between variables.

Limitations and Assumptions

Limitations

The intent of this study was to gain an understanding of the relationship between three variables which are difficult to define: adolescent identity development, academic relevance and academic rigor. While the research offered insight into each individual variable, a level of ambiguity persisted related to boundaries or parameters by which they should be measured. Consequently, the presence of clear measures for academic relevance and academic rigor in the literature are difficult to define (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Oakes & Saunders, 2008; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). Many state education departments have established accountability systems using measures of rigor, but no model integrating the measures into a viable instrument was evident (Conley, 2005, 2010, 2014). Likewise, the

literature does not offer definitive insight into processes for measuring relevance among students. The researcher engaged in the task of developing a measure for academic relevance; however, availability of a measure for rigor will remain a limitation to the study. Additionally, the RAF will be a new instrument offered to the field and may require extended usage to solidify its reliability and validity. When comparing the reliability and validity of the RAF to the OMOIS, the value of multiple research iterations becomes evident.

A large sample size for this study was important in strengthening the validity of data collected (Field, 2009). The actual sample represented approximately 500 seniors, which was much smaller than desired in the initial research design. The time frame for implementation of the survey proved to be a limitation to having a larger sample size. The final six weeks of school for eighth semester seniors was a very busy time; consequently, response rates were lower than the cooperating school district preferred.

Assumptions

Operating from the postpositivist worldview, the researcher acknowledged the data collected would not result in definitive findings; however, the design and data analysis of this study sought to “identify and assess the causes that influence outcomes” (Creswell, 2009, p. 7). Objective quantitative analysis of the data guided the researcher to use valid and reliable methods in seeking to understand the data while making claims and relevant statements that “advance the relationship among variables” (Creswell, 2009, p. 7). The use of data that was collected via self-report surveys assumed students would respond with fidelity. Additionally, using a larger survey sample supported the

assumption that the sampling distribution was normally distributed and consequently valid (Field, 2009; Fraenkel et al., 2012).

A key assumption of this research was that all students will need a baseline of skill, knowledge, and experience to be deemed college and career ready. Likewise, each student possesses unique interests and abilities, and it is the responsibility of high schools to offer adequate programming to support student growth. Students who engage in the rigorous and relevant programming offered, “make intelligent choices guided by an enlightened sense of self-interest and an understanding of who they are and what they want to become” (Conley, 2010, p. 2).

Summary

The reality of the new global society has become increasingly evident in the United States. American students need to develop key 21st century skills if they hope to experience success in the new market, focused on workers as learners. The ability to think critically while communicating and collaborating effectively are vital to success in learning organizations (Conley, 2010; Marquardt, 2011). Unfortunately, many American students are graduating high school lacking these skills and consequently, tend to be unsuccessful in the college and career arena.

The literature has identified adolescent identity development, academic relevance and academic rigor as key variables in student engagement in their high school learning experience (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Oakes & Saunders, 2008; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). The purpose for this study was to examine the relationship between academic relevance, academic rigor, and adolescent identity development among high school students. A convenience sample of

approximately 500 students in the eighth semester of their senior year was used to determine the relationship between these variables. Archival data for the RAF, OMOIS, and academic intensity and benchmark performance profiles were provided by five Midwest high schools within a single school district. The study utilized archival survey, transcript, and performance data provided by the participating high schools. Statistical analysis via one-way ANOVA and Pearson product-moment correlation coefficients (Field, 2009; Fraenkel et al., 2012) was performed to understand the relationship between adolescent identity development, academic relevance, and academic rigor. The findings of the study are presented in Chapter Four. Discussion of the results, limitations, implications for practice, and recommendations for further research are presented in Chapter Five.

CHAPTER FOUR
PRESENTATION OF FINDINGS

Introduction

The concept of college and career readiness (CCR) has gone through an evolution over the past century. In the early 1900's, educational expectations for the masses were influenced by the American industrial revolution. Economic factors created a huge demand for skilled labor but required minimal formal education. A college education was reserved for the privileged elite, and the goal for the collegiate experience was more focused on promoting culturally refined individuals than career preparation. However, economic transitions following World War II and the emergence of a globalized economy into the 21st century forced increased demands for both skills and educational preparation of the workforce (Conley, 2005, 2010, 2014; Symonds et al., 2011).

The growth of the 21st century global market had a profound impact on the workplace and educational policy in the United States. Not only did it yield amazing changes in communication, information management, and social interaction, it also influenced the role workers played in organizations. Marquardt (2011) recognized the emergence of “learning organizations” (p. 1) that operate by harnessing knowledge as a replacement for “physical labor, minerals, and energy” (p. 12). Workers with the capacity to learn had become an invaluable commodity, which was “the new form of labor in the 21st century” (p. 13). This reality influenced the need for schools to prepare students as lifelong learners, equipped for postsecondary and career success. Key 21st century learning skills such as critical thinking, communication, collaboration, and

creativity became essential components of the educational culture and were deemed important for all students (Bangser, 2008; Conley, 2005, 2010, 2014; Marquardt, 2011; Symonds et al., 2011).

The focus on college and career readiness was driven by a desire to ensure the United States retained its historical status as a global economic power. However, a multitude of indicators suggested American schools were not consistently producing graduates who could perform well in the postsecondary arena. Colleges reported high remediation rates while employers indicated graduates did not possess key skills needed for the 21st century workplace (ACT, 2013b; Bangser, 2008; Conley, 2005, 2010, 2014; Symonds et al., 2011).

Educational researchers and policymakers believed student engagement in rigorous coursework was a key to increasing levels of CCR among high school graduates. They reported students who complete coursework with a high level of academic intensity were better equipped for postsecondary success. Advanced Placement and International Baccalaureate courses coupled with dual credit and threshold courses like Algebra II represented the kind of rigor that assured postsecondary success (Adelman, 1999, 2006; Conley, 2005, 2010, 2014). Unfortunately, just over 25% of American high school graduates in the class of 2013 met all four of ACT's college and career readiness benchmarks (ACT, 2013b).

While academic rigor drew a great deal of attention among researchers and policymakers, the relevancy of student learning experiences emerged as vital to authentic engagement and learning. The establishment of learning environments that engage students in active exploration of their individual passions and interests was believed to

promote increased levels of engagement in learning. An educational system of adult guidance and support for student career exploration and career planning was deemed an integral part of building relevance in each student's experience. Students who have a developing sense of their individual identity were thought to experience increased levels of relevancy in their coursework. When students are able to see their personal passions and interests within coursework, they engage in increased levels of academic rigor (ACT, 2013b; Bangser, 2008; Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Erikson, 1968, 1982; Kosine et al., 2008; Robinson & Aronica, 2009, 2013; Symonds et al., 2011).

Educational researchers agree that both rigor and relevance are central to successful preparation of students for their postsecondary endeavors (ACT, 2013a, 2013b; Adelman, 1999, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Kosine et al., 2008; Symonds et al., 2011). Likewise, the literature suggests identity development is an important element of supporting relevancy and purpose in learning (Erikson's, 1968, 1982; Marcia, 1966, 2002; Robinson & Aronica, 2009, 2013). These concepts have been studied independently; however, research on the relationship between identity development, relevance, and rigor is not prevalent in the literature.

The purpose for this study was to examine the relationship between adolescent identity development, relevance, and rigor among high school students. The premise under investigation is rooted in the concept of building rigor through relevance. The remainder of this chapter provides an overview of the design and methodologies employed in the study. A brief description of the demographics included in the study precedes detailed findings for each of the four research questions guiding the inquiry.

Overview of the Study

This cross-sectional study utilized quantitative methods to analyze archival survey, transcript, and performance data on student engagement in relevance, rigor, and identity producing activities (Fink, 2009). The school district, granting access to the archival data mentioned above, had engaged in extensive research on factors influencing relevance, rigor, and identity. Their focus on career exploration, adult guidance and support, career planning, occupational identity status, academic intensity, and performance benchmarks aligned with the research questions for this study.

The archival data were collected via a 52 question self-report survey (Appendix F) and a review of student transcripts and performance. The data were grouped within six categories: career exploration, adult guidance and support, career planning, occupational identity status, academic intensity, and performance benchmarks. The data were examined using three instruments: (a) the Relevance Activity Factors (RAF), (b) the Objective Measure of Occupational-Identity Scale (OMOIS), and (c) academic intensity performance benchmarks (AIPB). The RAF recognized career exploration, adult guidance and support, and career planning as factors to inform the researcher on the level of engagement in relevance building activities and aided comparison within the study. The questions associated with occupational identity status were derived from the Objective Measure of Ego-Identity Status (OMEIS), with adaptations to narrow the identity status focus to occupational identity versus politics, religion, and occupation (Adams, 2010). The adapted version of the OMEIS was named the Objective Measure of Occupational-Identity Status (OMOIS). The AIPB utilized archival transcript and performance data to examine academic intensity and performance benchmarks. These

instruments aided comparison within the study by organizing data on degrees of student engagement in rigor and relevance while indicating student identity status.

The relationship between linear interval variables (RAF and AIPB) was examined using the Pearson product-moment correlation coefficient (Field, 2009; Fraenkel et al., 2012). Three separate one-way analysis of variance (ANOVA) were used to determine whether significant differences exist between the means of student identity statuses (OMOIS) and the three relevance activity factors (RAF). Three additional one-way ANOVA's were used to determine whether significant differences exist between the means of student identity statuses (OMOIS) and the three factors of rigor (AIPB). Pearson chi-square tests of independence were used to investigate further into the relationship between factors of rigor and identity status. Cross-tabs with Chi-square analysis provided insight into whether categorical variables were associated.

Demographics

The population of the study consisted of high school seniors in their 8th semester. Members of this population had nearly completed their entire secondary school experience and had an increased likelihood of exposure to the variables included in this study. Data from 1831 students (50.3% female) were retrieved from a data warehouse managed by the cooperating school district. Federal lunch status for the population included 58.5% full pay students with the remainder representing free (35%) and reduced (6.5%) pay statuses. Ethnic characteristics of the sample are depicted in Table 1. Due to the enormity of this population and resource limitations of the school district administering the survey, a convenience sample of 8th semester high school seniors was selected to participate in the survey (Creswell, 2009; Fink, 2009). The sampling of

students to take the survey was the product of what seniors were present at school on the date designated for administration of the survey. The convenience sample size was 473 eighth semester seniors.

Table 1

Ethnicity of Students within the Archival Data Set

Ethnicity	Frequency (<i>N</i> = 1831)	Percent
American Indian	16	0.9
Asian	52	2.8
Black	148	8.1
Hispanic	67	3.7
Pacific Islander	11	0.6
White	1537	84.0

Research Findings

The purpose for this study was to examine the relationship between adolescent identity development, relevance, and rigor among high school students. The premise under investigation is rooted in the concept of building rigor through relevance. Students who have engaged in personal exploration and commitment to certain ideological and interpersonal issues, specifically personal and occupational identity (Erikson, 1982; Marcia, 2002; Super, 1980), are purported to find increased relevancy in their coursework (Crumpton & Gregory, 2011) and in turn engage in more rigorous studies. This study used a profile of high school seniors to explore the aforementioned relationship between

adolescent identity development, student participation in relevance building activities, and engagement in academic rigor.

Research Question One

To what degree are high school seniors engaged in relevance as measured by: (a) career exploration, (b) adult guidance and support, and (c) career planning? Student responses to 24 items via a 6-point Likert scale, which were divided and associated with each of the three factors (see Tables 3-5), aided in determining scale scores for each student. The 6-point Likert scales forced agreement or disagreement and then level of agreement within one of the two opposite perspectives. The mean and standard deviation for each of the factors are displayed in Table 2. Mean scores above 3.50 represent a transitional margin of responses from slightly disagree to slightly agree. Data for two of the three factors were greater than 3.5. Indications of more positive mean scores were evident with career planning (3.78) and adult guidance and support (3.67) exceeding that number by .28 and .17 respectively.

Table 2

Student Relevance Factor Scale Descriptives

Factors	<i>n</i>	Minimum	Maximum	Mean	Std. Deviation
Career Exploration Score	473	1.00	6.0	3.01	1.03
Adult Guidance & Support Score	473	1.00	6.0	3.67	1.00
Career Planning Score	473	1.00	6.0	3.78	1.02

Note. Likert Scale ratings were 1 = Does not apply/Strongly Disagree/Low Frequency, 6 = Strongly Agree/High Frequency

The career exploration factor consisted of eight items which were closely tied to relevance. More than 50% of students reported agreement with having meaningful career

exploration experiences related to career interest inventories, career oriented service learning opportunities, presentations by professionals, and career oriented research. However, workplace experiences such as job shadowing (61%) and internships (76%) were reported at the lowest two levels on the Likert scale. Frequency data for the eight career exploration items are displayed in Table 3.

Table 3

Frequency of Career Exploration Items (n = 473)

	Does not apply (1)	Moderately disagree (2)	Slightly disagree (3)	Slightly agree (4)	Moderately agree (5)	Strongly agree (6)
Career interest inventory helped explore...	109 (23.0%)	59 (12.5%)	50 (10.6 %)	144 (30.4%)	80 (16.9%)	31 (6.6%)
Clubs and/or activities related to career...	199 (42.1%)	28 (5.9%)	25 (5.3%)	73 (15.4%)	64 (13.5%)	84 (17.8%)
Community service & service learning related to career...	139 (29.4%)	23 (4.9%)	26 (5.5%)	98 (20.7%)	83 (17.5%)	104 (22.0%)
Presentations by college representatives were helpful...	114 (24.1%)	74 (15.6%)	61 (12.9%)	122 (25.8%)	74 (15.6%)	28 (5.9%)
Presentations by professionals...were helpful...	121 (25.6%)	60 (12.7%)	50 (10.6%)	124 (26.2%)	73 (15.4%)	45 (9.5%)
Completed career oriented research...	91 (19.2%)	34 (7.2%)	63 (13.3%)	139 (29.4%)	91 (19.2%)	55 (11.6%)
Job shadowing experience was helpful...	254 (53.7%)	35 (7.4%)	30 (6.3%)	67 (14.2%)	38 (8.0%)	49 (10.4%)
Internship experience was helpful...	339 (71.7%)	19 (4.0%)	24 (5.1%)	36 (7.6%)	31 (6.6%)	24 (5.1%)

The adult guidance and support factor consisted of nine items which were closely tied to relevance (see Table 4). Most students (88%) reported three or more career oriented conversations with parents while just over 34% of students reported that number of conversations with their school counselor. Nearly 57% of students reported a high

frequency of career oriented conversations with their teachers. Parents or guardians (83%) and teachers (70.7%) reportedly had a significant influence on student career aspirations, whereas 57.4% of students did not feel a school counselor had a significant influence in that area. More than a quarter (26.4%) of students strongly disagreed with school counselors having a significant influence on their career aspirations.

Table 4

Frequency of Adult Guidance and Support Items (n = 473)

	I do not recall (1)	Probably once (2)	Twice (3)	At least three times (4)	Definitely more than three times (5)	Very frequently – more than I can count (6)
Met with my school counselor...	129 (27.3%)	123 (26.0%)	59 (12.5%)	77 (16.3%)	57 (12.1%)	28 (5.9%)
Conversations with parents...	22 (4.7%)	18 (3.8%)	16 (3.4%)	44 (9.3%)	141 (29.8%)	232 (49.0%)
Conversations with teachers...	60 (12.7%)	87 (18.4%)	58 (12.3%)	110 (23.3%)	107 (22.6%)	51 (10.8%)
	Strongly disagree (1)	Moderately disagree (2)	Slightly disagree (3)	Slightly agree (4)	Moderately agree (5)	Strongly agree (6)
Teacher/staff member had SIGNIFICANT influence...	55 (11.6%)	39 (8.2%)	45 (9.5%)	131 (27.7%)	84 (17.8%)	119 (25.2%)
School Counselor had SIGNIFICANT influence...	125 (26.4%)	73 (15.4%)	74 (15.6%)	111 (23.5%)	44 (9.3%)	46 (9.7%)
Parent or guardian had SIGNIFICANT influence...	37 (7.8%)	15 (3.2%)	28 (5.9%)	125 (26.4%)	113 (23.9%)	155 (32.8%)
School was helpful in completing applications for college...	98 (20.7%)	59 (12.5%)	64 (13.5%)	108 (22.8%)	90 (19.0%)	54 (11.4%)
School was helpful in completing the FAFSA...	113 (23.9%)	59 (12.5%)	74 (15.6%)	100 (21.1%)	79 (16.7%)	48 (10.1%)
School was helpful in completing scholarship applications...	101 (21.4%)	60 (12.7%)	66 (14.0%)	116 (24.5%)	74 (15.6%)	56 (11.8%)

Student perceptions of support received in preparation for postsecondary transitions were generally split 50-50. A slight majority of students agreed with having received support in their completion of college applications (53%), FAFSA documents (48%), and scholarship applications (52%). However, more than one third of the remaining students moderately to strongly disagreed with having received support with these tasks.

The career planning factor consisted of seven items which were closely tied to relevance (see Table 5). Students agreed their four year academic plans were aligned to

Table 5

Frequency of Career Planning Items (n = 473)

	Does not apply (1)	Moderately disagree (2)	Slightly disagree (3)	Slightly agree (4)	Moderately agree (5)	Strongly agree (6)
4 year academic plan guided choices for high school classes...	84 (17.8%)	50 (10.6%)	52 (11.0%)	131 (27.7%)	92 (19.5%)	64 (13.5%)
4 year academic plan was aligned to interests and aspirations...	79 (16.7%)	52 (11.0%)	38 (8.0%)	128 (27.1%)	119 (25.2%)	57 (12.1%)
Visited college campus to explore options for after graduation...	113 (23.9%)	10 (2.1%)	15 (3.2%)	58 (12.3%)	105 (22.2%)	172 (36.4%)
Attended college & career fair to explore options for after graduation...	209 (44.2%)	22 (4.7%)	32 (6.8%)	85 (18.0%)	62 (13.1%)	63 (13.3%)
	Strongly disagree (1)	Moderately disagree (2)	Slightly disagree (3)	Slightly agree (4)	Moderately agree (5)	Strongly agree (6)
Clear plan for next year...	17 (3.6%)	16 (3.4%)	24 (5.1%)	90 (19.0%)	121 (25.6%)	205 (43.3%)
HS coursework helped me get ready for life after high school...	64 (13.7%)	39 (8.2%)	57 (12.1%)	117 (24.7%)	113 (23.9%)	82 (17.3%)
School counselor assisted me in creating a plan to reach goals...	96 (20.3%)	71 (15.0%)	62 (13.1%)	119 (25.2%)	82 (17.3%)	43 (9.1%)

interests and aspirations (64%) while serving to guide choices for high school classes (61%). A little more than half (52%) of students indicated their school counselor had assisted them in creating plans toward goal achievement.

More than 70% of students reported participating in college visits to explore options for after high school and most (88%) expressed having a clear plan for the year after graduation. Students agreed (66%) their high school coursework helped get them ready for life after high school. Frequency data for all seven of the career planning items are displayed in Table 5.

Summary Research Question One

Research question one sought to describe the degree to which high school seniors engaged in relevance as measured by career exploration, adult guidance and support, and career planning. Mean scores above 3.50 represent a transitional margin of responses from slightly disagree to slightly agree. Career planning ($M = 3.78$) and adult guidance and support ($M = 3.67$) each had mean scores indicating slight agreement.

The lower mean for career exploration ($M = 3.01$, $sd = 1.03$) and standard deviation over 1.0, suggested slightly negative perceptions by students. It is noteworthy that more than half of students reported agreement with having meaningful career exploration experiences related to career interest inventories, career oriented service learning opportunities, presentations by professionals, and career oriented research. However, the majority of student responses related to workplace experiences were at the lowest two levels on the Likert scale: job shadowing (61%) and internships (76%).

Systematic adult guidance and support including career oriented conversations with parents reportedly occurred multiple times for a significant majority of students.

More than half of students surveyed indicated having had a high frequency of career oriented conversations with their teachers. Approximately one third of students reported conversations of that nature with their school counselor. More than half of the students felt their counselor had little or no influence on their career aspirations; however most students reported parents or guardians and teachers had a significant influence on their career aspirations. About one half of students reported receiving logistical support and guidance in completing college applications, FAFSA documents, and scholarship applications.

Almost two out of three students agreed their four year academic plans were aligned to personal interests and aspirations while serving to guide choices for high school classes. A little more than half of the students indicated their school counselor had assisted them in creating plans toward goal achievement. More than 70% of students reported participating in college visits to explore options for after high school and most (88%) expressed having a clear plan for the year after graduation. Students agreed (66%) their high school coursework helped get them ready for life after high school.

Research Question Two

What are the identity statuses for high school seniors as determined by the Objective Measure of Occupational-Identity Status (OMOIS) survey: (a) achieved, (b) moratorium, (c) foreclosed, and (d) diffused? Student responses to the OMOIS, which included 24 items, via a 6-point Likert scale resulted in scores that ranged from six to 36 on each of the four statuses. Participants were placed in a status if they met the cutoff score for that subscale. The cutoff scores used in this study were based on Adams' (2010) most recent analysis and are as follows: achieved = 29, moratorium = 22,

foreclosure = 22, and diffused = 21. Participants who failed to meet a cutoff score or who met the cutoff score in more than two statuses were placed in an “undifferentiated status” (Adams, 2010, pp. 38-39). The “transition status rule” (Adams, 2010, p. 39) was applied for participants who met the cutoff score in two statuses. These individuals were placed in the lower of their two statuses, sequenced with diffused as the lowest progressing on to foreclosed, moratorium, and achieved. The mean and standard deviation for each of the four identity statuses are displayed in Table 6.

Table 6

Mean and Standard Deviation for the Four Identity Status Subscales

Identity Status	<i>n</i>	Minimum	Maximum	Mean	Standard Deviation
Achieved	460	6	36	26.33	6.44
Moratorium	460	6	36	18.08	8.11
Foreclosed	460	6	36	14.24	6.33
Diffused	460	6	36	14.81	5.87

Note. Likert Scale ratings were 1 = Strongly Disagree, 6 = Strongly Agree. Six items for each variable result in a scale score range from 6 to 36.

The placement of students in the four identity statuses plus the undifferentiated status provided a picture of student exploration of and commitment to their individual passions and occupational identity. The data suggested more than half of students (53.7%) were engaged in exploration with over 30% declaring a high level of commitment to or confidence in their occupational identity. An additional 5.9% communicated firm commitment to their occupational identity, but the general absence of exploration among foreclosed students suggested they had very little experience finding

and testing their personal passions and interests. The remaining 40% of students represented a group that had undefined or undifferentiated levels of exploration and commitment to occupational identity. A common theme for the 8.9% of students in the diffused status is that they are not engaged in exploration, do not know their career aspirations, and are generally indifferent to that reality. Undifferentiated students (31.5%) lacked a pattern or tendency toward a single status and are often considered as a hybrid form of diffusion (Adams, 2010). The frequency and percentages of students in each of the identity statuses is displayed in Table 7.

Table 7

Frequency of Identity Statuses (n = 460)

Identity Status	Frequency	Percent
Achieved	139	30.2
Moratorium	108	23.5
Foreclosed	27	5.9
Diffused	41	8.9
Undifferentiated	145	31.5

Note. The “transition status rule” (Adams, 2010, p. 39) was applied for participants who met the cutoff score in two statuses. Participants who failed to meet a cutoff score or who met the cutoff score in more than two statuses were placed in an “undifferentiated status”.

Summary Research Question Two

Research question two sought to describe student identity statuses for high school seniors as determined by the Objective Measure of Occupational-Identity Status (OMOIS) survey: (a) achieved, (b) moratorium, (c) foreclosed, and (d) diffused. Student responses to the OMOIS survey provided data for their placement in appropriate statuses

based on cutoff scores established by Adams (2010). Each status was predicated on the notion of student exploration of personal passions and interests oriented around their commitment to an occupational identity.

The assignment of students to identity statuses resulted in a unique distribution of nearly one third of the sample at opposite ends of the spectrum from achieved on one end to undifferentiated on the other. The data suggested more than half of students (53.7%) were engaged in exploration with over 30% in the achieved status declaring a high level of commitment to or confidence in their occupational identity. The achieved status represented active exploration and firm commitment to occupational identity.

Approximately 24% of the sample population were in the moratorium status and reported being actively engaged in exploration of their personal interests and passions. A small group of foreclosed students (5.9%) communicated firm commitment to their occupational identity but had very little experience with exploration of their personal passions and interests. Most students in the diffused status (8.9%) are not engaged in exploration, do not know their career aspirations, and are generally indifferent to that reality. The placement of nearly one third (32%) of students in the undifferentiated status suggested they had little or no clear direction toward exploration or commitment to occupational identity.

Research Question Three

To what degree are high school seniors engaged in rigor as determined by: (a) academic intensity scale, (b) ACT composite scores, and (c) class rank and grade point average (GPA) composite? An academic intensity subscale score ($M = 2.26$, $sd = 1.38$) was based on the completion of core and threshold courses. Performance benchmarks

included ACT composite scores ($M = 22.65$, $sd = 4.73$) and a composite of class rank and GPA. The archival data ($N = 1831$) used to analyze RQ3 consisted of six variables targeted on rigor. The researcher used a scoring rubric (Appendix D) to assign each factor or subscale a score, from zero to six, based on corresponding variables. The frequency and percentage for each score and variable are displayed in Tables 8 and 9.

Table 8

Frequency of Academic Intensity Scores ($N = 1831$, $M = 2.26$, $sd = 1.38$)

Rubric Score (variables met)	Frequency	Percent
0	221	12.1
1	358	19.6
2	433	23.6
3	455	24.8
4	278	15.2
5	82	4.5
6	4	0.2

Note. Scores are assigned using the Rubric in Appendix D. International Baccalaureate (IB) courses are only offered by one of the five high schools included in the study, so not all students can earn six points.

The distribution of academic intensity scores is positively skewed with a disproportionate frequency toward the lower end. More than 55% of students had an academic intensity score of less than three. The vast majority of students (80.1%) had scores of three or less.

Three of the six variables reported for academic intensity represent greater than a 50% affirmative rate, suggesting the highest level of participation by students.

Completion of threshold math courses at or above Algebra II represented the highest participation rate (76%), followed by completion of a dual enrolled course (62.2%), and completion of a math course in the senior year (52.8%). Students who completed AP and IB courses are reported as 25%; however, 31 students are represented in both AP and IB counts so the percentage of students completing either variable is 23.3%.

Table 9

Frequency of Academic Intensity Variables (N = 1831)

Variable Description	Frequency		Percentage	
	Yes	No	Yes	No
Highest Math completed Algebra II or higher	1392	439	76.0	24.0
Math Course completed in Senior Year	967	863	52.8	47.2
Completed Recommended Core Course Criteria ^a	141	1690	7.7	92.3
Completed 1 or more Advanced Placement (AP) course(s)	288	1543	15.7	84.3
Completed 1 or more International Baccalaureate (IB) course(s) ^b	171	1660	9.3	90.7
Completed 1 or more Dual Enrolled course(s) ^c	1140	691	62.2	37.8

Note. ^a Core course requirements are displayed in Table 10 and are based on recommendations from Adelman (1999, 2006). ^b International Baccalaureate (IB) courses are only offered by one of the five high schools included in the study. ^c Students completed a dual enrolled course for which at least one student enrolled for college credit.

It is noted that the International Baccalaureate (IB) program is only offered at one of the five high schools, 21.7% of the population included in the study. Consequently, the

number of students who can attain six points is reduced accordingly. The completion of core course criteria was the lowest variable at 7.7%.

The frequency of courses included in the core course criteria is displayed in Table 10. The completion of science (91.3%) and social studies (96.4%) criteria are the highest performing core courses, however there are several courses that are quite low and will warrant future attention. Completion of more than 3.75 units of credit in mathematics is

Frequency of Core Course Criteria (N = 1831)

Core Requirements ^a	Frequency		Percentage	
	Yes	No	Yes	No
3.75 or more Carnegie units of English ^b	1216	615	66.4	33.6
3.75 or more Carnegie units of Math	776	1050	42.4	57.4
2.5 or more Carnegie units of Science	1673	158	91.3	8.7
2.0 or more Carnegie units of History or Social Studies	1766	65	96.4	3.6
1.0 or more Carnegie units of Computer Science	39	1795	2.1	97.9
2.0 or more Carnegie units of Foreign Language	965	866	52.7	47.3
1.0 or more Carnegie units of Speech	300	1531	16.4	83.6

Note. ^aCore course requirements displayed are based on recommendations from Adelman (1999, 2006). ^bOnly core English credits were counted, which excluded Journalism, Yearbook, etc.

deemed a core criterion, but only 42.4% of students in the sample met that criterion. A small percentage of students completed a speech class (16.4%) and an even smaller group completed courses in the computer science arena (2.1%).

Performance benchmarks are deemed key indicators of college and career readiness (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014). The highest composite ACT score ($n = 1010$, $M = 22.65$, $sd = 4.73$) for sample students were normally distributed. The mean of the highest composite ACT score was above the national average ($M = 21$). Students were placed in quintiles based on individual class ranking as assigned by their specific high school. Not all students in the sample were ranked, so grade point average was used as a secondary means for comparison.

Table 11

Frequency of Composite Class Rank/GPA Quintile Ranking (n = 1831)

Quintile	Frequency	Percent
Highest Quintile	285	17.8
2nd Highest Quintile	285	17.8
Middle Quintile	309	19.3
2nd Lowest Quintile	332	20.7
Lowest Quintile ^a	394	24.5

Note. The primary assignment of students for composite class rank/GPA ranking for this study was completed using class rank. ^aThe majority of students who were not ranked by their schools tended to have low GPA's, consequently most were placed in the lowest quintile.

Adelman (2006) acknowledged class rank as the preferred measure for comparing performance between varied educational institutions but used GPA as an acceptable

alternative when ranking was not available. The primary assignment of students for composite class rank /GPA ranking for this study was completed using class rank. However, approximately 571 students had to be placed using GPA. It is important to note the majority of students who were not ranked by their schools tended to have low GPA's, consequently most were placed in the lowest quintile. While the class rank quintiles ($n = 1260$) were evenly distributed, the use of GPA's as described above ($n = 571$), resulted in a higher percentage of students in the lowest quintile (see Table 11).

Summary Research Question Three

Research question three sought to describe the degree to which high school seniors engaged in rigor as determined by: (a) academic intensity scale, (b) ACT composite scores, and (c) class rank and grade point average (GPA) composite. An academic intensity subscale score ($M = 2.26$, $sd = 1.38$) was based on the completion of core and threshold courses. Performance benchmarks included ACT composite scores ($M = 22.65$, $sd = 4.73$) and a composite of class rank and GPA. The archival data ($N = 1831$) used to analyze RQ3 consisted of six variables targeted on rigor.

The distribution of academic intensity scores is positively skewed with a disproportionate frequency toward the lower end. More than 55% of students had an academic intensity score of less than three. The vast majority of students (80.1%) had scores of three or less. Three of the six variables reported for academic intensity represent greater than a 50% affirmative rate, suggesting the highest level of participation by students. Completion of threshold math courses at or above Algebra II represented the highest participation rate (76%), followed by completion of dual enrolled course (62.2%), and completion of a math course in the senior year (52.8%). The percentage of students

who completed an AP or IB course was 23.3%. It is noted that the International Baccalaureate (IB) program is only offered at one of the five high schools, 21.7% of population included in the study. The completion of core course criteria was the lowest variable at 7.7%.

The core courses that met the criteria with the most frequency included science (91.3%) and social studies (96.4%). Several courses exhibited very low frequencies and will warrant future attention. Just over 42% of students completed more than 3.75 units of credit in mathematics. A small percentage of students completed a speech class (16.4%) and an even smaller group completed courses in the computer science arena (2.1%).

The highest composite ACT score ($n = 1010$, $M = 22.65$, $sd = 4.73$) for sample students were normally distributed. The mean of the highest composite ACT score was above the national average ($M = 21$). Students were placed in quintiles based on individual class ranking as assigned by their specific high school. Not all students in the sample were ranked, so grade point average was used as a secondary means for comparison (Adelman, 2006). The primary assignment of students for composite class rank/GPA ranking for this study was completed using class rank. However, approximately 571 students had to be placed using GPA. It is important to note that the majority of students who were not ranked by their schools tended to have low GPA's; consequently, most were placed in the lowest quintile. While the class rank quintiles ($n = 1260$) were evenly distributed, the use of GPA's as described above ($n = 571$), resulted in a higher percentage of students in the lowest quintile.

Research Question Four

What relationships exist between: (a) rigor and identity, (b) relevance and identity, and (c) rigor and relevance? The analysis for RQ4 was completed using one-way analysis of variance (ANOVA), Pearson product-moment correlation coefficients, and Pearson chi-square tests of independence. The mean for each subscale associated with rigor, relevance, and identity was used in the comparison.

Analysis of variance (ANOVA) was conducted to determine if there was a significant difference in rigor for identity status groups (see Table 12). A significant difference was found in academic intensity ($p = .032$), highest ACT composite score ($p = .012$), and composite class rank ($p < .001$). Further analysis was required to better understand the differences observed.

Table 12

One-Way ANOVA for Rigor and Identity Status

Factor	<i>df</i>		<i>F</i>	<i>Sig.</i>
	Between Groups	Within Groups		
Academic Intensity Score	4	153	2.656	.032
Highest ACT Composite Score	4	333	3.256	.012
Composite Class Rank	4	450	6.297	< .001

The significant difference found in academic intensity across identity status groups ($p = .032$) led to follow-up comparisons using the Tukey HSD post hoc method. Post hoc multiple comparisons revealed significant differences between the means of students (see Table 13) in the achieved ($M = 3.00$) and diffused ($M = 2.37$) identity statuses ($p = .05$). No other significant differences between identity status groups were identified in the academic intensity factor.

Table 13

Mean and Standard Deviation for Academic Intensity and Identity Status

Identity Status	<i>n</i>	Mean	Standard Deviation
Achieved ^a	137	3.00	1.33
Moratorium	108	2.81	1.21
Foreclosed	27	2.41	1.53
Diffused ^a	41	2.37	1.26
Undifferentiated	145	2.70	1.34

Note. ^a Post hoc multiple comparisons revealed significant differences between the means of students in these identity status groups.

The significant difference found in highest ACT composite scores across identity status groups ($p = .012$) led to follow-up comparisons using the Tukey HSD post hoc method. Post hoc multiple comparisons revealed significant differences between the means of students (see Table 14) in the achieved ($M = 23.77$) and undifferentiated ($M = 21.65$) identity statuses ($p = .006$). No other significant differences between identity status groups were identified in the highest ACT composite score.

Table 14

Mean and Standard Deviation for ACT Composite Score and Identity Status

Identity Status	<i>n</i>	Mean	Standard Deviation
Achieved ^a	112	23.77	4.76
Moratorium	77	23.06	4.26
Foreclosed	17	22.59	5.66
Diffused	25	22.00	4.57
Undifferentiated ^a	107	21.65	4.25

Note. ^a Post hoc multiple comparisons revealed significant differences between the means of students in these identity status groups.

The significant difference found in composite class rank across identity status groups ($p = .001$) led to follow-up comparisons using the Tukey HSD post hoc method. Post hoc multiple comparisons revealed significant differences between the means of students (see Table 15) in the achieved ($M = 2.45$) and moratorium ($M = 3.02$) identity statuses ($p = .009$), achieved ($M = 2.45$) and diffused ($M = 3.28$) identity statuses ($p = .005$), and achieved ($M = 2.45$) and undifferentiated ($M = 3.12$) identity statuses ($p < .001$). No other significant differences between identity status groups were identified in the composite class rank.

Table 15

Mean and Standard Deviation for Composite Class Rank and Identity Status

Identity Status	<i>n</i>	Mean	Standard Deviation
Achieved ^{a b c}	137	2.45	1.30
Moratorium ^a	106	3.02	1.39
Foreclosed	27	3.19	1.27
Diffused ^b	40	3.28	1.15
Undifferentiated ^c	145	3.12	1.38

Note. ^{a, b, c} Post hoc multiple comparisons revealed significant differences between the means of students in these identity status groups.

Analysis of variance (ANOVA) was conducted to determine if there was a significant difference in relevance for identity status groups. A significant difference was found in career exploration ($p = .018$), adult guidance and support ($p = .006$), and career planning ($p < .001$). Results of the ANOVA are displayed in Table 16.

Table 16

One-Way ANOVA for Relevance and Identity Status

Factor	<i>df</i>		<i>F</i>	Sig.
	Between Groups	Within Groups		
Career Exploration	4	454	3.016	.018
Adult Guidance and Support	4	454	3.674	.006
Career Planning	4	454	7.047	$p < .001$

The significant difference found in career exploration across identity status groups ($p = .018$) led to follow-up comparisons using the Tukey HSD post hoc method. Post hoc multiple comparisons revealed significant differences between the means of students (see Table 17) in the achieved ($M = 3.11$) and diffused ($M = 2.61$) identity statuses ($p = .05$), and foreclosed ($M = 3.34$) and diffused ($M = 2.61$) identity statuses ($p = .04$). No other significant differences between identity status groups were identified in the career exploration factor.

Table 17

Mean and Standard Deviation for Career Exploration and Identity Status

Identity Status	<i>n</i>	Mean	Standard Deviation
Achieved ^a	138	3.11	1.04
Moratorium	108	2.89	0.98
Foreclosed ^b	27	3.34	1.00
Diffused ^{a,b}	41	2.61	0.93
Undifferentiated	145	3.07	1.07

Note. ^{a, b} Post hoc multiple comparisons revealed significant differences between the means of students in these identity status groups.

The significant difference found in adult guidance and support across identity status groups ($p = .006$) led to follow-up comparisons using the Tukey HSD post hoc method. Post hoc multiple comparisons revealed significant differences between the means of students (see Table 18) in the achieved ($M = 3.86$) and diffused ($M = 3.36$) identity statuses ($p = .04$). No other significant differences between identity status groups were identified in the adult guidance and support factor.

Table 18

Mean and Standard Deviation for Adult Guidance and Support and Identity Status

Identity Status	<i>n</i>	Mean	Standard Deviation
Achieved ^a	138	3.85	1.01
Moratorium	108	3.58	0.85
Foreclosed	27	4.02	0.82
Diffused ^a	41	3.36	0.97
Undifferentiated	145	3.57	1.10

Note. ^a Post hoc multiple comparisons revealed significant differences between the means of students in these identity status groups.

The significant difference found in career planning across identity status groups ($p < .001$) led to follow-up comparisons using the Tukey HSD post hoc method. Post hoc multiple comparisons revealed significant differences between the means of students (see Table 19) in the achieved ($M = 4.10$) and moratorium ($M = 3.49$) identity statuses ($p < .001$), achieved ($M = 4.10$) and diffused ($M = 3.54$) identity statuses ($p = .015$), and achieved ($M = 4.10$) and undifferentiated ($M = 3.71$) identity statuses ($p = .01$). No other significant differences between identity status groups were identified in the career planning factor.

Table 19

Mean and Standard Deviation for Career Planning and Identity Status

Identity Status	<i>n</i>	Mean	Standard Deviation
Achieved ^{a b c}	138	4.10	0.98
Moratorium ^a	108	3.49	0.93
Foreclosed	27	4.02	0.90
Diffused ^b	41	3.54	0.96
Undifferentiated ^c	145	3.71	1.02

Note. ^{a, b, c} Post hoc multiple comparisons revealed significant differences between the means of students in these identity status groups.

Pearson product-moment correlation coefficients were calculated to determine if statistically significant correlations ($p \leq .05$) were present among factors of rigor and relevance (see Table 20). A very weak negative, but significant correlation was found between career exploration and composite class rank ($r = -.091, p = .048$). A small negative, but significant, correlation was found between adult guidance and support and highest ACT composite score ($r = -.168, p = .002$). A small negative, but significant, correlation was found between career planning and composite class rank ($r = -.136, p = .003$). No other significant correlations were identified between factors of rigor and relevance.

Table 20

Pearson Product-moment Correlation Coefficients for Rigor and Relevance

		Rigor		
		Academic Intensity	ACT Composite	Composite Class Rank
Relevance				
Career Exploration	<i>n</i>	472	350	469
	<i>r</i>	.054	-.070	-.091*
	<i>Sig.</i>	.244	.190	.048
Adult Guidance & Support	<i>n</i>	472	350	469
	<i>r</i>	-.068	-.168*	-.014
	<i>Sig.</i>	.138	.002	.755
Career Planning	<i>n</i>	472	350	469
	<i>r</i>	.045	-.078	-.136*
	<i>Sig.</i>	.326	.148	.003

Note. *Correlation is significant at $p \leq .05$

Pearson chi-square tests of independence were used to identify significant interactions between composite class rank and identity status (see Table 21). Significance levels were set ($p < .05$) as a threshold for declaring associations between variables. A significant interaction was found [$X^2(16) = 37.774, p = .002$], indicating there is an association between composite class rank and identity status. A clear

association was evident between students in the highest and 2nd highest quintiles and the achieved identity status. Observed counts (80) for the two quintiles were significantly

Table 21

Frequency Counts of Observed and Expected Means Following Chi-Square Test of Independence for Composite Class Rank and Identity Status (n = 456)*

		Achieved	Moratorium	Foreclosed	Diffused	Undifferentiated
Highest Quintile	Percent	46.7	20.0	2.2	2.2	28.9
	Observed	42.0	18.0	2.0	2.0	26.0
	Expected	27.2	20.9	5.3	7.9	28.6
2nd Highest Quintile	Percent	38.0	25.0	8.0	9.0	20.0
	Observed	38.0	25.0	8.0	9.0	20.0
	Expected	30.3	23.2	5.9	8.8	31.8
Middle Quintile	Percent	25.5	19.8	4.7	11.3	38.7
	Observed	27.0	21.0	5.0	12.0	41.0
	Expected	32.1	24.6	6.3	9.3	33.7
2nd Lowest Quintile	Percent	22.0	25.6	8.5	12.2	31.7
	Observed	18.0	21.0	7.0	10.0	26.0
	Expected	24.8	19.1	4.9	7.2	26.1
Lowest Quintile	Percent	16.7	26.9	6.4	9.0	41.0
	Observed	13.0	21.0	5.0	7.0	32.0
	Expected	23.6	18.1	4.6	6.8	24.8

Note. *Chi-Square is significant at $p \leq .05$

higher than expected counts (57.5). Likewise, observed counts (31) in the lower two quintiles were found in the achieved identity status at lower than expected (48.4) levels. Students in the foreclosed (10, 11.2), diffused (11, 16.7), and undifferentiated (46, 60.4)

identity statuses were represented in the highest two quintiles at lower than expected levels. An inverse trend was evident in the lower three quintiles with higher than expected counts in those same identity statuses.

Summary Research Question Four

Research question four sought to determine what relationships exist between: (a) rigor and identity, (b) relevance and identity, and (c) rigor and relevance. The analysis for RQ4 was completed using one-way analysis of variance (ANOVA), Pearson product-moment correlation coefficients, and Pearson chi-square tests of independence. The mean for each subscale associated with rigor, relevance, and identity was used in the comparison.

The relationship between rigor and identity was examined via one-way ANOVA. Each factor of rigor was analyzed to help answer the research question. The factors included academic intensity, ACT composite score, and composite class rank.

The ANOVA between academic intensity and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and diffused identity statuses. No other significant differences between identity status groups were identified in the academic intensity factor.

The ANOVA between ACT composite and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and undifferentiated identity statuses. No other significant differences between identity status groups were identified in the highest ACT composite score.

The ANOVA between composite class rank and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and moratorium identity statuses, achieved and diffused identity statuses, and achieved and undifferentiated identity statuses. No other significant differences between identity status groups were identified in the composite class rank. Further examination of composite class rank using the Chi-square tests resulted in statistically significant findings. Higher than expected counts of achieved identity status were observed when composite class rank is high or increased. The inverse was observed when composite class rank was lower; achieved identity status counts were lower than expected. Higher than expected counts for foreclosed, diffused, and undifferentiated identity statuses were observed when composite rank was lower.

The relationship between relevance and identity was examined via one-way ANOVA. Each factor of relevance was analyzed to help answer the research question. The factors included career exploration, adult guidance and support, and career planning.

The ANOVA between career exploration and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and diffused identity statuses and foreclosed and diffused identity statuses. No other significant differences between identity status groups were identified in the career exploration factor.

The ANOVA between adult guidance and support and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons

revealed significant differences between the means of students in the achieved and diffused identity statuses. No other significant differences between identity status groups were identified in the adult guidance and support factor.

The ANOVA between career planning and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and moratorium identity statuses, achieved and diffused identity statuses, and achieved and undifferentiated identity statuses. No other significant differences between identity status groups were identified in the career planning factor.

The relationship between rigor and relevance was examined via Pearson product-moment correlation coefficients. Each factor of rigor and relevance was analyzed to help answer the research question. The factors included academic intensity, ACT composite, composite class rank, career exploration, adult guidance and support, and career planning.

The Pearson product-moment correlation coefficients resulted in three significant relationships. Career Exploration had a very small negative ($r = -.091$) correlation with composite class rank. Adult guidance and support had a small negative ($r = -.168$) correlation with ACT composite scores. Career planning had a small negative ($r = -.136$) correlation with composite class rank.

Summary

The findings included in this chapter were organized around the four research questions which focused on student engagement in relevance, rigor, and identity producing activities. Quantitative methods were used to analyze archival survey,

transcript, and performance data to support conclusions and further discussion. A general overview of the findings provided appropriate data to support this task.

Research question one sought to describe the degree to which high school seniors engaged in relevance as measured by career exploration, adult guidance and support, and career planning. Mean scores above 3.50 represent a transitional margin of responses from slightly disagree to slightly agree. Data for each of the three factors were greater than 3.0. Indications of more positive mean scores were evident with career planning and adult guidance and support exceeding that number by .78 and .67 respectively.

The lower mean for career exploration and standard deviation over 1.0 suggested negative perceptions by students. It is noteworthy that more than half of students reported agreement with having meaningful career exploration experiences related to career interest inventories, career oriented service learning opportunities, presentations by professionals, and career oriented research. However, the majority of student responses related to workplace experiences were at the lowest two levels on the Likert scale: job shadowing and internships.

Systematic adult guidance and support including career oriented conversations with parents reportedly occurred multiple times for a significant majority of students. More than half of students surveyed indicated having had a high frequency of career oriented conversations with their teachers. Approximately one third of students reported conversations of that nature with their school counselor. More than half of students felt their counselor had little or no influence on their career aspirations; however, most students reported parents or guardians and teachers had a significant influence on their career aspirations. About one half of students reported receiving logistical support and

guidance in completing college applications, FAFSA documents, and scholarship applications.

Almost two out of three students agreed their four year academic plans were aligned to personal interests and aspirations while serving to guide choices for high school classes. A little more than half of students indicated their school counselor had assisted them in creating plans toward goal achievement. More than 70% of students reported participating in college visits to explore options for after high school and most expressed having a clear plan for the year after graduation. Students agreed their high school coursework helped get them ready for life after high school.

Research question two sought to describe student identity statuses for high school seniors as determined by the Objective Measure of Occupational-Identity Status (OMOIS) survey: (a) achieved, (b) moratorium, (c) foreclosed, and (d) diffused. Student responses to the OMOIS survey provided data for their placement in appropriate statuses based on cutoff scores established by Adams (2010). Each status was predicated on the notion of student exploration of personal passions and interests oriented around their commitment to an occupational identity.

The assignment of students to identity statuses resulted in a unique distribution of nearly one third of the sample at opposite ends of the spectrum from achieved on one end to undifferentiated on the other. The data suggested more than half of students were engaged in exploration with over 30% in the achieved status declaring a high level of commitment to or confidence in their occupational identity. The achieved status represented active exploration and firm commitment to occupational identity. Approximately 24% of the sample population were in the moratorium status and reported

being actively engaged in exploration of their personal interests and passions. A small group of foreclosed students communicated firm commitment to their occupational identity but had very little experience with exploration of their personal passions and interests. Most students in the diffused status are not engaged in exploration, do not know their career aspirations, and are generally indifferent to that reality. The placement of nearly one third of students in the undifferentiated status suggested they had little or no clear direction toward exploration or commitment to occupational identity.

Research question three sought to describe the degree to which high school seniors engaged in rigor as determined by: (a) academic intensity scale, (b) ACT composite scores, and (c) class rank and grade point average (GPA) composite. An academic intensity subscale score was based on the completion of core and threshold courses. Performance benchmarks included ACT composite scores and a composite of class rank and GPA. The archival data ($N = 1831$) used to analyze RQ3 consisted of six variables targeted on rigor.

The distribution of academic intensity scores is positively skewed with a disproportionate frequency toward the lower end. More than 55% of students had an academic intensity score of less than three. The vast majority of students had scores of three or less. Three of the six variables reported for academic intensity represented greater than a 50% affirmative rate, suggesting the highest level of participation by students. Completion of threshold math courses at or above Algebra II represented the highest participation rate, followed by completion of dual enrolled courses, and completion of a math course in the senior year. The percentage of students who completed an AP or IB course was 23.3%. It is noted the International Baccalaureate

(IB) program is only offered at one of the five high schools, with 21.7% of population included in the study. The completion of core course criteria was the lowest variable at 7.7%.

The core courses that met the criteria with the most frequency included science and social studies. Several courses exhibited very low frequencies and will warrant future attention. Just over 42% of students completed more than 3.75 units of credit in mathematics. A small percentage of students completed a speech class and an even smaller group completed courses in the computer science arena.

Research question four sought to determine what relationships exist between: (a) rigor and identity, (b) relevance and identity, and (c) rigor and relevance. The analysis for RQ4 was completed using one-way analysis of variance (ANOVA), Pearson product-moment correlation coefficients, and Pearson chi-square tests of independence. The mean for each subscale associated with rigor, relevance, and identity was used in the comparison.

The relationship between rigor and identity was examined via one-way ANOVA and Pearson chi-square tests of independence. Each factor of rigor was analyzed to help answer the research question. The factors included academic intensity, ACT composite score, and composite class rank.

The ANOVA between factors of rigor and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons for academic intensity and composite class rank revealed significant differences between the means of students in the achieved and diffused identity statuses. Additional post hoc comparisons for ACT composite and composite class rank revealed significant differences between the

means of students in the achieved and undifferentiated statuses. Significant differences between the means of students in the achieved and undifferentiated statuses were also revealed for composite class rank. No other significant differences between identity status groups were identified in the factors of rigor.

Further examination of composite class rank using the Chi-square tests resulted in statistically significant findings. Higher than expected counts of achieved identity status were observed when composite class rank is high or increased. The inverse was observed when composite class rank was lower; achieved identity status counts were lower than expected. Higher than expected counts for foreclosed, diffused, and undifferentiated identity statuses were observed when composite rank was lower.

The relationship between relevance and identity was examined via one-way ANOVA. Each factor of relevance was analyzed to help answer the research question. The factors included career exploration, adult guidance and support, and career planning.

The ANOVA between factors of relevance and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons for career exploration, adult guidance and support, and career planning revealed significant differences between the means of students in the achieved and diffused identity statuses. Additional post hoc comparisons for career planning revealed significant differences between the means of students in the achieved and moratorium identity statuses and achieved and undifferentiated identity statuses. No other significant differences between identity status groups were identified in the factors of relevance.

The relationship between rigor and relevance was examined via Pearson product-moment correlation coefficients. Each factor of rigor and relevance was analyzed to help

answer the research question. The factors included academic intensity, ACT composite, composite class rank, career exploration, adult guidance and support, and career planning.

The Pearson product-moment correlation coefficients resulted in three significant relationships. Career exploration had a very small negative correlation with composite class rank. Adult guidance and support had a small negative correlation with ACT composite scores. Career planning had a small negative correlation with composite class rank.

Chapter One, Two, and Three provided the groundwork for this study by presenting the purpose of the study, conceptual underpinnings, research questions, related literature, and the design and methodology utilized in the research. In Chapter Four, the data collection and analysis results were presented for each research question. Chapter Five will provide a discussion and conclusions, limitations of the study, implications for practice, and recommendations for future research.

CHAPTER FIVE
SUMMARY AND CONCLUSIONS

Introduction

A climate of change emerged in the 21st century global society, and the current generation of secondary students will work in it for decades to come. The capacity to learn and the overall skills needed for the new global economy are fundamentally different from previous decades (Conley, 2005, 2010; Conley & McGaughy, 2012; Hooker & Brand, 2010; Marquardt, 2011). Schools face the unique challenge of engaging students in the school setting in order to prepare them for their futures in a global society. Students will require rigorous and relevant learning experiences that prepare them for careers that may not exist yet, solving problems that have not even been considered.

Many secondary students throughout the United States demonstrate inadequate skills needed for success in the college and career arenas while exhibiting low levels of engagement in rigorous and relevant coursework (Conley, 2005, 2010; Conley & McGaughy, 2012; Venezia & Jaeger, 2013). Student engagement in rigorous and relevant coursework is thought to be vital in facilitating college and career readiness (CCR) for secondary students. Student engagement in a series of rigorous core courses has been purported as the means for promoting maximum levels of college and career readiness (ACT, 2012). ACT found (2012) that taking full course sequences typically considered “college preparatory” best prepared students for freshman-level college courses. However, “...a focus on college readiness alone does not equip young people

with all of the skills and abilities they will need in the workplace, or to successfully complete the transition from adolescence to adulthood” (Symonds et al., 2011, p. 4).

Students who engage in career exploration activities such as completing career inventories, career oriented research, job shadowing, internships, etc., will begin to see relevance in their coursework (Bangser, 2008; Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Kosine & Lewis, 2008; Oakes & Saunders, 2008; Venezia & Jaeger, 2013). Students who do not actively explore their interests and career options often fail to see relevance in their school experience (Crumpton & Gregory, 2011). However, when students see the alignment of their coursework with personalized career goals, they become more willing to engage in relevant and rigorous coursework.

As referenced previously, the growth of the 21st century global market had a profound impact on the workplace and educational policy in the United States. Not only did it yield amazing changes in communication, information management, and social interaction, it also influenced the role workers played in organizations. Marquardt (2011) recognized the emergence of “learning organizations” (p. 1) that operate by harnessing knowledge as a replacement for “physical labor, minerals, and energy” (p. 12). Workers with the capacity to learn had become an invaluable commodity, which was “the new form of labor in the 21st century” (p. 13). This reality influenced the need for schools to prepare students as lifelong learners, equipped for postsecondary and career success. Key 21st century learning skills such as critical thinking, communication, collaboration, and creativity became essential components of the educational culture and were deemed important for all students (Bangser, 2008; Conley, 2005, 2010, 2014; Marquardt, 2011; Symonds et al., 2011).

The literature has presented a solid case for the connection between student participation in a rigorous course of study and CCR (Adelman, 2006; Bangser, 2008; Conley, 2010; Porter & Polikoff, 2012). Educational researchers and policymakers believed student engagement in rigorous coursework was a key to increasing levels of CCR among high school graduates. They reported students who complete coursework with a high level of academic intensity were better equipped for postsecondary success. Advanced Placement and International Baccalaureate courses coupled with dual credit and threshold courses like Algebra II represented the kind of rigor that assured postsecondary success (Adelman, 1999, 2006; Conley, 2005, 2010, 2014). Unfortunately, just over 25% of American high school graduates in the class of 2013 met all four of ACT's college and career readiness benchmarks (ACT, 2013b).

The literature has also provided insight into the value of student engagement in exploration activities in support of identity development. Students who have embarked on the journey of finding their personal passions and interests (Robinson & Aronica, 2009, 2013) experience a positive impact on the relevancy of their coursework (Bangser, 2008; Conley, 2010; Crumpton & Gregory, 2011; Hooker & Brand, 2010; Kosine & Lewis, 2008; Marcia, 2002; Super & Hall, 1978; Symonds et al., 2011). While academic rigor drew a great deal of attention among researchers and policymakers, the relevancy of student learning experiences emerged as vital to authentic engagement and learning. The establishment of learning environments that engage students in active exploration of their individual passions and interests was believed to promote increased levels of engagement in learning. An educational system of adult guidance and support for student career exploration and career planning was deemed an integral part of building relevance in

each student's experience. Students who have a developing sense of their individual identity were thought to experience increased levels of relevancy in their coursework. When students are able to see their personal passions and interests within coursework, they engage in increased levels of academic rigor (ACT, 2013b; Bangser, 2008; Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Erikson, 1968, 1982; Kosine et al., 2008; Robinson & Aronica, 2009, 2013; Symonds et al., 2011).

There has been a gap in the research regarding the relationship that identity development and relevance have on high school student engagement in academic rigor. While identity development, relevance, and rigor have been examined independently, the literature has been silent regarding how they relate to each other in a secondary school setting. This study was intended to provide insight into the relationship between relevance, rigor, and identity development of adolescents in a high school setting. The remainder of this chapter will present conclusions based upon the data, discussion of the findings in light of existing research, limitations to the study, implications for current practice, and recommendations for future research.

Conclusions

The purpose for this study was to examine the relationship between adolescent identity development, relevance, and rigor among high school students. The premise under investigation is rooted in the concept of building rigor through relevance. Students who have engaged in personal exploration and commitment to certain ideological and interpersonal issues, specifically personal and occupational identity (Erikson, 1982; Marcia, 2002; Super, 1980), are purported to find increased relevancy in their coursework (Crumpton & Gregory, 2011) and in turn engage in more rigorous studies. This study

used a profile of high school seniors to explore the relationship between adolescent identify development, student participation in relevance building activities, and engagement in academic rigor. Four research questions were posed to guide the study. The conclusions for each question are provided in this section.

Research Question One

Research question one was asked in order to better understand student engagement in career exploration activities, systems of adult guidance and support, and levels of career planning among high school seniors. Student survey responses in the spring of 2014 prompted several observations related to each factor. The results indicated their school environment supported affirmative experiences with career planning and adult guidance and support; however, student perceptions indicated overall disagreement with having engaged in experiences related to career exploration.

Career exploration. The majority of students reported meaningful career exploration experiences related to career interest inventories, career oriented service learning opportunities, presentations by professionals, and career oriented research. The gap creating a lower mean in the career exploration factor can be attributed to low participation in workplace experiences. The vast majority of students reported either having no experience or unhelpful experiences with job shadowing and internships. The absence of positive workplace experiences impacted the overall factor data and most certainly individual student career exploration experiences.

Adult guidance and support. Parents and teachers are the most influential components of the adult guidance and support factor. Students reported having engaged in more frequent career oriented conversations with parents and teachers than they did

with school counselors. While the system of adult guidance and support is often managed by school counselors, students do not perceive their influence at the same level as their parents and teachers. Parents or guardians and teachers are perceived as having a significant influence on student career aspirations. The majority of students do not feel school counselors had a significant influence on their career aspirations. Given that more than a quarter of students strongly disagreed with school counselors having a significant influence on their career aspirations, it can be concluded that their influence is indeed suspect.

Students reported moderate levels of support in preparing for postsecondary transitions. A slight majority of students agreed with having received support in the completion of college applications, FAFSA documents, and scholarship applications. However, more than one third of students moderately to strongly disagreed with having received support with these tasks.

Career planning. Nearly two thirds of students reportedly engaged in academic planning that was aligned to their personal interests and aspirations. The planning process was likewise used as a guide to selecting high school courses that were similarly aligned to their interests and aspirations. Contrary to the report on school counseling support discussed previously, a little more than half of students indicated their school counselor had assisted them in creating plans toward goal achievement. In support of postsecondary plans, more than 70% of students reported participating in college visits to explore options for after high school. The vast majority of students communicated having a clear plan for the year after graduation. Students agreed their high school coursework helped get them ready for life after high school.

Research Question Two

Research question two was asked in order to describe the distribution of high school seniors among the four identity statuses. Nearly two-thirds of the sample was distributed at either end of the identity development spectrum, which was indicative of the crisis students engage in during the adolescent years (Erikson, 1963, 1968, 1980; Marcia, 1966, 2002). Approximately one-third of the students were found in the achieved status. A slightly larger grouping was in the diffused and undifferentiated statuses. The data indicated more than half of students were engaged in exploration with over one-third declaring a high level of commitment to or confidence in their occupational identity. The achieved status represented active exploration and firm commitment to occupational identity.

Nearly a quarter of the sample population reported being actively engaged in exploration of their personal interests and passions but lacked commitment to a particular occupational identity. These students were in the moratorium status and were actively engaged in what Erickson (1963, 1968, 1980) called the identity crisis. A small group of students communicated firm commitment to their occupational identity but had very little experience with exploration of their personal passions and interests. These foreclosed students were likely influenced by their family values, beliefs, and interests. However, the students have not engaged in Erickson's (1963, 1968, 1980) identity crisis.

Most students in the diffused status were not engaged in exploration, do not know their career aspirations, and are generally indifferent to that reality. Students in the diffused status will benefit from active exploration to motivate them along the journey to finding their passions and interests. The placement of nearly one-third of students in the

undifferentiated status suggested they had little or no clear direction toward exploration or commitment to occupational identity. Adams (2010) suggested this category could be considered a form of diffusion but he cautioned too formal a declaration absent more founded theory and research in this area.

Research Question Three

Research question three was asked in order to better understand high school senior engagement and performance in rigorous activities including: academic intensity, ACT composite scores, and composite class rank. Transcripts of the sample ($N = 1831$) were analyzed to gain insight into each of the three factors. The results indicated low participation in academic intensity, positive ACT composite scores, and appropriate distribution of class rankings.

Academic intensity. The distribution of academic intensity scores was positively skewed with a disproportionate frequency toward the lower end. More than half of students had an academic intensity score of less than three. Most students had scores of three or less. Three of the six variables reported for academic intensity represented greater than a 50% affirmative rate, suggesting the majority of students were successful in meeting the criteria. Completion of threshold math courses at or above Algebra II represented the highest participation rate, followed by completion of dual enrolled course, and completion of a math course in the senior year. Slightly less than a quarter of students completed an AP or IB course. It is noted the International Baccalaureate (IB) program is only offered at one of the five high schools, 21.7% of population included in the study. The completion of core course criteria was the lowest variable with only 7.7% of students meeting the criteria. Core courses that met the criteria with the most

frequency included science and social studies. Credits earned in mathematics, speech, and computer science exhibited very low frequencies and may warrant future attention.

ACT composite scores. The highest composite ACT scores for sample students were normally distributed. The mean of the highest composite ACT score was above the national average. Student performance on this assessment was positive and included a sample of more than 1000 students ($N = 1010$).

Class rank/GPA composite. Students were placed in quintiles based on individual class ranking as assigned by their specific high school. Not all students in the sample were ranked, so grade point average was used as a secondary means for comparison. Adelman (2006) acknowledged class rank as the preferred measure for comparing performance between varied educational institutions, but he used GPA as an acceptable alternative when ranking was not available. The primary assignment of students for composite class rank/GPA ranking for this study was completed using class rank. However, approximately 571 students had to be placed using GPA. It is important to note that the majority of students who were not ranked by their schools tended to have low GPA's, consequently most were placed in the lowest quintile. While the class rank quintiles ($N = 1260$) were evenly distributed, the use of GPA's as described above ($N = 571$), resulted in a higher percentage of students in the lowest quintile.

Research Question Four

Research question four was asked in order to examine the relationship between adolescent identity development, relevance, and rigor among high school students. The descriptive data collected in research questions one, two, and three were used for analysis via one-way analysis of variance (ANOVA), Pearson product-moment correlation

coefficients, and Pearson chi-square tests of independence. The mean for each subscale associated with rigor, relevance, and identity was used in the comparison.

Rigor and identity. The relationship between rigor and identity was examined via one-way ANOVA and Pearson chi-square tests of independence. Each factor of rigor was analyzed to help answer the research question. The factors included academic intensity, ACT composite score, and composite class rank.

The ANOVA between academic intensity and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and diffused identity statuses. No other significant differences between identity status groups were identified in the academic intensity factor.

The ANOVA between ACT composite and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and undifferentiated identity statuses. No other significant differences between identity status groups were identified in the highest ACT composite score.

The ANOVA between composite class rank and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and moratorium identity statuses, achieved and diffused identity statuses, and achieved and undifferentiated identity statuses. No other significant differences between identity status groups were identified in the composite class rank. Further examination of composite class rank using the Chi-square tests resulted in statistically significant findings. Higher

than expected counts of achieved identity status were observed when composite class rank is high or increased. The inverse was observed when composite class rank was lower, achieved identity status counts were lower than expected. Higher than expected counts for foreclosed, diffused, and undifferentiated identity statuses were observed when composite rank was lower.

Relevance and identity. The relationship between relevance and identity was examined via one-way ANOVA. Each factor of relevance was analyzed to help answer the research question. The factors included career exploration, adult guidance and support, and career planning.

The ANOVA between career exploration and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and diffused identity statuses, and foreclosed and diffused identity statuses. No other significant differences between identity status groups were identified in the career exploration factor.

The ANOVA between adult guidance and support and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and diffused identity statuses. No other significant differences between identity status groups were identified in the adult guidance and support factor.

The ANOVA between career planning and identity status revealed a statistically significant difference between means. Post hoc multiple comparisons revealed significant differences between the means of students in the achieved and moratorium

identity statuses, achieved and diffused identity statuses, and achieved and undifferentiated identity statuses. No other significant differences between identity status groups were identified in the career planning factor.

Rigor and relevance. The relationship between rigor and relevance was examined via Pearson product-moment correlation coefficients. Each factor of rigor and relevance was analyzed to help answer the research question. The factors included academic intensity, ACT composite, composite class rank, career exploration, adult guidance and support, and career planning.

The Pearson product-moment correlation coefficients resulted in three significant relationships. Career exploration had a very small negative correlation with composite class rank. The quintiles for class rank used one for the highest rank and five for the lowest rank. Consequently, the negative correlation indicates an increase in career exploration would yield a very small increase in composite class rank. Adult guidance and support had a small negative correlation with ACT composite scores. This finding indicates an increase in the adult guidance and support factor would yield a small decrease in ACT composite score. Career planning had a small negative correlation with composite class rank. Once again, the inverted scoring for class rank indicates an increase in career planning will yield a small increase in composite class rank.

Discussion

The primary focus of this work was to examine CCR through the lens of relevance, rigor, and identity development. In the course of reviewing current literature, it became apparent that these areas are vital in promoting CCR. Each area has been the subject of extensive research; however, there has not been a concerted effort to examine

how they are related to each other in the course of promoting CCR. The following discussion will consider each area in light of current literature and the findings from this study. The discussion will conclude with findings related how relevance, rigor, and identity development are related in the quest to promote increased CCR.

Relevance

Research has emphasized the need for more than rigor alone, suggesting a holistic approach focused on the influence of academic relevance on student engagement (ACT, 2013b; Conley, 2010, 2014; Crumpton & Gregory, 2011; Hooker & Brand, 2010; Oakes & Saunders, 2008; Schneider, 2007; Venezia & Jaeger, 2013). A synthesis of the literature revealed that individual identity emerges through active exploration of personal and career interests, systematic adult guidance and support, and aligned career planning.

Career exploration. Active exploration exposes students to a variety of opportunities and experiences that support a growing sense of who they are and what they aspire to become. Reflection on experiences in light of personal interests and aspirations supports quality decisions related to college and career options. School cultures that support students in both personal and career exploration best equip them to make decisions about their future aspirations and goals (Bangser, 2008; Conley, 2010, 2014; Conley & McGaughy, 2012; Erikson, 1980; Kosine et al., 2008; Hughes & Karp, 2004; Lee & Bell, 2011; Lippman et al., 2008; Schneider, 2007, 2009). Students who understand their personal interests and passions are often drawn by natural curiosity and intrinsic motivation to engage in active learning in those areas. Aligning school experiences for each student to their individual interests and passions has a profound

impact on their learning (Blustein, 1997; Crumpton & Gregory, 2011; Kosine & Lewis, 2008; Pink, 2009; Robinson & Aronica, 2009, 2013).

The majority of students in this study reported meaningful career exploration experiences related to career interest inventories, career oriented service learning opportunities, presentations by professionals, and career oriented research. The school cultures were certainly targeted on promoting opportunities for career exploration within the school setting. However, the vast majority of students reported either having no experience or unhelpful experiences with job shadowing and internships. The absence of workplace experiences was significant and negatively impacted opportunities for career exploration. Workplace experiences afford students opportunities to not only learn about norms for behavior but also the educational requirements to enter the particular career field (Conley, 2005, 2010, 2014; Conley & McGaughy, 2012; Hooker & Brand, 2010; Kosine & Lewis, 2008; Lee & Bell, 2011; Oakes & Saunders, 2008; Schneider, 2007, 2009; Tang, Pan, & Newmeyer, 2008). Personal contacts in the work world were reported by students as being more helpful than worksite tours or school-based activities (Bangser, 2008).

Adult guidance and support. The emergence of the 21st century global market has placed school counselors in a pivotal role for American students. Expectations to support student growth in a combined college and career arena increased demands on counselors who already managed a multitude of student and administrative responsibilities. Unfortunately, many students reported receiving little help from their counselors in preparing for postsecondary experiences. As the need for focused and well planned career guidance became increasingly vital, the role of the school counselor has

been scrutinized and often depicted as being ineffective (Schenck et al., 2012; Johnson, 2012; Johnson et al., 2010).

The role of counselors as the front line of support in the adult guidance and support arena should be examined. With students reporting parents and teachers as having frequent career oriented interactions and heightened levels of influence, it is intuitive for those individuals to be maximized in support of students. School counseling programs that establish the counselor as a leader in the quest to create a college and career going culture (Schneider, 2007) may be most effective. Given the typical staffing levels with high student to counselor ratios, it is most logical for parents and teachers to be educated and empowered to support students in the career exploration and planning experience. A comprehensive system of adult guidance and support may be most effective in guiding students as they discover their personal interests and passions while preparing for their postsecondary opportunities.

The merit of engaging counselors as leaders who empower teachers and parents may maximize the impact on student exploration and growth. While the exploration process is largely an individual experience, Super (1978) recognized that the experience is not devoid of outside influence. In fact, he acknowledged the environment or context in which an individual operates can “both limit and facilitate individual development” (p. 336). Viewing exploration as a function of organizational setting, Super (1978) proposed the organization effectively influences career development based on their “provisions for career exploration and planning” (p. 336).

Engaging the larger school community to support adolescent exploration through means such as mentoring, job shadowing, or internships provide excellent “modeling and

vicarious learning” (Blustein, 1997, p. 263) opportunities for young people. The study indicated the system of adult guidance and support in the sample schools had not been effective in supporting exploration of this nature. In addition to low levels of workplace experience, students also reported moderate levels of support in preparing for postsecondary transitions. A slight majority of students agreed with having received support in the completion of college applications, FAFSA documents, and scholarship applications. However, more than one third of students moderately to strongly disagreed with having received support with these tasks.

Career Planning. The goal of career planning is to establish individualized goals that engage students in maximum levels of academic intensity (Adelman, 1999, 2006) through planning and preparation. Career planning is intended to capitalize on students’ college and career aspirations by aligning aspirations with appropriately rigorous studies (Lee & Bell, 2011).

The number of American high school students who aspire to earn a college degree has increased significantly in the past decade (ACT, 2013b; Adelman, 1999, 2006; Bangser, 2008; Conley, 2005, 2010, 2014; Symonds et al., 2011). The challenge facing many students is a misalignment of career ambitions with their understanding of the educational requirements to make their ambition a reality. Schools that have established effective college-going cultures are most successful in capitalizing on the energy of ambitious adolescents to increase engagement in rigorous and relevant studies. Students with aligned ambitions are most likely to embark on a journey toward their career goals, choose appropriate postsecondary opportunities, and make educational and work decisions that lead to the achievement of their goals (Conley, 2005, 2010, 2014; Kosine

et al., 2008; Oakes & Saunders, 2008; Robinson & Aronica, 2009, 2013; Schneider, 2007, 2009; Tang, Pan, & Newmeyer, 2008).

Career planning is a central tenet to support student pursuit of aspirations and goals that emerge from effective exploration and support systems. Nearly two thirds of students in this study engaged in academic planning that was aligned to their personal interests and aspirations. The planning process was likewise used as a guide to selecting high school courses that were similarly aligned to their interests and aspirations.

Contrary to the report on school counseling support discussed previously, a little more than half of students indicated their school counselor had assisted them in creating plans toward goal achievement. In support of postsecondary plans, more than 70% of students reported participating in college visits to explore options after high school. The vast majority of students communicated having a clear plan for the year after graduation. Students agreed their high school coursework helped get them ready for life after high school.

Identity

The conversation around CCR is steeped in reference to rigor and relevance. However, it has become evident that individual interests and passions drive engagement. The emergence of individual identity is central to understanding what motivates a person to engage in rigor through relevance. Robinson and Aronica (2009, 2013) discussed individual discovery of personal aptitudes and passions, which are fueled by certain attitudes and pursuit of opportunities. In the course of their work, they defined “the Element... [as]...the meeting point between natural aptitude and personal passion” (Robinson & Aronica, 2009, p. 21). Individuals who are in their element have had the

opportunity to explore their personal passions and what they are good at, allowing them to not only do what they love, but to do it well (Robinson & Aronica, 2009). Finding one's element allows them to, "...connect with something fundamental to their sense of identity, purpose, and well-being" (Robinson & Aronica, 2009, p. 21).

The education system is charged with the responsibility to help people find their natural talents and abilities. School processes can aid students in unlocking their unknown aptitudes through exploration and creative expression, but instead individual talents of many students are stifled, "killing their motivation to learn" (Pink, 2009; Robinson & Aronica, 2009, p. 16). Recognizing that many adults are not interested in the work they do and the "growing numbers of students who feel alienated by the education system..." (Hooker & Brand, 2010; Robinson & Aronica, 2013, p. xiii), it has grown evident that people need help finding their personal passions and interests. The process of exploring individual passions and interests is dynamic as influences from varying opportunities and circumstances come into play (Robinson & Aronica, 2013, p. 26).

Identity formation plays a significant role in personality development in adolescence, leading to a successful and healthy adult life (Erikson, 1968; Lippman et al., 2008). As adolescent experiences with exploration coalesce, varying levels of identity and self-concept emerge (Erikson, 1968; 1980). The process of exploration and the ensuing commitment experienced through adolescence ideally leads to a "strong sense of identity and a sense of purpose toward their future" (Kosine et al., 2008, p. 134).

The distribution of nearly one third of the sample at opposite ends of the spectrum was indicative of the crisis students engage in during the adolescent years (Erikson, 1963, 1968, 1980; Marcia, 1966, 2002). Adolescents actively traverse the crisis of identity

development and are often at different places along the journey. Students are engaged in varied levels of exploration and commitment as a product of their personal maturity and environmental influences.

The data suggested more than half of students were engaged in exploration with almost a third declaring a high level of commitment to or confidence in their occupational identity. The achieved status represented active exploration and firm commitment to occupational identity. The placement of a large portion of students in the achieved status varied from findings recorded by Adams (2010). It is important to note this study focused specifically on occupational identity versus Adams' (2010) three ego-identity ideologies which focused on politics, religion, and occupation. He found fewer than 20% of his sample to be in the achieved status but did not disaggregate by occupational identity. Students in this status will likely cycle between statuses as various life experiences influence their dispositions (Adams, 2010, Erikson, 1963, 1968, 1980; Marcia, 1966, 2002, Super, 1953, 1954, 1973). Nonetheless, environmental forces and naturally occurring psychosocial development supported a large portion of the sample in having a firm and tested sense of personal occupational identity.

Approximately a fourth of the sample population reported being actively engaged in exploration of their personal interests and passions. Students in the moratorium status were actively engaged in what Erickson (1963, 1968, 1980) called the identity crisis. While Adams (2010) would have predicted a percentage closer to 30% for all three ego-identity ideologies, it is apparent the natural forces of adolescence coupled with environmental forces set these students on the path to discover their interests and ultimately their identity. The literature emphasized the value of students engaging in

exploration as a means to support increased levels of relevance in their school experiences, so long as courses and activities are aligned to their emerging passions and interests (Adams, 2010; Bangser, 2008; Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Kosine & Lewis, 2008; Oakes & Saunders, 2008; Schneider, 2007).

A small group of students communicated firm commitment to their occupational identity, but they had very little experience with exploration of their personal passions and interests. These foreclosed students were likely influenced by their family values, beliefs, and interests. However, the students have not engaged in Erickson's (1963, 1968, 1980) identity crisis. The rigidity with which they view life will eventually become challenged, likely resulting in an experience with identity crisis later in life (Marcia, 1966, 2002).

Students in the diffused status are not engaged in exploration, do not know their career aspirations, and are generally indifferent to that reality. Students in the diffused status will benefit from active exploration to motivate them along the journey to finding their passions and interests. Marcia (1966, 2002) suggested that most adults want to push diffused students into a state of disequilibrium in hopes they start the journey more quickly. Marcia (2002) warned that adolescents should be permitted to progress at their individual developmental pace. Students who are pushed into disequilibrium related to their passions and interests may lash out in unhealthy ways toward those to whom the discomfort is attributed. It is better to let the natural forces of both adolescent development and environmental factors influence student growth versus pushing externally. The placement of nearly one third of students in the undifferentiated status suggested they had little or no clear direction toward exploration or commitment to

occupational identity. Adams (2010) suggested this category could be considered a hybrid form of diffusion but cautioned too formal a declaration absent more founded theory and research in this area.

Rigor

Academic rigor has been considered the key to preparation of students for college level coursework upon graduation. The emergence of the 21st century global economy expanded the focus of academic rigor to include both college and career readiness. Exposing all students to a rigorous course of study was thought to prepare them for college level coursework and a rewarding career afterward (ACT, 2013b; Adelman, 2006; Conley, 2005; Porter & Polikoff, 2012).

Adelman (2006) found that students who had completed a bachelor's degree during the course of the study shared similar courses on their high school transcripts. He determined that students who complete a minimum number and type of core and threshold type credits graduated from college at significantly increased rates when compared to their peers.

Among many findings from the studies, one seems to be most prominent, "the academic intensity of the student's high school curriculum...counts more than anything else...in providing momentum toward completing a bachelor's degree" (Adelman, 2006, p. 19). The studies identified those deemed to have been successful in their postsecondary endeavors (earning bachelor degrees) had completed a rigorous course of study focused on core and advanced placement (AP) or International Baccalaureate (IB) courses. While the collective whole of core curriculum contributes to the academic

readiness of students, the highest level of mathematics studied in secondary school had the strongest continuing influence on bachelor's degree completion.

The distribution of academic intensity scores in this study suggested very few students met the standards set by Adelman (2006). More than half of students had an academic intensity score of less than three. Most students had completed three or less of the academic intensity standards recommended. Three of the six variables reported for academic intensity represented greater than a 50% affirmative rate, suggesting the majority of students were successful in meeting the criterion. Completion of threshold math courses at or above Algebra II represented the highest participation rate, followed by completion of dual enrolled course, and completion of a math course in the senior year. Slightly less than a quarter of students completed an AP or IB course. It is noted that the International Baccalaureate (IB) program is only offered at one of the five high schools, 21.7% of population included in the study. The completion of core course criteria was the lowest variable with only 7.7% of students meeting the criteria. Core courses that met the criteria with the most frequency included science and social studies. Credits earned in mathematics, speech, and computer science exhibited very low frequencies and may warrant future attention.

Relevance, Identity, and Rigor

In order for schools to reach a critical mass of students authentically engaged in a path toward CCR, it has been presumed that both rigor and relevance will be required. Lippman, et al. (2008) asserted that efforts to promote rigor and relevance occur simultaneously but independently of each other. Recognizing the developmental components of adolescence during the high school years and the value of joining rigor

and relevance together in support of that development, Lippman, et al. (2008) opened the door to a more indepth analysis of the relationship between relevance, identity, and rigor (Adams, 2010; Erikson, 1968; Marcia, 2002).

The conversation around CCR is steeped in reference to rigor and relevance. However, it has become evident that individual interests and passions drive engagement. The emergence of individual identity is central to understanding what motivates a person to engage in rigor through relevance. Robinson and Aronica (2009, 2013) discussed individual discovery of personal aptitudes and passions, which are fueled by certain attitudes and pursuit of opportunities.

The “pathway to prosperity” (Symonds et al., 2011) for students is found in a balance between academic rigor and relevancy. Students are best equipped for postsecondary learning experiences when they are engaged in the academic intensity associated with a rigorous course of study (Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012). However, the literature on academic relevancy asserts students need to develop a clear sense of their personal identity and interests before authentic engagement can be experienced (Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Erikson, 1963, 1968, 1980; Kosine et al., 2008; Marcia, 1966; Oakes & Saunders, 2008; Robinson & Aronica, 2009, 2013; Super & Hall, 1978).

College bound students may have experienced the rigors to perform certain college level tasks, but they often failed to see the interconnectedness or coherence of their learning, lacking overall relevance in their studies (Conley, 2005, 2010, 2014; Crumpton & Gregory, 2011; Oakes & Saunders, 2008). Conley (2010) proclaimed, “The

new reality is that students need a program that integrates high academic challenge with the exploration of a range of career options and opportunities” (p. 6).

The literature suggested students who demonstrate a maturing sense of individual identity and personal interests will also demonstrate more aligned goals and aspirations for their future (Adams, 2010; Blustein, 1997; Conley, 2005, 2010, 2014; Erikson, 1963, 1968, 1980, 1982; Kosine & Lewis, 2008; Marcia, 1966, 2002; Oakes & Saunders, 2008; Schneider, 2007; Super, 1953, 1954, 1973, 1980). Environmental conditions play a vital role in setting the stage for exploration and supporting adolescent discovery of their individual passions, interests, aspirations and ultimately their sense of identity (Robinson & Aronica, 2009, 2013). Degrees of exploration and commitment serve as measures used in determining individual identity statuses which include achieved, moratorium, foreclosed, and diffused (Adams, 2010; Kosine & Lewis, 2008; Marcia, 1966, 2002).

Data from the study were clear in affirming that identity matters in relation to academic relevance and rigor. The ANOVA between identity status and the three factors of relevance and rigor revealed statistically significant differences between means. Post hoc multiple comparisons revealed significant differences between the means of specific identity statuses. A consistent pattern of significant differences between the means of students in the achieved and diffused identity statuses emerged in five of six analyses. The remaining analysis between ACT composite and identity status revealed significant differences between the means of students in the achieved and undifferentiated identity statuses. That same finding was also evident in two additional analyses.

The achieved identity status implied experience with exploration followed by a firm commitment to occupational identity. Given the significant difference in both rigor

and relevance for identity status groups and the observed difference between means of students in the achieved and diffused identity statuses, several assumptions can be made. Students who experience high levels of rigor or relevance may represent an increased likelihood of being in the achieved status and decreased likelihood of being in the diffused status. Conversely, the diffused status suggested little to no exploration and general apathy toward occupational identity. Students who experienced low levels of rigor or relevance may represent a decreased likelihood of being in the achieved status and increased likelihood of being in the diffused and undifferentiated statuses.

In support of the previous assumptions, further examination of composite class rank using the Chi-square tests resulted in statistically significant findings. When composite class rank is high or increased, higher than expected counts of achieved identity status was observed. The inverse was observed when composite class rank was lower, achieved identity status counts were lower than expected. When composite rank was lower; higher than expected counts for foreclosed, diffused, and undifferentiated identity statuses were observed.

The findings provide significant support for the connection of rigor and relevance with identity status. Additionally, Pearson product-moment correlation coefficients resulted in three significant relationships between rigor and relevance. Career exploration had a very small inverse correlation with composite class rank indicating an increase in career exploration would yield a very small increase in composite class rank. Career planning also had a small inverse correlation with composite class rank indicating an increase in career planning will yield a small increase in composite class rank. Adult guidance and support had a small inverse correlation with ACT composite scores

indicating an increase in the adult guidance and support factor would yield a small decrease in ACT composite score.

Limitations

The intent of this study was to gain an understanding of the relationship between three variables which are difficult to define: adolescent identity development, academic relevance, and academic rigor. While the research offered insight into each individual variable, a level of ambiguity persisted related to boundaries or parameters by which they should be measured. Consequently, clear measures for academic relevance and academic rigor are difficult to define (ACT, 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Oakes & Saunders, 2008; Porter & Polikoff, 2012; Venezia & Jaeger, 2013). Many state education departments have established accountability systems using measures of rigor, but no model integrating the measures into a viable instrument was evident (Conley, 2005, 2010, 2014). Likewise, the literature does not offer definitive insight into processes for measuring relevance among students. The researcher engaged in the task of developing a measure for academic relevance; however, availability of a measure for rigor will remain a limitation to the study. Additionally, the RAF will be a new instrument offered to the field and may require extended usage to solidify its reliability and validity. When comparing the reliability and validity of the RAF to the OMOIS, the value of multiple research iterations becomes evident.

A large sample size for this study was important in strengthening the validity of data collected (Field, 2009). The actual sample represented approximately 473 seniors, which was much smaller than desired in the initial research design. The time frame for implementation of the survey proved to be a limitation to having a larger sample size.

The final six weeks of school for eighth semester seniors was a very busy time; consequently, response rates were lower than the cooperating school district preferred.

The analysis of career exploration was limited by low levels of workplace experience within the sample. The absence of workplace experience for most students impacted the quality of data and the ability to make strong assertions since so few students participated. The maturity of career exploration programs in the cooperating school district will improve this limitation moving forward.

Low participation rates in coursework associated with academic intensity impacted the analysis negatively. While statistically significant findings were made, greater participation would have enhanced the reliability of the findings. Additionally, the calculation of core course criteria yielded very low scores. Finally, the International Baccalaureate courses were only available in one school.

Implications for Practice

The findings of this study established clear connections between relevance, identity, and rigor. The literature and findings both suggest that student engagement in rigor is a product of students discovering their personal passions and interests while engaging in coursework that is relevant to them as individuals. There are several implications for practice to support the concept of *rigor through relevance*. School systems seeking to enhance students CCR, will best serve their communities by establishing structures that support identity development. Specific structures include career exploration, systems of adult guidance and support, and focused career planning.

Conley (2010) acknowledged the need for both rigor and relevance in the American school system as he discussed the comprehensive high school:

The fundamental assumption of the comprehensive high school model, the backbone of the twentieth-century American secondary school, is that students have different interests and abilities and that high schools should offer a range of programs in response to these differences. Students then make intelligent choices guided by an enlightened sense of self-interest and an understanding of who they are and what they want to become. (p. 2)

Regardless of whether a student is planning to attend college or enter the workforce upon graduation from high school, they will all benefit from increased expectations for engagement in relevant and challenging coursework (ACT 2013b; Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Oakes & Saunders, 2008; Porter & Polikoff, 2012).

Identity Development

A key finding of this study is that identity matters related to engagement in both relevance and rigor. Schools that are truly focused on promoting CCR will establish systematic processes to support student identity development. Identity formation plays a significant role in personality development in adolescence, leading to a successful and healthy adult life (Erikson, 1968; Lippman et al., 2008). As adolescent experiences with exploration coalesce, varying levels of identity and self-concept emerge (Erikson, 1968; 1980). The process of exploration and the ensuing commitment experienced through adolescence ideally leads to a “strong sense of identity and a sense of purpose toward their future” (Kosine et al., 2008, p. 134). The education system is charged with the responsibility to help people find their natural talents and abilities. School processes can

aid students in unlocking their unknown aptitudes through exploration and creative expression (Pink, 2009; Robinson & Aronica, 2009, p. 16).

Individuals with a healthy sense of who they are and what they aspire to become are well equipped to face the challenges of life. A positive identity affords individuals with a clear vision of the personal future to which they aspire, while stimulating the confidence, self-efficacy, and sense of purpose that motivates them in life (Adams, 2010; Erikson, 1963, 1968, 1980, 1982; Kosine et al., 2008; Marcia, 1966, 2002; Pittman, 2010).

Career Exploration

Students benefit from “early and ongoing exposure to experiences and information necessary to make informed decisions when selecting a college or career that connects to academic preparation and future aspirations” (Lee & Bell, 2011, p. 10).

Career oriented exploration opportunities that afford students the opportunity to engage in workplace experience will greatly enhance their preparation for postsecondary opportunities.

Active exploration exposes students to a variety of opportunities and experiences that support a growing sense of who they are and what they aspire to become. Reflection on experiences in light of personal interests and aspirations supports quality decisions related to college and career options. School cultures that support students in both personal and career exploration best equip them to make decisions about their future aspirations and goals (Bangser, 2008; Conley, 2010, 2014; Conley & McGaughy, 2012; Erikson, 1980; Kosine et al., 2008; Hughes & Karp, 2004; Lee & Bell, 2011; Lippman et al., 2008; Schneider, 2007, 2009).

Adult Guidance and Support

While the exploration process is largely an individual experience, Super (1978) recognized that the experience is not devoid of outside influence. In fact, he acknowledged the environment or context in which an individual operates can “both limit and facilitate individual development” (p. 336). Viewing exploration as a function of organizational setting, Super (1978) proposed the organization effectively influences career development based on their “provisions for career exploration and planning” (p. 336). Engaging the larger school community to support adolescent exploration through means such as mentoring, job shadowing, or internships provide excellent “modeling and vicarious learning” (Blustein, 1997, p. 263) opportunities for young people. Exploration leads to a maturation of career development as “the individual crystallizes his or her career interests by narrowing choices, specifies a vocational choice, and then implements the choice by making it a reality via training, education, and work” (Kosine & Lewis, 2008, p. 231).

School counselors face an extremely important challenge of meeting the college and career readiness needs of their students. Current literature suggests this challenge may be a responsibility of school counselors, but the full burden of responsibility does not rest on them alone. The creation of a college and career oriented culture within schools will share this responsibility in a more efficient and effective manner (Bangser, 2008; Conley, 2005, 2010, 2014; Deal & Peterson, 1999; Symonds et al., 2011; Hooker & Brand, 2010; Kosine & Lewis, 2008; McDonough, 2004; Oakes & Saunders, 2008; Schneider, 2007, 2009).

Career Planning

The challenge facing many students is a misalignment of career ambitions with their understanding of the educational requirements to make their ambition a reality. Schools that have established effective college-going cultures are most successful in capitalizing on the energy of ambitious adolescents to increase engagement in rigorous and relevant studies. Students with aligned ambitions are most likely to embark on a journey toward their career goals, choose appropriate postsecondary opportunities, and make educational and work decisions that lead to the achievement of their goals (Conley, 2005, 2010, 2014; Kosine et al., 2008; Oakes & Saunders, 2008; Robinson & Aronica, 2009, 2013; Schneider, 2007, 2009; Tang, Pan, & Newmeyer, 2008).

Career planning is a central tenet to support student pursuit of aspirations and goals that emerge from effective exploration and support systems. Quality career planning includes alignment of secondary coursework, workplace experiences, college visits, and attendance at college and career fairs to support progress toward stated goals. Student engagement and ownership of career planning supports the authenticity of their interests and career aspirations (Conley, 2005, 2010, 2014; Johnson et al., 2010; Kosine & Lewis, 2008; Oakes & Saunders, 2008; Schneider, 2007).

Recommendations for Future Research

This study revealed significant results regarding the relationship between relevance, identity, and rigor. During the course of data analysis, several topics have emerged as opportunities for future research. Limitations in the current study, such as small sample size and frequency of exposure to workplace experiences, can be addressed by further research into the role of school counselors as leaders, impact of workplace

experience on occupational identity development, exploration of how identity develops over time, analysis of career exploration variables related to identity, and exploration of findings for ACT composite.

School counselors possess the expertise and experience to support a college and career oriented culture in schools. However, student to counselor ratios are consistently so high that counselor effectiveness is impacted negatively (Johnson et al., 2010). Data from this study indicated parents or guardians and teachers are perceived by students as significant resources in their career exploration process. A study of best practices for counselor leadership in support of college and career oriented cultures may support improved perceptions of school counselors.

The study provided minimal data on the impact of workplace experience. The absence of significant levels of workplace experience among the sample prompted questions about the relationship workplace experience has with occupational identity. Further research in this arena may provide additional insight to support career exploration structures in schools.

The study examined identity development levels among eighth semester high school seniors. Findings provided insight into relationships between occupational identity status and factors of relevance and rigor. Further research on the development of occupational identity throughout the high school years may provide more data on the impact of CCR initiatives and ultimately how adolescent identity development is related to CCR.

The career exploration factor of relevance consisted of eight items. The literature supported the inclusion of each item as a variable to be included in the career exploration

factor. The overall career exploration factor had a low mean score. Further research to analyze each of the eight items in relation to rigor and occupational identity status may strengthen and focus the career exploration factor.

The study indicated a negative correlation between the adult guidance and support factor and ACT composite score. Data suggested increased scores in adult guidance and support would lead to slightly lower ACT composite scores. Further research into the factors that influenced this correlation may promote more effective systems of adult guidance and support in schools.

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APPENDIX A

Synthesis of Literature

Relevance

Alignment of Questions with Subscales

Numbers represent location of content on CCR survey

Career Exploration

(Kosine & Lewis, 2008; Super, 1953, 1954, 1973, 1980; Super & Hall, 1978)

Career inventories, such as Missouri Connections and ACT Career Profiler, provide you with insight into your personal interests and possible career options to consider.

4. My **career interest inventory** helped me explore my interests and career options.
5. I have participated in **clubs and/or activities** (FBLA, FTA, FCCLA, etc.) that are related to my career aspirations and goals.
6. I have participated in **community service**, service learning, and/or volunteering in areas that are related to my career aspirations and goals.
7. Presentations by **college representatives** at my school were helpful to me in exploring career interests and aspirations.
8. Presentations by **professionals in various career fields** at my school were helpful to me in exploring career interests and aspirations.
12. I have completed **career oriented research** as part of my regular coursework.
Job shadowing experiences consist of short term, work-based experiences in a particular career pathway that may last for a day or two.
26. My high school "**job shadowing**" experience was helpful to my career exploration.
Internships consist of work-based experience in a particular career pathway that may last for a semester.
27. My high school "**internship**" experience was helpful to my career exploration.

APPENDIX B

Synthesis of Literature

Relevance

Alignment of Questions with Subscales

Numbers represent location of content on CCR survey

Adult Guidance and Support

(Conley, 2005, 2010, 2014; Kosine et al., 2008; Oakes & Saunders, 2008; Schneider, 2007)

13. I have met with my **school counselor** for career guidance.
14. I have had conversations with my **parents** regarding my career goals and aspirations.
15. I have had conversations with my **teachers** regarding my career goals and aspirations.
16. A **teacher/staff member** has had a SIGNIFICANT influence on my plans or aspirations for after graduation.
17. A **school counselor** has had a SIGNIFICANT influence on my plans or aspirations for after graduation.
18. My **parent or guardian** has had a SIGNIFICANT influence on my plans or aspirations for after graduation.
19. My school was helpful in completing **applications for college**.
20. My school was helpful in completing the **FAFSA** (Free Application for Federal Student Aid) for next year.
21. My school was helpful in completing **scholarship applications** for next year.

APPENDIX C

Synthesis of Literature

Relevance

Alignment of Questions with Subscales

Numbers represent location of content on CCR survey

Career Planning

(Conley, 2005, 2010, 2014; Johnson et al., 2010; Kosine et al., 2008; Schneider, 2007)

9. My high school 4 year academic plan served as a guide to choosing my high school classes.
10. My high school 4 year academic plan was aligned to my personal interests and career aspirations.
11. I have a clear plan for what I will do next year.
22. I believe my high school coursework has helped me get ready for life after high school.
23. A school counselor has assisted me in creating a plan to reach my educational and/or career goals (23/28).
24. I visited a college campus which was helpful to me in exploring educational options for after graduation.
25. I attended a college and career fair which was helpful to me in exploring educational options for after graduation.

APPENDIX D

Synthesis of Literature Rigor	
Academic Intensity	
(Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Venezia & Jaeger, 2013)	
<i>Threshold Courses</i>	
1.	Algebra II or higher → Yes/No
2.	Math class in senior year → Yes/No
<i>Core Coursework completed as of graduation</i>	
3.	All course thresholds are met → Yes/No <ul style="list-style-type: none"> • 3.75 or more Carnegie units of English • 3.75 or more Carnegie units of mathematics • 2.5 or more Carnegie units of science or more than 2.0 Carnegie units of core laboratory science (biology, chemistry, and physics) • 2.0 or more Carnegie Units of foreign languages • 2.0 or more Carnegie Units of history and social studies • 1.0 or more Carnegie Units of computer science • 1.0 Carnegie Unit of Speech
<i>Advanced Placement or International Baccalaureate courses</i>	
4.	AP/IB course(s) completed → Yes/No
<i>Dual Credit or dual enrolled Courses (college credits earned)</i>	
5.	DC/DE course(s) completed → Yes/No
Benchmark Performance	
(Adelman, 1999, 2006; Conley, 2005, 2010, 2014; Porter & Polikoff, 2012; Venezia & Jaeger, 2013)	
<i>Standardized Assessment Performance (ACT)</i>	
6.	ACT Composite scores → 1-36
7.	Class Rank → Quintile based on class rank as derived from GPA (primary for class rank/GPA composite) Grade Point Average → Quintile based on 4-point scale (secondary to class rank)

APPENDIX E

Synthesis of Literature Identity Development <i>Alignment of Questions with Subscales</i> <i>Numbers represent location of content on CCR survey</i>
Identity Status (Occupational) (Erikson, 1963, 1968, 1980, 1982; Marcia, 1966, 2002)
<i>Achieved</i> 29. I've considered and reconsidered my passions and I know what to pursue in the future. 33. It took me time to decide but now I know the career to pursue. 42. I've thought about my personal interests and know what career I want to pursue now. 43. It took me time to figure it out, but now I know what I want for a career. 47. I've gone through a serious questioning about my individual passions and can now say I understand what I want as an individual. 52. I have thought about my interests and I have found my own passions.
<i>Moratorium</i> 36. There are so many different career options to choose from; I can't decide which to follow until I figure it all out. 41. I haven't made up my mind about future career goals because I'm not done exploring options. 44. Determining my future career goals is confusing to me and I keep searching for options on what is right and wrong for me. 48. I'm not sure about my career goals, but I'm trying to figure out what I can truly be interested in. 31. I just can't decide how capable I am as a person and what job will be right for me. 50. I just can't decide what to do for an occupation, there are so many possibilities.
<i>Foreclosed</i> 32. I have thought a little about what a job means to me but I mostly follow whatever my parents believe or think. 35. My parents decided what occupation I should have and I'm following their plans for me. 38. I'm pretty much like my parent(s) when it comes to interests and I will likely work in a career field similar to them. 46. My parents have always had their own opinions and beliefs about respectable and quality career options and I've always gone along accepting what they believe. 49. I share the same interests as my family always has and I've never questioned why. 51. I've never questioned my career plans as my parents know what is right for me.
<i>Diffused</i> 30. I haven't thought about my career goals and they aren't important to me. 34. When it comes to my personal aspirations and goals I haven't really looked for any career paths I want to pursue. 37. I don't give much thought to my future goals and it doesn't bother me. 39. I haven't chosen the occupation I really want to get into and I'm just getting along the best I can. 40. I don't have a firm stand one way or the other on my career aspirations. 45. I'm sure it will be pretty easy for me to change my occupational goals when something better comes along.

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

Introduction

Thank you in advance for participating in this survey. The following questions are about your thoughts, feelings, and experiences on a number of subjects related to your college and career readiness. Completing this survey will help the [redacted] Public Schools staff understand your career exploration experiences and how we might better prepare students in the future. Please answer the survey as thoughtfully and honestly as possible. Thank you very much for being an important part of this project!

- Please answer all of the questions by marking one of the answer spaces.
- Select the answer that comes closest to how you feel and/or what you recall.

In order to help the [redacted] Public Schools better understand college and career readiness among our seniors, your responses will be matched with your academic performance data so we can learn what best prepares students for college and career readiness. Your individual information will remain confidential and your identity will not be shared outside the [redacted] Public Schools.

After you have read this page, to begin the survey, please enter your student ID number.

1. Please enter your [redacted] Public Schools student ID number.

2. I am a senior at

- [redacted] school

3. As of right now, my primary plan for next year is to (check only one)

- attend a 4 year college or university
- attend a 2 year college, community college, or vocational school
- serve in the military
- work full-time
- I do not have a plan yet

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

Relevance

Directions: Read each item carefully and respond appropriately as the answer applies to you.

4. Career inventories, such as Missouri Connections and ACT Career Profiler, provide you with insight into their personal interests and possible career options to consider.

My career interest inventory helped me explore my interests and career options.

- Does not apply - I did not do a career inventory
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

5. I have participated in clubs and/or activities (FBLA, FTA, FCCLA, etc.) that are related to my career aspirations and goals.

- Does not apply - I did not participate
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

6. I have participated in community service, service learning, and/or volunteering in areas that are related to my career aspirations and goals.

- Does not apply - I did not participate
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

7. Presentations by college representatives at my school were helpful to me in exploring career interests and aspirations.

- Does not apply - I did not attend
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

8. Presentations by professionals in various career fields at my school were helpful to me in exploring career interests and aspirations.

- Does not apply - I did not attend
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

9. My high school 4 year academic plan served as a guide to choosing my high school classes.

- Does not apply - I did not do one.
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

10. My high school 4 year academic plan was aligned to my personal interests and career aspirations.

- Does not apply - I did not have a plan
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

11. I have a clear plan for what I will do next year.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

12. I have completed career oriented research as part of my regular coursework.

- Does not apply - I did not do any
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

13. I have met with my school counselor for career guidance.

- I do not recall meeting with my counselor for career guidance
- Probably once
- Twice
- At least three times
- Definitely more than three times
- Very frequently - more than I can count

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

14. I have had conversations with my parents regarding my career goals and aspirations.

- I do not recall visiting with my parents about my career goals and aspirations
- Probably once
- Twice
- At least three times
- Definitely more than three times
- Very frequently - more than I can count

15. I have had conversations with my teachers regarding my career goals and aspirations.

- I do not recall visiting with a teacher about my career goals and aspirations
- Probably once
- Twice
- At least three times
- Definitely more than three times
- Very frequently - more than I can count

16. A teacher/staff member has had a SIGNIFICANT influence on my plans or aspirations for after graduation:

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

17. A guidance counselor has had a SIGNIFICANT influence on my plans or aspirations for after graduation:

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

18. My parent or guardian has had a SIGNIFICANT influence on my plans or aspirations for after graduation:

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

19. My school was helpful in completing applications for college.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

20. My school was helpful in completing the FAFSA (Free Application for Federal Student Aid) paperwork for next year.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

21. My school was helpful in completing scholarship applications for next year.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

22. I believe my high school coursework has helped me get ready for life after high school.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

23. A guidance counselor has assisted me in creating a plan to reach my educational and/or career goals.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

24. I visited a college campus which was helpful to me in exploring educational options for after graduation.

- Does not apply - I did not visit a college
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

25. I attended a college and career fair which was helpful to me in exploring educational options for after graduation.

- Does not apply - I did not attend the career fair
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

26. Job shadowing experiences consist of short term, work-based experiences in a particular career pathway that may last for a day or two.

My high school "job shadowing" experience was helpful to my career exploration.

- Does not apply - I did not job shadow
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

27. Internships consist of work-based experience in a particular career pathway that may last for a semester.

My high school "internship" experience was helpful to my career exploration.

- Does not apply - I did not do an internship
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

28. A guidance counselor has assisted me in creating a plan to reach my educational and/or career goals.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

Occupational Identity

Directions: Read each item carefully and decide if you Disagree or Agree with it as it applies to you. Then select the level of disagreement or agreement from slightly, through moderately, to strongly agree.

29. I've considered and reconsidered my passions and I know what to pursue in the future.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

30. I haven't thought about my career goals and they aren't important to me.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

31. I just can't decide how capable I am as a person and what job will be right for me.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

32. I have thought a little about what a job means to me but I mostly follow whatever my parents believe or think.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

33. It took me time to decide but now I know the career to pursue.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

34. When it comes to my personal aspirations and goals I haven't really looked for any career paths I want to pursue.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

35. My parents decided what occupation I should have and I'm following their plans for me.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

36. There are so many different career options to choose from; I can't decide which to follow until I figure it all out.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

37. I don't give much thought to my future goals and it doesn't bother me.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

38. I'm pretty much like my parent(s) when it comes to interests and I will likely work in a career field similar to them.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

39. I haven't chosen the occupation I really want to get into and I'm just getting along the best I can.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

40. I don't have a firm stand one way or the other on my career aspirations.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

41. I haven't made up my mind about future career goals because I'm not done exploring options.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

42. I've thought about my personal interests and know what career I want to pursue now.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

43. It took me time to figure it out, but now I know what I want for a career.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

44. Determining my future career goals is confusing to me and I keep searching for options on what is right and wrong for me.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

45. I'm sure it will be pretty easy for me to change my occupational goals when something better comes along.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

46. My parents have always had their own opinions and beliefs about respectable and quality career options and I've always gone along accepting what they believe.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

47. I've gone through a serious questioning about my individual passions and can now say I understand what I want as an individual.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

48. I'm not sure about my career goals, but I'm trying to figure out what I can truly be interested in.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX F

April 2014 Measures of Rigor and Relevance in 8th Semester High School

49. I share the same interests as my family always has and I've never questioned why.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

50. I just can't decide what to do for an occupation, there are so many possibilities.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

51. I've never questioned my career plans as my parents know what is right for me.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

52. I have thought about my interests and I have found my own passions.

- Strongly disagree
- Moderately disagree
- Slightly disagree
- Slightly agree
- Moderately agree
- Strongly agree

APPENDIX G

Date: April 14, 2014
To: High School Principals
From: Secondary Operations
RE: **Diploma Project Advisory Committee: College and Career Readiness Student Survey**

The XXXXXXXXXXXX Public Schools *Diploma Project Committee* is in the process of exploring the frameworks of a new diploma that will maximize college and career readiness (CCR) among graduates. The committee's work has resulted in a focus on rigor and relevance as equally important components in promoting readiness. Student engagement in high levels of academic intensity and exploration of personal and occupational interests are a few of the activities associated with increased CCR. *The Diploma Project Committee requests your assistance by having seniors in the class of 2014 complete a CCR survey.* The data collected will serve as vital benchmark data to help the district understand the current state of CCR among graduates while affording the opportunity to set targets for improvement. The online survey will be available to schools beginning the week of April 21st. It is very important that the data collected include a maximum number of the nearly 1800 graduating seniors in our district.

The U.S Department of Education permits the use of a passive parent permission form. Parents must be informed of the survey, have a chance to ask questions, and have the avenue to request that their child not participate. The attached letter may be used for this purpose. You are encouraged to send the letter home with seniors, post the letter on your school website, and send out an AlertNow message to parents notifying them accordingly.

There will be multiple uses for this CCR data as the results will inform resource allocation decisions and improvement efforts in our school district. It is important that as many students as possible participate in the survey. The students take the survey on-line using a link provided to your school. Recognizing the limitations of computer lab availability, the survey is set to work well with individual smart phones or other portable devices with access to the internet. Otherwise, plans will need to be made for computer lab access. Student survey information will include their ID number, which will aid in linking performance data and transcript data with survey responses. All results will remain confidential, honoring the expectations of the Family Educational Rights and Privacy Act (FERPA).

REMEMBER: Parents only need to return the form if they do not want their student to participate in the survey.

Each building will decide the most efficient way to survey the students. You will need to designate a contact person for your building. Specific instructions and log-in information will be forwarded to them.

APPENDIX H

[REDACTED] Public Schools
College and Career Readiness Survey

Dear Parent/Guardian:

The School District of XXXXXXXXXXXX, R-12 will be administering a College and Career Readiness survey of seniors in the class of 2014. The survey will be administered beginning April 21, 2014 through May 2, 2014.

Your student’s participation in this survey is completely voluntary and confidential. Student identification numbers will be utilized to link their college and career readiness experiences with academic coursework and performance. The information learned through this survey will inform resource allocation decisions and improvement efforts in our school district. No identifiable information about your student will be shared outside the XXXXXXXXXXXX Public Schools. Your son or daughter may skip individual questions and may quit the survey at any time. The following are sample questions from the survey to which students respond on a scale of strongly disagree to strongly agree:

- I’ve thought about my personal interests and know what career I want to pursue now.
- I have participated in clubs and/or activities (FBLA, FTA, FCCLA, etc.) that are related to my career aspirations and goals.
- A school counselor has assisted me in creating a plan to reach my educational and/or career goals.

Results of the survey are used to assist the school district in:

- Benchmarking levels of college and career readiness among graduates
- Making decisions about resource allocations related to college and career readiness programs
- Improving the level of support provided to students as they explore personal interests and aspirations

Please return this form **ONLY** if you **DO NOT** want your son or daughter to participate in the College and Career Readiness survey.

Please contact Rhonda Mammen, Manager of Counseling Services (523-0063), if you have questions or would like more information about the survey.

Student Name: _____ Grade: _____
(Please Print)

I am requesting that the above named student **NOT** participate in the College and Career Readiness survey.

Parent’s Signature: _____

Telephone Number: _____ Date: _____

APPENDIX I

College and Career Readiness Data Collection on Rigor and Relevance

Thank you in advance for participating in this survey. The following questions are about your thoughts, feelings, and experiences on a number of subjects related to your college and career readiness. Completing this survey will help the XXXXXXXXXXXX Public Schools staff understand your career exploration experiences and how we might better prepare students in the future. Please answer the survey as thoughtfully and honestly as possible. Thank you very much for being an important part of this project!

- Please answer all of the questions by marking one of the answer spaces.
- Select the answer that comes closest to how you feel and/or what you recall.

In order to help us fully analyze college and career readiness among our seniors, your responses will be matched with your academic performance data so we can learn what best prepares students for college and career readiness. Your individual information will remain confidential and your identity will not be shared outside the XXXXXXXXXXXX Public Schools.

After you have read this page, to begin the survey, please enter your student ID number.

APPENDIX J

XXXXXXXXXX, MO 65810

February 1, 2015

Dr. [REDACTED]
Associate Superintendent
XXXXXXXXXX Public Schools
[REDACTED] Street
XXXXXXXXXX, MO 65802

Dr. [REDACTED],

I am engaged in dissertation research through the University of Missouri. The focus of my research is college and career readiness. I am exploring both academic rigor and academic relevance followed by reflections on the relationship adolescent identity development has with each of them. In support of my research, I would like to request your consent to access, analyze, and publish findings from archival data found in the XXXXXXXXXXX Public Schools data warehouse. The specific data requested includes:

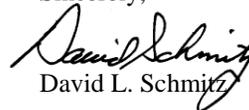
- Transcript data for seniors in the graduating class of 2014. Specific data requested includes the following areas:
 - Demographics
 - Record of courses completed in all academic areas
- Academic performance data to include:
 - ACT composite scores
 - Class ranking by high school
 - Grade point average on a 4-point scale
- Results for the Senior College and Career Readiness survey administered to seniors in the graduating class of 2014. The specific survey was administered in April 2014.

The archive data requested will be used in the aforementioned research project entitled “*College and Career Readiness: Exploring Rigor through Relevance and Its Relationship with Adolescent Identity Development*”. While the transcript data will be aligned to survey responses, no one will be able to associate student data with their identity. All appropriate measures will be taken to safeguard the privacy of individuals represented in the data.

Student academic information and input is important to the development of college and career programs. The purpose for this study is to examine the relationship between adolescent identity development, relevance, and rigor among high school students. The premise under investigation is rooted in the concept of building rigor through relevance.

Questions regarding the purpose or procedures of the research should be directed to Mr. David Schmitz at (417) 861-7802 or dschmitz@spsmail.org. This study has been exempted from Institutional Review Board (IRB) review in accordance with Federal regulations. An Institutional Review Board (IRB), a committee established by Federal law, is responsible for protecting the rights and welfare of research participants. If you have concerns or questions about the rights of your students, as research participants, you may contact the IRB Administrator at (573) 882-3181.

Sincerely,


David L. Schmitz

APPENDIX K



**Public Schools Exists For the
Academic Excellence of All Students**

To: David Schmitz
From: Dr. Cathy Galland
Date: March 16, 2015
Subject: Request to Conduct Research

Your request to conduct research proposal titled, *College and Career Readiness: Exploring Rigor Through Relevance and Its Relationship With Adolescent Identity Development*, submitted for consideration has been approved for data collection in [REDACTED] Public Schools.

Feel free to contact Dr. Cathy Galland if you have questions or need additional information.

Good Luck.

Dr. Cathy Galland
Facilitator of Operations, Secondary

APPENDIX L



Institutional Review Board
University of Missouri-Columbia

190 Galena Hall; Dc074.00
Columbia, MO 65212
573-882-3181
irb@missouri.edu

March 11, 2015

Principal Investigator: David L Schmitz
Department:

Your Exempt Application to project entitled College and Career Readiness: Exploring Rigor Through Relevance and Its Relationship With Adolescent Identity Development was reviewed and approved by the MU Institutional Review Board according to terms and conditions described below:

IRB Project Number	2001838
IRB Review Number	202493
Approval Date of this Review	March 11, 2015
IRB Expiration Date	March 11, 2016
Level of Review	Exempt
Project Status	Active - Open to Enrollment
Exempt Categories	45 CFR 46.101b(4)
Risk Level	Minimal Risk

The principal investigator (PI) is responsible for all aspects and conduct of this study. The PI must comply with the following conditions of the approval:

1. No subjects may be involved in any study procedure prior to the IRB approval date or after the expiration date.
2. All unanticipated problems, adverse events, and deviations must be reported to the IRB within 5 days.
3. All changes must be IRB approved prior to implementation unless they are intended to reduce immediate risk.
4. All recruitment materials and methods must be approved by the IRB prior to being used.
5. The Annual Exempt Form must be submitted to the IRB for review and approval at least 30 days prior to the project expiration date. If the study is complete, the Completion/Withdrawal Form may be submitted in lieu of the Annual Exempt Form
6. Maintain all research records for a period of seven years from the project completion date.
7. Utilize all approved research documents located within the attached files section of eCompliance. These documents are highlighted green.

If you have any questions, please contact the IRB at 573-882-3181 or irb@missouri.edu.

Thank you,

VITA

David L. Schmitz was born on February 16, 1970 in Rantoul, IL. He was raised in Richmond, MO as the fifth child of Bill and Dorothy Schmitz. Upon graduating high school, he attended the University of Missouri – Columbia where he completed a Bachelor of Science degree in Social Studies Education and earned his commission as a 2nd Lieutenant in the U.S. Army Reserves in 1992. David completed a Master's degree in School Administration from Pittsburg State University in Pittsburg, KS in 2000 and a Specialist's degree in School Administration from the University of Missouri – Columbia in 2003. After more than 22 years of service and a year-long deployment overseas in support of Operation Iraqi Freedom, he retired from the U.S. Army Reserves at the rank of Major in 2010. He has been married to Amy Schmitz for nearly 25 years and they have five children: Heidi, Paige, Camden, Cade, and Cael. The Schmitz family resides in Springfield, Missouri.

David's professional career began in 1992 at Nevada High School (MO) where he served as a Social Studies teacher and wrestling coach for eight years. Pursuing opportunities to grow as a school leader, he moved his young family to Fulton, MO where he served as an assistant principal at Fulton Middle School. Two years later, he accepted an administrative position in Springfield, MO where he has worked for the past 13 years. During his administrative career, David has served as an assistant principal at both the middle and high school level. He also served a year as principal at the middle level before taking a position as high school principal for seven years. He currently serves as Director of Operations for Secondary Education in the Springfield Public Schools.