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Evaluating The Alignment Of Indiana Career Advisement Practices With Projected Workforce Demands

Sandra Adams
Indiana State University

EVALUATING THE ALIGNMENT OF INDIANA CAREER ADVISEMENT PRACTICES WITH PROJECTED WORKFORCE DEMANDS

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by

Sandra Adams

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VITA

Sandra D. Adams

EDUCATION

2019	Indiana State University, Terre Haute, Indiana Ph.D. in Educational Leadership
2003	Bowling Green State University, Bowling Green, Ohio M.A. in Curriculum Design and Development
1991	University of Toledo, Toledo, Ohio B.S. in Secondary Social Studies Education

PROFESSIONAL EXPERIENCE

Present	Building Instructional Coach, Fort Wayne Community Schools Fort Wayne, Indiana
2012 – 2017	Race to the Top Grant Mentor, Ohio Department of Education Columbus, Ohio
2003 – 2012	Adjunct Professor, Wright State University, Lake Branch Campus Celina, Ohio
1999 – 2012	Social Studies Teacher, Fort Wayne Community Schools Fort Wayne, Indiana

COMMITTEE MEMBERS

Committee Chair: Bradley Balch, Ph.D.

Professor of Educational Leadership & Dean Emeritus

Indiana State University

Committee Member: Terry McDaniel, Ph.D.

Professor of Educational Leadership

Indiana State University

Committee Member: David Marcotte, Ph.D.

Executive Director

Indiana Urban Schools Association

Committee Member: Philip Downs, Ph.D.

Superintendent

Southwest Allen County Schools

Committee Member: Tonya C. Balch, Ph.D.

Professor of School Counseling

Indiana State University

ABSTRACT

This study builds on existing research indicating that career advisement practice can have a significant influence on student postsecondary success. This study was designed to identify how counselors perceive career advisement practice and projected workforce demands in order to evaluate how these constructs align to the work of Indiana state leaders. Research questions were designed to identify how counselors perceive their roles and decision-making processes. Research was conducted with two composite scores, including career advisement practice and perceptions of projected workforce demands. The intent was to identify if counselor perceptions were significantly different based upon school locale (i.e., rural, suburban, and urban) and counselor caseload (i.e., fewer than 299, 300-399, and 400 or less students). These scores were also used to evaluate whether the counselor views were in alignment to the state initiative of the Indiana Career Council (ICC). Within this study, 54 public high school counselors responded to a 24-question survey. The survey data were analyzed through a one-way analysis of variance. Implications were written to provide educators, state leaders, and business and industry leaders with a framework for applying this research to current practice.

PREFACE

The basis for this research stemmed from my personal interest in promoting an equitable approach to career advisement. Having taught in high schools for over 20 years, I have observed career advisement to be structurally flawed. The model of career advisement appears to be largely haphazard and largely dependent upon student initiative. I believe that marginalized students are often the ones who do not seek advisement and therefore, follow poorly designed paths or paths that do not lead to viable careers. Early in my professional career, I observed that trait matching was the primary technique for assessing student career aptitudes. I am somewhat of a futurist and am intrigued by the concept of *unimaginative blindness*, which holds that we often hold others and ourselves back from real possibilities because we cannot imagine it to be true. As an Advanced Placement psychology teacher, the more I learned about cognitive bias, overconfidence, and heuristics, the more I realized that career advisement practice was inherently flawed, and not by the fault of counselors themselves. When I read about the creation of the Indiana Career Council, I was immediately impressed with its core mission and vision. The aim was to train students specifically for the high-demand, high-wage career fields projected to be thriving across Indiana by 2024. In theory, it is promising, so I wanted to collect and analyze data to evaluate the real possibility of creating a better structure for career advisement.

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INTRODUCTION

This study focused on career advisement practices within Indiana high schools and counselor projections of high-demand, high-wage careers for the state. I approached the study from the perspective of the Indiana Career Council (ICC, 2014) framework, established in 2014 to promote Indiana's economic growth. I explored school counselor perceptions of advisement theories and practice throughout Indiana. The ICC intends for every citizen to have equitable access to the information and skill development required for wise decision making toward viable career pathways. I conducted quantitative research by obtaining data on three intersecting social constructs: counselor perceptions of career advisement practices for students, counselor perceptions of their role within a greater statewide framework of career advisement, and counselor perceptions of projected high-demand, high-wage pathways for Indiana. I then compared these data to the data included in my Literature Review from the U.S. Department of Labor, Bureau of Labor Statistics (USDOL, BLS) and the Indiana Department of Workforce Development (DWD) on actual career pathway projections. My goal in conducting this research was to identify any gaps between research and practice by measuring current advisement against projected workplace needs and the ICC state framework for career advisement.

Within the constructs of theoretical and practical career advisement, I explored two major sub-constructs. First, I studied the criteria and frameworks that direct counselors in their current practices of postsecondary advisement for high school students. Second, I studied counselor perceptions of how the knowledge economy is rapidly altering viable career pathways for

Indiana. Specifically, I attempted to determine whether counselors have an accurate perception of the projected work needed to drive the state's economy between now and 2024. Likewise, the study concluded if counselors accurately understand career readiness and the means by which advisement designs meet the needs of all students within the context of our rapidly changing economy. Third, I studied the social construct of the ICC (2014), which serves as the vehicle to promote economic growth for Indiana. The ICC seeks to align workplace training and career advisement of citizens with business and industry needs to ensure high-demand, high-wage work. Understanding each sub-construct of counselor perception allowed for the assessment and alignment of current school counseling practice with the ICC's economic projections.

Background of the Problem

In 2014, the Indiana legislature created the ICC in response to the need to transform the state's workforce. The ICC's (2014) vision is to ensure that "every Indiana citizen has access to the information, education and skills required for career success" (p. 5). The formation of the ICC has improved outcomes for adults, but the extent to which new information has reached high school students is unclear. Current high school advisement practices may not accurately align with the ICC's vision. Furthermore, counselor perceptions of high-demand, high-wage career pathways may not match the actual projected high-demand, high-wage jobs for the state. No researcher has yet assessed counselor perceptions of career demand or counselor practice of informing and equipping students. The ICC will not achieve its vision if high school advisement does not align with projected high-demand, high-wage jobs.

I proposed to study current high school career advisement practices to fill the gap in research. I provided data on counselor perceptions of both projected high-demand, high-wage

jobs and best methods for advisement to determine the changes needed within high schools to reach the ICC's (2014) vision of equitable and accessible career planning.

I grounded this research in the context of America's expanding knowledge economy in the age of globalization, which profoundly affects the nature of the workplace. The knowledge economy is the concept that applying information, rather than producing goods, is the new avenue for economic growth (Friedman, 2016). The demands of work are changing so rapidly that schools struggle to keep up in preparing students for the workplace. Friedman (2016) claimed over the past two decades that automation, digitization, and globalization are transforming work at a rapid pace. When one considers the three forces of automation, digitization, and globalization in connection with the current knowledge economy, the situation becomes more complex. According to Moore's law of 1965, the knowledge available to all people was expected to double every two years as computation became more mainstream (Intel Corporation, 2017). The availability of information has grown exponentially, as Moore predicted. However, researchers now know this pace of availability doubling is occurring every 20 months (Intel Corporation, 2017). Education leaders and teachers must recalibrate the old world of school to produce learners ready to handle the demands of the new world of work.

This new world of work depends heavily upon collaboration, ambiguity, agility, critical thinking, open sourcing, rapid automation, and an underlying assumption that workers can interface consistently with both the human and digital forms of communication. According to Friedman (2005), over the last several years more jobs have been lost to open sourcing, digitization, and automation than have been lost to outsourcing work to other countries. Harris (2018) noted that in finance, a once secure U.S. career field, more than 2 million jobs are projected to be replaced by artificial intelligence over the next decade. While acutely felt, such

losses of employment are not simple layoffs but are effects of the changing knowledge economy. While it is true that many American jobs have moved to developing countries like India and Mexico, the situation is far more complex than politicians would make it seem. Students lack the skills necessary to survive the rapidly changing world of work.

The intersecting forces of automation, digitization, and globalization are rapidly changing business and industry needs and compel different socioeconomic sectors to align efforts and communication. The ICC (2014) has adopted the term *silo* to symbolize the traditional approach of government, business, higher education, and school counselors all working independent of one another to prepare citizens for work. This isolation of silos from one another may disrupt the alignment of information and resources. Over the last decade, Indiana's legislatures and industry leaders have worked to connect traditionally independent silos of education and training to prepare citizens for the high-demand, high-wage work that is projected to drive the state's economic growth (ICC, 2014; Indiana DWD, 2017a).

Despite the prevalence of research and data indicating the projected high-demand, high-wage jobs needed for Indiana, data do not show that recent graduates are following the projected pathways (Fleck Education, 2015). According to the USDOL, BLS (2010), 60% of new jobs for the next decade will require some type of postsecondary education. High school advisement, training, and career information must prepare citizens for the projected job needs. Current data indicate that over the last five years postsecondary enrollment has decreased by 1.5%, highlighting the need to examine counselor perceptions and current practices in career advisement (Hudson & Boivin, 2018).

Despite understanding the importance of career advisement, state leaders have made limited progress at including guidance counselors in dialogue or research about how to achieve

the desired results (American School Counselor Association [ASCA], 2013). Researchers emphasized that the global knowledge economy may be best suited for state-type advisement theories, yet no researcher has formally assessed the theories that underlie current counselor practice in Indiana (Wagner, 2008). Research and literature pertaining to the ICC (2014) stated vision fails to include the need to evaluate counselor perceptions to determine if they are aligned to the Indiana DWD (2017a) projections. School counselors lack formal training on state workforce needs and may encounter disproportionate counselor-to-student ratios ("Career Counseling," 2013). The lack of research on Indiana's school counselors prevents further progress toward comprehensive career advisement strategies. School counselors, administrators, and teachers will play a critical role in the flow of information to produce citizens who are capable of navigating the new world of work (Wagner, 2008).

Problem Statement

A gap exists between the role of high school counselors, their perceptions of Indiana's projected work, and the ICC's (2014) goal that all citizens be provided access to the knowledge and skills needed for accurate career planning. This gap affects statewide economic growth indirectly and student postsecondary success directly. In a new knowledge economy, in which many jobs require postsecondary education, it is especially important to assess career advisement at the high school level. To improve both individual quality of life and the state's economic growth, extensive existing research indicates a critical need for equitable and accurate career advisement aligned to job projections for the next decade. While Indiana's Legislature, the Department of Education (IDOE, 2017b), and individual school districts have begun to focus efforts on college and career readiness (CCR) over the last decade, evidence shows that efforts are failing. Therefore, it was necessary to evaluate the alignment of current Indiana career

advisement practices and determine their effectiveness in preparing students to acquire projected high-demand, high-wage jobs.

Purpose Statement

The purpose of this quantitative study was to identify areas of alignment between the stated missions of the ICC (2014) with current career advisement practices throughout Indiana high schools. Data from the USDOL, BLS (2017) along with data from the Indiana DWD (2017c) will identify the most viable career pathways needed to support the state's economic growth, for both career pathway and standard occupational careers perspectives. A survey administered to Indiana 9-12 public school counselors resulted in quantifying a composite score for counselor perceptions of high-demand, high-wage projected jobs and current career advisement practices. From this data set, the independent variables included school locale (rural, suburban, and urban) and counselor caseload (299 or fewer, 300-399, and 400 or more). The dependent variables included counselor career advisement practices and counselor perceptions of high-demand, high-wage job projections for Indiana between now and 2024.

Significance of the Study

This research fills a knowledge gap between state legislators, the IDOE, and high school leaders and counselors about career advisement in the knowledge economy. State education leaders may better understand the importance of school guidance counseling for career advisement. State leaders will be able to use research data to disrupt the system of state institutions operating as silos, independent from one another. Individual students and their families will benefit personally. Marginalized families often lack the resources to access accurate job projections and apply that knowledge to career planning. No one has studied high school counselor practice in Indiana to evaluate whether counselor perceptions match with job

projections provided by the ICC. Throughout the last century, career planners and advisors focused largely on trait theories in which advisors matched personality traits to clusters of occupation-oriented traits (IDOE, 2017c). However, there is ample research to demonstrate that the knowledge economy demands advisement on a larger scope, which involves more variables than traits (Friedman, 2016; Kelly, 2017; Wagner, 2008). Further, advisement practices frequently emphasize internal satisfaction and work that has personal meaning. This research highlights the need to examine further the external factors of career planning and the evolving workplace demands for the knowledge economy age.

This research study has practical implications for the ICC (2016), state education leaders, school guidance counselors, students, employers, and Indiana's state economy as a whole. The ICC may collaborate with schools, using the collected data, to align advisement to the work being created in different regions of the state. Counselors may benefit by understanding the various postsecondary options that exist for establishing talent pipelines, thereby helping students to avoid acquiring college debt for unprofitable degrees. "By establishing a pipeline of talent through work models, employers can streamline recruiting costs and ensure that" (Batelle Memorial Institute, 2012, p. 1) the new workers they invest in have proven their skills and competencies. This would create an ideal situation that would result in developing emerging talent for a company's future hiring needs and promoting state economic growth (ICC, 2014). In a recent study, the Battelle Memorial Institute (2012) reported "that among state students who complete an internship in Indiana, 73% were either employed or continuing their education and remained in Indiana, compared to 64% who did not complete an internship" (p. 2). State education leaders and individual students will benefit by examining this research to consider how to use internships within career advisement and the scope of the ICC's planning, allowing the

state to solve problems through new information and innovative insights provided by systematic study.

Research Questions

This study encompassed the following research questions to drive the research:

1. What is the state of Indiana 9-12 school counselors' self-ratings regarding knowledge of career advisement practices and perceptions of high-demand, high-wage careers?
2. Is there a significant difference based upon school locale type (i.e., rural, suburban, and urban) in career advisement practices?
3. Is there a significant difference based upon school locale type (i.e., rural, suburban, and urban) in perceptions of projected high-demand, high-wage careers for Indiana?
4. Does an Indiana 9-12 school counselor's student caseload explain a statistically significant amount of variance in career advisement practices?
5. Does an Indiana 9-12 school counselor's student caseload explain a statistically significant amount of variance in perceptions of high-demand, high wage career pathways?

Conceptual Framework

I outlined in detail the conceptual framework for my research throughout the literature review in Chapter 2. The conceptual framework for this research hinged on five separate but intertwined social constructs: (a) the rapidly changing workplace that reflects the knowledge economy, (b) the forces of continuity and change in career advisement theory over the last century that reflect such rapidly changing economic conditions, (c) the creation of the ICC, (d)

perceptions and practice of school counselors on career advisement, and (e) the role of Career and Technical Education (CTE) in career advisement over the next decade.

Definitions of Terms

Knowledge economy: The term "was coined in the 1960s to describe a shift from traditional economies to ones where the production and use of knowledge are paramount. Academic institutions and companies engaging in research and development are important foundations of such a system" (Piotrowski, 2016, para. 4).

High-demand, high-wage jobs: Indiana's state definition for these criteria are identified by the Indiana DWD and is based on the future growth and wages. Occupations are high wage when at least half of their wage measures above regional average for all occupations and the demand shows a rate of growth above the standard 6% growth established by the USDOL, BLS (2017).

Market place differentiation: This is a social construct that describes the continued division of labor and specialization within labor markets, as markets increasingly move from physical world to a digital world (ICC, 2015).

Moore's law: The amount of knowledge available was expected to double every two years as computation became more mainstream (Intel Corporation, 2017).

Open-source: The term coined in 1988 to describe how software and digital platforms can become open property (Friedman, 2005).

Skills gap: Skill gap is the difference in the skills required on the job and the actual skills possessed by the employees. Skill gap presents an opportunity for the company and the employee to identify the missing skills and try to gain them (ICC, 2014).

Summary

I proposed to study career advisement practices within Indiana high schools in 2018 to fill a gap in research. Advisement duties have historically fallen to guidance counselors, yet no researcher has yet assessed the perceptions or practices of career counselors in Indiana high schools specific to job projections within the knowledge economy. I collected data on counselor perceptions of projected high-demand, high-wage jobs and on counselor perceptions of best methods for advisement to determine whether the existing perceptions and practices match the actual projected high-demand, high-wage jobs in Indiana.

I grounded this research in the historical context of America's expanding knowledge economy in the age of globalization, which profoundly affects the nature of the workplace. Given the marketplace differentiation that exists in 2018, as labor markets move rapidly from the physical world to the digital world, career advisement has become increasingly important. I closely examined the historical context of advisement theories developed in response to changing economic conditions, and I found that an internal perspective of career counseling has dominated in the United States throughout the last century. Career selection theorists ground their work in psychology, developmental psychology, and sociology rather than external economic factors (Lent & Brown, 1996). Additionally, data from outside the context of Indiana high schools show that advisement practices frequently follow the same internal theoretical focus, emphasizing internal satisfaction and work that has personal meaning. It is necessary for theoretical models of advisement to meet practitioner models, yet the models and practice of career advisement in schools is likely incomplete.

The internal perspective of meaning making and personality trait matching is not in line with filling the skills gap that exists across the United States and in Indiana

specifically. Because of the knowledge economy shift, it was necessary to examine a corresponding theoretical shift to center on economic and external factors of advisement and to determine the extent to which the theoretical shift has extended to counselor practice. It was also necessary to examine counselor perceptions of best counseling practices in the knowledge economy. Since I found a similar internal emphasis among Indiana high school counselors, the data indicated a need for counselors to examine further the external factors of career planning and the evolving workplace demands for the knowledge economy age.

I focused on external factors of career advisement by surveying counselors about their perceptions of the current advisement practices and labor market projections for Indiana. In 2016, the ASCA released a compilation of empirical research studies to support the value of school counseling (Hudson & Boivin, 2018). According to Carey and Dimmit (2012), there is a growing body of data to support the effectiveness of data-driven school counseling practices. Multiple studies also were conducted to support use of comprehensive advisement models and to reduce the counselor-to-student ratios for improved student outcomes (Bryan, Holcomb-McCoy, Moore-Thomas, & Day-Vines, 2009; Salina et al., 2013; Wilkerson, Perusse, & Hughes, 2013). According to researchers Wilkerson et al. (2013), counseling can influence student achievement and literacy gains when it follows a comprehensive, skills-based approach. However, the studies noted by the ASCA (2013) did not include research on counselors' perceptions of their own frequency and intensity of advisement practice, nor were counselor perceptions of practice related directly to counselor-to-student ratios. Researchers with ASCA concluded that counselor-to-student ratio was a primary factor in student achievement and postsecondary planning. However, more research was needed to show the relationship between counselor-to-student ratio and how counselors self-rate their own practice and perceptions of career pathways.

Moreover, research was also needed to determine the relationship between the counselors' school locale and their perception of advisement practice and projected careers within the knowledge economy. Given that counselors are a key gatekeeper to postsecondary success, a potential root cause of Indiana's current skills gap situation could result from rural cultural bias on the part of counselors (Bridgeland, Dilulio, & Morison, 2006; Rowe, 2016). I did not collect any data on student academic preparedness for projected jobs or other student-specific factors that may influence advisement, but instead limited the scope of my research to the perceptions and practices of counselors. I analyzed the data to determine the changes needed in high schools to achieve equitable and accessible career planning in Indiana schools.

For the economic future of Indiana over the next decade, it is necessary not only to prepare graduates academically for future careers but also to advise graduates toward career pathways for the high-demand, high-wage work projected to exist. This research study will be significant to the ICC, state education leaders, school guidance counselors, students, employers, and Indiana's state economy.

CHAPTER 2

LITERATURE REVIEW

In this chapter, I present literature relevant to the convergence two constructs: student career advisement practice in Indiana and the projected high-demand, high-wage career fields for the next decade of economic growth. Preparing the next generation of workers for thriving career fields in Indiana requires a study of the rapidly changing knowledge economy to determine the most viable career fields for students to pursue. The literature is pertinent to the intersection of rapidly changing economic conditions due to digital globalization; the creation of high-wage, high-demand jobs; and the ubiquity of low-cost computing.

I analyze the historical context of career advisement theories and show how each of five dominant theories reflects the economic situation of its era. I will compare these historical theories and workplace needs to the theories and needs of the knowledge economy, which began with significant innovations between 2007 and 2008 (Friedman, 2016). This chapter includes my analysis of U.S. job data from the USDOL, BLS (2010) coupled with data from Indiana's DWD (2017a) and compared to median income levels within the nationally recognized 16 career clusters. This chapter examines high-demand, high-wage job projections through the federal government's 16 standardized occupational classifications. The USDOL, BLS categorizes jobs into 16 career clusters, and the IDOE (2017a) currently recognizes 11 of the career clusters. Next, I will review the efforts of Indiana's legislators, IDOE, schools, counselors, and leaders in CTE to restructure career advisement in accordance with the identified economic changes. Finally, this chapter ends with a comparison of successful international reform efforts to

restructure career advisement practices. This comparison will show whether Indiana may implement similar efforts with the same success.

Continuity and Change: Historical Context of Career Advisement Theories

As the United States emerged from the 19th century as the world leader in agricultural and industrial production, policymakers, educators, and business leaders initiated conversations about career development and the growing needs of the U.S. workforce. Smith and Hughes were national political leaders who successfully fought for the passage of the National Vocational Education Act of 1917 (Moore, 2017) to prepare men across the country for the increasing demands of farming and industrial work. While this act marked the beginning of vocational education, it was doubly influential because it also made possible conversations about the theoretical frameworks for career development. Throughout the last century, researchers have revised career advisement theories continually to reflect technological advancements and specific needs of displaced workers within each phase of globalization. The work of five leading theorists shows a continuity of career advisement practices even while theorists acknowledged the need for changes on behalf of displaced workers during each period.

Frank Parsons

Just a few years before Smith and Hughes' National Vocation Education Act, Progressive Era reformer Frank Parsons had discussed the need to determine a person's individual suitability for particular work in his posthumously published 1909 work, *Choose a Vocation* (as cited in Parsons, 2012). By 1909, the Industrial Revolution had created a society of extreme inequities of income distribution. With the exception of wealthy industrialists and their select managers, most U.S. workers survived on wages of $1 per day (Goldin, 1998). In this context, Parsons' book presented a novel concept: Individuals could choose a career path rather

than be thrust into the factories, coalmines, and steel mills of the 19th century. People could lead more fulfilling lives, according to Parsons (2012), by matching their individual traits and strengths to specific work. Parsons' *Choosing a Vocation* foreshadowed the Smith-Hughes legislation that set into motion significant shifts in career planning that would continue with each shifting phase of globalization (Moore, 2017). Furthermore, his theories were coupled with the growing popularity of the high school movement within the United States (Goldin, 1998).

Among Parsons' (2012) greatest contributions to career development was that he laid the groundwork for a systemic approach to vocation within education and demonstrated that work choice should not be haphazard. Beyond the vocational theory itself, however, is another crucial point of Parsons' work. He included counseling as a key component of a seven-step process in which a student would review data, self-analyze, learn about different occupations, and choose a career path with a counselor's guidance (L. K. Jones, 2017). By asserting his theories on vocational choice in an age marked by an inhumane, disposable view of industrial workers, Parsons demonstrated how career advisement could improve individual lives and strengthen the overall American economy. Unfortunately, because high school enrollment and graduation data are only available at the national level, "the subject of secondary schooling has been a much-neglected part of American economic history" (Goldin, 1998, p. 349). Furthermore, Indiana has created the ICC in direct response to promoting the state's economic growth (Indiana DWD, 2017c). Therefore, there is a need to have research on the nuances of career advisement in Indiana, and the lack of study has created a gap in knowledge. Therefore, Frank Parsons' particular impact on Indiana counselor practice is largely unknown.

John Holland

Following World War II, the U.S. economy began to shift increasingly from a manufacturing base to service-oriented business sectors, which eventually led to an economic boom. This boom is best evidenced by steady increases in the U.S. gross national product (GNP), which rose from 200 million in 1940, to 300 million in 1950, then reaching 500 million dollars by 1960 (Beard & Beard, 1921/2016). As with all economic phases, multiple forces converged to cause this boom. Most notably, dislocated World War II veterans used government GI bills to afford an education and restructure their own futures, which, because of their large numbers, restructured the future of our nation's economic landscape (Beard & Beard, 1921/2016). In totality, the GI bills worked to create a well-educated workforce, and within a decade, the middle class swelled. The booming economy reflected a resurgence of people pushing themselves to new limits and assuming challenges

It was within this Golden Era of economic growth that John Holland suggested a new frame for how Americans should rethink their career choices. His theory spread, likely due to the widespread need at the time to fit people to their work environment. Holland's theory expanded Parsons' original work by adding a new emphasis on affective psychology. Holland found that self-satisfaction and overall well-being coincided with work satisfaction and the ability to contribute genuinely to the workplace (as cited in Nauta, 2010). As the work of Myers and Briggs gained popularity with psychologists and U.S. policy-makers, career counselors began to view personality testing as a true empirical set of data they could use to inform the process of career decision making (Myers, 2014). When Donald Holland introduced his theory of career choice in 1947, he emphasized the role of personality in the workplace. Holland advocated the development of tools to assess traits empirically and encouraged the design of a

method of factoring those traits into a system that matches personality strengths to career fields (Lok, 2012). Although Holland's (1973) theory operated on a basic assumption that a certain purity existed in personality traits, most theorists accepted Holland's work overall.

Holland (1973) took a categorical stance, identifying six categories into which people fell and from which advisors should accordingly guide people into occupations. The six identified categories, which he abbreviated *RIASEC*, included realistic, imaginative, artistic, social, enterprising, and conventional (Nauta, 2010). Holland asserted that using personality categories would ultimately lead people to work alongside similar types, and coworkers would naturally value similar motivations, attitudes, and work contributions (Lok, 2012). Holland established a notion of what Collins (2001) called human physics and cohesiveness, where two plus two has the potential to equal far more than four, if the four people complement and challenge one another in value-shared work. In his book *Good to Great,* Collins (2001) supported Holland's contentions that both individuals and companies flourish when the right people are on the right "seats of the bus" (p. 51). The theory of career choice represented a groundbreaking approach during the late 1950s, but because of the gender bias inherent to the 1950s era, Holland's theories represented a tendency to limit women in terms of *best fit* to work. Later thinkers would need theories, not only to accommodate economic changes but also to conform to gender equality movements that were to follow (Nauta, 2010).

Holland's (1973) model also fit the 1950s cultural and economic mindset in another fundamental way. Because Holland saw his theory as an improvement to Parsons' (2012) earlier work on trait-factor matching as the most accurate and efficient means to design vocational plans, his approach was more concerned with a group sorting process. According to Holland, most people would have trait combinations that perfectly suited them to one of his six RAISEC

categories. As careers continue to become more individualized, future adaptations of Holland's work will continue to need revision. Holland's idea of personality categories continue to be popular today in the form of typologies such as the Big-Five Factor, the 16-Type Jungian Personality Test, and StrengthsFinder (Lok, 2012; Rath, 2017). Yet, modern researchers continually discredit personality types or methods that use categories or typologies (Friedman et al., 2016). Furthermore, recent research shows that workforce skills are in a state of significant flux due to digital globalization. In *The Global Achievement Gap,* Wagner (2008) recognized that high school students need exposure to skills such as networking, data analysis of multiple sources, and creativity regardless of career field. Wagner's point indicates a continued need to revise previously accepted categories for aligning advisement practice to high-demand work.

Donald Super

It was in the same context of America's Golden Era that Donald Super originated a different yet similar theory of career choice to that of his contemporary John Holland. As with Holland's theory, close examination of Super's (1976) work revealed that mid-century economic growth and a desire to realize human potential were both flourishing. With his model, the developmental self-concept, Super recognized more than the immediate need to feel a sense of self-actualization through contributions of work. Super recognized that all humans constantly change and grow as individuals and that work should not stifle growth, but rather that career paths should honor a person's abilities to contribute differently to work during different phases of life.

Super (1976) believed that to develop a full self-concept, people must respect the delicate interconnections of both nature and nurturing forces that create individuals. Work should complement a person's genetic strengths and personality types. According to Super, the

work itself continually reshaped and developed a person's natural talents. Thus, chronological age was not the only consideration in vocational maturity and vocational effectiveness. Super, with his developmental self-concept model, contended that people naturally move through five specific vocational phases: growth, exploration, establishment, maintenance, and decline. He recognized that human experiences continually reshape a worker's contributions, motivations, and abilities. In his recognition of human experiences, Super brought together the earlier psychosocial developmental theory of Erik Erikson (1982) and Abraham Maslow's (2018) hierarchy of needs, adding to the profusion of postwar thought about psychosocial development. The economic boom of the postwar generation provided the platform from which to launch all three theories (Beard & Beard, 1921/2016). Diminishing poverty and a growing middle class contributed to the emergence of a strong service-oriented economic sector, allowing Super to study career development in tandem with life phases and the concept of self-actualization. Super's work was timely for the rise in a service-oriented economy. Indiana economic growth for 2018 to 2024 also projects a 6% increase of newly created jobs from service-sector career clusters, which indicates a need to draw upon Super's work for future research (Indiana DWD, 2017a).

John Krumboltz

In contrast to Parsons (2012), Holland (1973), and Super (1976), Krumboltz and Levin (2004) developed their theoretical framework on career development during a decade of slowed economic growth. By the 1970s, the U.S. economy was moving toward deindustrialization (Beard & Beard, 1921/2016). Economic concerns grew in conjunction with escalating unemployment levels and inflation rates. U.S. dependence on the Organization of the Petroleum Exporting Countries (OPEC) for oil rose drastically. In the context of this economic phase, two

similar, yet unique, theories on career development became popular. In 1976, Krumboltz drew directly from the uncertainties of his time and suggested that there was power in indecision and that people gained power as they dealt with happenstance (Krumboltz & Levin, 2004). According to Krumboltz and Levin, since most people had a limited amount of power over their career path, the psychologically sound approach would involve acknowledging this limitation. Once a person realized that he could be optimistic about career planning, resiliency would develop, providing confidence needed to explore alternatives (Krumboltz & Levin, 2004). Current research on 21st-century workplace skills continues to emphasize the need for resilience and an openness to exploration. However, Krumboltz and Levin neglected to describe how resilience would naturally develop in the face of uncontrollable circumstances. They overlooked the possibility that people may not become resilient in uncontrollable circumstances. Being vulnerable and developing resilience may be important factors in career readiness, but career advisement theories must include practical explanations to be useful.

Krumboltz and Levin's (2004) planned happenstance theory started the first deliberate conversations about networking as a part of career development. While Holland (1973) and Super (1976) suggested that collaboration between workers of similar personality-vocational types significantly affects each person's career growth, theorists before Krumboltz did not include deliberate networking with people beyond a worker's natural vocation-oriented groups (Holland, 1973; Krumboltz & Levin, 2004; Super, 1976). The concept of networking and connecting with others appealed to people in a decade of unfamiliar technological advancements, transportation shifts, climbing divorce rates, and uncertain job markets, among other economic and social changes. In the planned happenstance theory, networking became an empowering and reassuring step as people learned to create their own pathways. Krumboltz and Levin's theory

and discussions of networking and connection reflected a desire for control amid economic uncertainty.

Another consequence of Krumboltz and Levin's (2004) theory and the economic instability of the 1970s was the inclusion of financial planning in career advisement programs. The planned happenstance theory represented an attempt to support both the psychological and economic needs of a client while guiding him or her cognitively toward a career plan (Lok, 2012). Krumboltz assigned a sense of implied duty to advisors that was reminiscent of Henry Ford's model of leadership. During the 1920s, Ford assumed responsibility to enlighten and empower his workers with classes on financial management, planning, and socialization processes. Ford saw in his role as employer a responsibility far greater than only providing a job and paycheck to his employees (Beard & Beard, 1921/2016). Krumboltz mimicked this attitude by acknowledging that the most effective models of career planning involved far more than aligning someone's personality and strengths to a career field (Lok, 2012). Krumboltz praised Super for following a life span and including aspects of the person's situation and self-concept beyond the workplace (as cited in the National Institutes of Health, Office of Intramural Training and Education, 2016). Krumboltz expanded the notion of career planning to encompass life planning for economically and socially uncertain times. Krumboltz drew upon psychology and mental health studies when he emphasized decision-making models that rested on two continually intersecting truths: people continually plan, and people execute plans within an ever-changing environment that they cannot necessarily control. However, Krumboltz's theory of career advisement continued to complement previous theories because they all shared a person-centered foundation. After six decades of career planning, the U.S. theoretical basis remained focused on how people are suited for types of work

rather than how work can be suited to different types of people (Kaminsky & Behrend, 2014). Leading theorists today like Wagner and Friedman contend that the knowledge economy now requires this shift (as cited in Wagner, 2008). Due to accelerated technological change, the capacity for critical thinking and collaborative problem solving will be far more important than personality matching to successful career planning in the near future (Wagner, 2008).

Albert Bandura

In the late 1970s, Albert Bandura (1985) continued the discussion of psychological components of career planning when he introduced his original thoughts on career development, the social cognitive theory. Bandura, in stark contrast to his predecessors, emphasized the cognitive processes that people undergo to choose careers rather than simply explaining the steps and context for choosing the best career pathway (as cited in Myers, 2014). According to Bandura (1985), vocational pathways result from specific cognitive processes that, when taken together, create a systematic approach to career choice. The cognitive processes are exposure, observation, attention, retention, and motivation (Bandura, 1985). Bandura theorized that people choose career pathways based on the experiences and opportunities to which they are personally attentive. His theory was a complement to the work of Super (1976), emphasizing the natural tendency for people to change career pathways as they age and gain more exposure to different forms of work. According to Bandura (as cited in Kaminksky & Behrend, 2014), however, all people have limited choices because they can only observe a limited number of careers. Since Bandura's time, however, technology innovators have continually redefined the limits of experience. Augmented reality and virtual reality tools, such as Google Hangouts and Skype Classroom, could be transformational to Bandura's ideas about exposure. Because of the technological advancements of the last two decades, researchers must revise career advisement

theories to emphasize the practical planning and experiential components of career choice (ASCA, 2013).

An underlying feature of the social cognitive theory is its action-oriented, problem-solving nature, wherein a counselor would guide and motivate a student to change the student's own situation. Bandura (1985) made an underlying assumption of continual learning, so Bandura's theory suits a population of job seekers who have the ability and resources for self-improvement. As the economically uncertain 1970s ended and workers gained prosperity and self-focus in the 1980s, Bandura's theory gained popularity as a theoretical framework. As prosperity increased throughout the 1980s, Bandura's social cognitive theory continued to dominate career-counseling approaches. As economic situations improved, more people gained access to positive formative experiences, so workers often became more willing to pursue education, apprenticeships, or promotions. Nationwide economic prosperity increased during the 1980s, leading to business growth, service-sector expansion, and more school funding (Beard & Beard, 1921/2016). As in the 1950s, Americans in the 1980s benefited from diminishing rates of poverty and a burgeoning middle class. The number of people living below the federal poverty line had dropped by nearly 4 million by the late 1980s (Beard & Beard, 1921/2016). Outward signs of renewed prosperity included the popularity of material culture, especially electronic devices, and an increase in college enrollment. The accumulation of wealth became common as credit cards became symbolic of the economic boom (Beard & Beard, 1921/2016).

One cumulative effect of rapid wealth expansion and use of credit for self-improvement at an escalated pace was a growing sense of the self-concept. Historians related self-concept with the term *Me Generation*, a term describing people who came of age during the economic boom and technological advancements of the 1980s (Beard & Beard,

1921/2016; Friedman, 2005). People once again felt a sense of control over their destinies, and the general ethos became a sort of rugged individualism and a Darwinian mindset. The times warranted career placement theories that placed the individual at the center of accountability. According to the social cognitive theory, an individual can plan his or her own pathway to a preferred future based on previous experiences (Kaminsky & Behrend, 2014). This theoretical framework fit well with the mindset of the time, and the social cognitive theory continued to dominate career-counseling approaches (Beard & Beard, 1921/2016).

One natural result of the focus on individual control and exposure was the belief that schools can assist students with career pathway development by exposing them firsthand to a variety of occupational and vocational experiences. With increasing technological advancements and the popularity of electronic devices, some critics in the 1980s began to see vocational education as an outdated model for career development (McCage, 2017). The career tracks were viewed as too limiting in light of new job creations and technological advancements. Job shadowing experiences became a greater focal point of advisement practices (Kaminsky & Behrend, 2014). Furthermore, the "technological revolution of the 1980s and 1990s brought a new entrepreneurial culture" (Maguire, 2013, para. 2) to the United States.

However, the 1980s economic boom did not manifest equally across all demographics (J. Jones, 2017). Between 1979 and 1985, there was a significant Black–White wage gap and a decline in relatively good-paying jobs for workers with only a high school diploma (J. Jones, 2017). In this 6-year period, many industries and occupations experienced racial disparity, but "racial wage gaps widened most in the Midwest and among men working in the manufacturing industry" (J. Jones, 2017, p. 13). Based upon current data, it is reasonable to conclude that Bandura's social cognitive theory of career advisement also was not equitably influential to all

racial groups during the 1980s. In 2018, the IDOE acknowledged that equitable career advisement is critical for schools. However, recent findings show that despite efforts to end racial disparity in career planning and inequitable opportunities for exposure, "Black-White wage gaps are larger today than they were in 1979" (Wilson & Rodgers, 2016, para. 1). High school career advisement practices must move beyond theoretical frameworks of career exposure to a system that accounts for the likelihood for racial disparity to occur.

An Analysis of the Age of Acceleration on Career Advisement Developments

Defining the Age of Acceleration, 2006-Present

Business analysts use a 2-year period, 2006-2008, to mark the beginning of a new economic phase in U.S. history: the age of acceleration (Parker, Alstyne, & Choudary, 2017). Defining features include information accessibility, computing, networking, and automation changing at a pace that career advisement cannot match. In fact, Friedman (2016) argued that the brief 24-month phase between 2006 and 2008 saw the convergence of the several innovations that together set a new accelerated pace of change unmatched by any other time period. Those innovations included the IPhone, Android, Netscape, Twitter, Facebook, and GitHub Repository (Friedman, 2016). According to Friedman, the current globalization era is marked by exponential growth, unlike any previous economic phase.

Global economies are increasingly connected, and businesses are exploiting the power of platform networks (Parker et al., 2017). Distinctions blur between consumers and producers. The Internet, which resulted in widespread digital globalization, no longer acts to simply connect consumers and producers. In the new market economy, entirely new business models, called platforms, include rapidly combining physical and digital economic activity at minimal cost, thus accelerating economic growth (Parker et al., 2017).

Friedman (2016) warned his readers of the need to adapt continually. In his work, *The World is Flat 3.0*, Friedman discussed the pace of change and the need for U.S. workers to realize that more jobs are lost due to dying markets and outdated industries than to outsourcing. This has a significant bearing on state efforts to streamline and improve career advisement practices. States like Indiana have recently responded to Friedman's claim by creating the ICC to work with data from state and national sources to identify accurately the career sectors expected to have the most significant growth. One result of the ICC efforts has been the adoption of the phrase *high-demand, high-wage* occupations to identify the career fields with greatest dual impact for both individual prosperity and state economic growth.

High-Demand, High-Wage Job Projections for Indiana

Interestingly, the rise of digital globalization paralleled the Great Recession and the industrial restructuring that has occurred throughout much of the United States since the late 1990s (Friedman, 2005). Lasting negative consequences of the 2008 recession included severe losses in banking, housing, and automotive industries alike. American workers in multiple industries felt the negative impact of market disasters (Beard & Beard, 1921/2016). Friedman (2005) emphasized that jobs paying between $14 and $21 per hour, coveted mid-wage jobs, made up about 60% of the jobs lost during the recession. However, in the years of recovering from the recession, mid-wage jobs have only been a quarter of newly created jobs. In contrast, minimum wage positions have constituted about 58% of jobs regained throughout the United States (Friedman, 2005). According to *Business Insider*, in 2016 six companies, that each pay largely minimum wage salaries, employed over four million Americans. Wal-Mart is the largest national employer, with most workers earning less than $10 per hour in 2017 (Maguire, 2013). Throughout *The World is Flat 3.0*, Friedman discussed the problem of worker exploitation and

asserted that it is essential for individuals to understand the underlying forces of globalization and learn the skills and mindset required to acquire high-demand, high-wage jobs of the future. Table 1 depicts BLS's 16 career clusters and their projected growth. Labor reports for the state of Indiana show a need similar to the national need to match the skills of future workers to the highest demand industries. By disaggregating all 16 career clusters into projected growth for the state of Indiana between now and 2024, the data reveal patterns showing which clusters will grow most in job creation (Carnevale, Smith, & Strohl, 2010).

By collapsing the 732 standard occupation classifications listed by the BLS with Indiana's DWD projected job growth, we can compile a list of the 20 most needed careers between 2018 and 2024 in Indiana (Indiana DWD, 2017a). These represent the viable pathways that students need to be prepared for during the process of career advisement from a labor-market projection perspective. High school students need advisement that includes a discussion of the projected careers and a working knowledge of the pathway postsecondary requirement. The pathway projections have taken into consideration significant technological changes, including artificial intelligence (AI), digitization, and automation (Friedman, 2016; Kelly, 2017; Parker et al., 2017).

Table 1

Projected New Employment, by Career Cluster, 2018-2024

Career Cluster	Base Employment	Projected New Employment (Annual)	Cluster Annual Growth	Average Salary (in dollars)
Hospitality	383,266	3,999	1.00%	22,945
Manufacturing	387,879	3,703	1.00%	40,230
Transportation	289,131	3,274	1.10%	36,114
Marketing Sales	352,858	3,085	0.90%	33,619
Business Admin.	355,482	2,969	0.80%	54,785
Health Science	148,886	2,900	1.90%	67,561
Construction	188,597	2,251	1.20%	47,624
Human Services	99,685	1,581	1.60%	29,690
Agriculture, Food	132,868	1,398	1.10%	33,676
Education, Training	143,684	1,162	0.90%	51,111
Law, Public Safety	84,925	778	0.90%	47,646
Research, Engineer	57,304	543	0.90%	70,984
Finance, Insurance	54,705	327	0.60%	50,453
Government Admin.	31,445	14	0.50%	46,075
Information Tech.	5,094	95	1.90%	112,440

Note. Adapted from "Employment and Wages from Occupational Employment Statistics," by U.S. Department of Labor, Bureau of Labor Statistics, 2017. Copyright by U.S. Department of Labor, Bureau of Labor Statistics. Reprinted with permission.

An analysis of the data in Table 2 clearly demonstrates that the high-wage aspect of career choice is in line with the state's projection that by 2024 60% of all newly created jobs will require some postsecondary education (Indiana DWD, 2017a). However, postsecondary education is a term that can have different meanings to career counselors. Literature often referred to postsecondary educational requirements in a generic manner, without stipulating the multiple possible pathways that lead to high-demand, high-wage careers (Carnevale et al., 2010; Indiana DWD, 2017c). This is another area that an external focus on career advisement could potentially be more helpful than the traditional internal focus. Research is needed to determine school counselor's perception of the many postsecondary options, ranging from advanced degrees, credentials, licenses, certification, to apprenticeship tracts (Carter, 1994). Recent national and state research studies discussed the need to approach rural school counseling differently than within urban schools. Data analysis within each of these three studies limits the definition of postsecondary to either a 2-year or a 4-year college degree (Anderson, 2017; Mader, 2015; & Pappano, 2017). This greatly underscores the potential of credentials, licensures, certifications, and apprenticeship tracts and highlights the need to identify how Indiana high school counselors perceive define postsecondary options within the context of college and career advisement (Indiana DWD, 2017c, Rowe, 2016). Conducting research where the operational definition of postsecondary is limited to only degree completion programs creates an incomplete data set from which conclusions are drawn. Further, research that determines counselor knowledge of the specific postsecondary needs of the top 20 Indiana projected pathways would benefit the ICC in determining the causes of the perpetuating skills gap. In 2016, labor market estimates showed that the national skills gap had reached 5.8 million jobs, the jobs that are

vacant because workers lack the appropriate vocational skill training needed to perform the job (Rowe, 2016; USDOL, BLS, 2010).

Given that nearly 40% of Indiana residents are classified as rural (Ayers, Waldorf,& McKendree, 2013), the recent findings that rural students are largely marginalized on college entrance takes on a greater importance for the state (Anderson, 2017). Nationally, the gap between rural and urban students is widening in both college enrollment and completion rates. National Student Clearinghouse data indicate that college enrollees are 29% rural students and 48% urban (Marcus & Krupnick, 2017). Research to identify root causes of rural student marginalization should include a self-rating by counselors into the frequency and intensity of career advisement practices. Further, research that identifies counselor perception of high-demand, high-wage pathways would aid the work of state legislators and education leaders. Super (1976) theorized that career advisement practice needs to account for numerous situational and personal factors as well. According to Pappano (2017), the 18% of Indiana rural students have less access to high-speed internet, college preparatory coursework, Advanced Placement coursework, and internship opportunities. This supports further research on both counselor perceptions of career advisement practices and perceptions based upon their school demographics. Given that counselors are a gatekeeper to postsecondary success, a potential root cause of Indiana's current skills gap situation could result from rural cultural bias on the part of counselors (Bridgeland et al., 2006).

Vocational skill advocate Rowe (2016) warned young people that choosing a career pathway based upon passion or internal advisement attributes during the knowledge economy can limit them from multiple opportunities for more successful careers, namely in the high-demand, high-wage pathways identified by the Indiana DWD (2017c). Table 2 underscores the

complexity of career advisement for the next decade of Indiana graduates. By comparing Indiana's projected new job creation to needed postsecondary education and high-wage potential, these data underscore the urgency and importance of the ICC (2016).

Table 2

Projected New Job Creation, by Career Pathway, 2016-2024

Pathway Name	Base Employment	Projected New Employment (Annual)	Pathway Annual Growth	% More than HS Diploma	Average Salary (in dollars)
Production Pathway	339,915	3,065	0.9%	28%	38,866
Restaurants and Food and Beverage Services Pathway	281,407	2,991	1.1%	15%	21,964
Therapeutic Services Pathway	108,857	2,161	2.0%	80%	59,477
Construction Pathway	144,429	1,800	1.2%	41%	50,701
Professional Sales and Marketing Pathway	164,762	1,793	1.1%	37%	40,602
Administrative and Information Support Pathway	167,497	1,370	0.8%	45%	34,510
Transportation Operations Pathway	123,594	1,307	1.1%	17%	39,796
Buying and Merchandising Pathway	188,096	1,292	0.7%	29%	27,503
Warehousing and Distribution Center Operations Pathway	106,465	1,286	1.2%	15%	30,885
Teaching/Training Pathway	114,056	952	0.8%	96%	48,840
Personal Care Services Pathway	53,906	917	1.7%	50%	24,938
Lodging Pathway	78,686	743	0.9%	11%	24,588
Management Pathway	68,607	733	1.1%	94%	87,658
Animal Systems Pathway	63,475	701	1.1%	36%	34,698

Pathway Name	Base Employment	Projected New Employment (Annual)	Pathway Annual Growth	% More than HS Diploma	Average Salary (in dollars)
Maintenance, Installation and Repair	41,762	599	1.4%	66%	50,296
Diagnostics Services Pathway	28,789	528	1.8%	96%	106,989
Facility and Mobile Equipment Maintenance Pathway	45,225	487	1.1%	47%	37,199
Business Financial Management and Accounting Pathway	78,567	402	0.5%	80%	62,952
Plant Systems Pathway	35,063	391	1.1%	17%	27,464
Maintenance/operations Pathway	35,293	370	1.0%	33%	31,449

Note. Adapted from "Projected Change in Employment by Industry 2012-2022," by B. Reetz and E. McCracken, 2012. Copyright 2017 by the Indiana Department of Workforce Development. Reprinted with permission.

ICC (2014) spokespersons emphasized the importance of the high-demand, high-wage pathways for advisement and training because these occupations will have an increased impact on the continuation of job creation and innovation for the state. The Indiana DWD (2017c) also recognized that within these data, state career pathways still are not in complete alignment with the 736 BLS recognized pathways. Table 2 data only include jobs for which the employment-to-income data on the state pathways matched the BLS list. Therefore, 612 of the 736 possible jobs matched the BLS list, and it appears that many jobs that failed to match were in the IT field, hence the low numbers in this chart. According to both Kelly (2017) and Parker et al. (2017), incomplete data due to mismatched BLS jobs is an expected problem given the acceleration of digitization and automation. Jobs within the IT career cluster are being created at an accelerated pace, making designing and tracking career pathways less accurate today than in the past.

Considering such gaps in accuracy, it is especially necessary in this Age of Acceleration to amend the incomplete models of career advisement (Wagner, 2008).

Funding from the Carl D. Perkins Vocational and Technical Education Act of 1998 (i.e., The Perkins Act) was restructured in 1998 to "permit funds to be used for career guidance and academic counseling for students' participation in vocational education programs" (Moore, 2017, p. 4). With the addition of career counseling, federal legislators acknowledged the deficiency schools experienced in the area of preparing students for the workplace. The Perkins Act allocates funds for training and resources of administrators, teachers, counselors, and parents in order to assist students with career choice decisions (Threeton, 2007). However, these abundant resources for career advisement are only made available to students enrolled in CTE coursework, representing another gap that could be addressed with the IDOE's newly designed graduation pathways (IDOE, 2017c). If the boards of the IDOE and ICC could work effectively with the Indiana Association of CTE, equitable distribution of the resources could be achieved. There is promise of better equitable career advisement for all Indiana secondary students if the state recognizes the advisement resources available to CTE schools and makes a CTE course a mandatory part of fulfilling graduation requirements.

In 2017, state legislators restructured the state funding of The Perkins Act monies, again reflecting the need to align career choice with the projected high-demand, high-wage jobs needed by the state for economic growth. This funding shift involves the reimbursement monies awarded to school districts upon a student's completion of a CTE course (see Table 3). As of 2017-2018, career pathways are labeled as either less than moderate wage, moderate value, or high value. These new designations are in total alignment to the high-demand, high-wage career clusters and career pathways for projected jobs (as detailed in Table 1 and Table 2). A

comparison of the career clusters and pathways that received large Perkins Act increases to the Indiana DWD (2017c) data on projected high-demand, high-wage jobs demonstrates that the state government has a stake in career choices and is attempting to persuade schools to advise more students into some career pathways. The following CTE 2018-2019 funding chart shows five career clusters as the most high-demand, high-wage clusters:

- Manufacturing, Transportation, Distribution, and Logistics
- Architecture and Construction
- Information Technology (IT)
- Scientific Research and Engineering
- Health Science

Table 3

CTE Pathway Funding Changes, 2018-2019

IDOE Course Name	**Current Funding Rate (2017)**	**New Designation (2018-2019)**	**New Funding Rate (2018)**
Cosmetology	$450	Less Than Moderate Wage	$200
Culinary Arts (I, II)	$500	Less Than Moderate Wage	$200
Radio and Television (I, II)	$500	Less Than Moderate Wage	$200
Graphic Imaging Technology	$500	Less Than Moderate Wage	$200
3-D Animation	$450	Less Than Moderate Wage	$200
Landscape Management	$500	Less Than Moderate Wage	$200
Banking and Investment	$500	Moderate Value	$400
Business and Marketing	$300	Moderate Value	$150

IDOE Course Name	Current Funding Rate (2017)	New Designation (2018-2019)	New Funding Rate (2018)
Advanced Accounting	$300	Moderate Value	$400
Computer Integrated Manufacturing	$450	High Value	$680
Digital Electronics Technology	$450	High Value	$680
Building Management (I, II)	$500	High Value	$680
Advanced Manufacturing (I, II)	$500	High Value	$680
Industrial Automation and Robotics	$500	High Value	$680
Civil Engineering	$450	High Value	$680
Welding	$500	High Value	$680
Construction Careers (I, II)	$500	High Value	$680
Health Science (I, II)	$500	High Value	$680
Dental Careers (I, II)	$500	High Value	$680

Note. CTE = Career and Technical Education; IDOE = Indiana Department of Education. Adapted from "Indiana Secondary CTE Funding Chart 2017-2018," by Indiana Department of Workforce Development, 2017b. Copyright May 4, 2017 by the Indiana Department of Workforce Development. Reprinted with permission.

Indiana Schools and Career Advisement

The Role of the Indiana Department of Education

In 2017, Indiana's vocational education landscape changed dramatically as the IDOE restructured high school diploma pathways to assist students in becoming college and career ready and constructing viable career pathways in accordance with Indiana job projections

(IDOE, 2017a). The three different diploma tracks created in 2017 included Indiana's Core 40 Diploma, Core 40 Diploma with Honors, and the Core 40 Diploma with Technical Honors, each with an emphasis on pursuing some type of postsecondary education or training (IDOE, 2017b). Prior to the 2017 change, there was no specific emphasis from the IDOE for students to pursue a CTE cluster, which demonstrates a different attitude on the part of Indiana policy makers. The IDOE's definition of a college and career ready student is an individual "who is college and career ready as an individual who not only meets the state's academic standards but who has the knowledge, skills and abilities to succeed in postsecondary education and economically viable career opportunities" (Fleck Education, 2015, p. 13).

To support the IDOE in this pursuit, Indiana lawmakers passed a career development law, advocating that schools promote career readiness across all content areas, classrooms, and grade levels across the state. The law does not define the practice of career advisement, but all districts are now required to expose students, in all grade levels, to a wide array of career clusters (Fleck Education, 2015). In 2015, former Indiana state superintendent Glenda Ritz made career readiness preparation a top priority for IDOE efforts with a concerted emphasis on middle schools. Yet, despite these efforts, there has not been a significant shift in the number of Indiana students enrolling in postsecondary education over the last decade (IDOE, 2013a). One reason for this may be found in how the state and school counselors define postsecondary enrollment.

According to a March 2018 report by the U.S. Department of Education, many school officials use only an educational degree beyond a high school diploma as an indicator of postsecondary achievement. When adults in the workplace are divided by any postsecondary degree or no postsecondary degree, the percentages in 2016 were 45% and 55%, respectively (IDOE, 2017c). However, when the definition of postsecondary is expanded to include

nondegree credentials, nondegree certifications along with degrees, the percent of adults lacking any postsecondary skill sets shrinks to just 42%. This is interesting and speaks to the cultural tendency of school leaders to maintain a negative image of CTE and trade skills in comparison to earning a 2- or 4-year degree (Carnevale et al., 2010). "CTE continues to face challenges with regard to its image as a low-level vocational education track that often leads to low-skill job with no intermediate postsecondary education" (Carnevale et al., 2010, p. 7). Research is needed to reveal counselor perceptions of postsecondary options and which pathways are best to secure a middle-class income in Indiana.

Recent Georgetown Center researchers claimed "that *middle skill* jobs [would] offer well-paying opportunities for those with less than" (Symonds, Schwartz, & Ferguson, 2011, p. 12) a bachelor's degree. Further, in 2009, a report released by the Council for Economic Advisors concluded that the fastest job growth is likely to come "among occupations that require an associate's degree or a postsecondary vocational award" (Symonds et al., 2011, p. 2). As noted by the Indiana DWD (2017c), these research conclusions are both in alignment with data on high-demand, high-wage job projections for Indiana (see Table 1 and Table 2). Despite internship, externship, and work-based learning opportunities that CTE students often experience, research still revealed that counselor perceptions of CTE programs reflect lower levels of academic rigor (Carnevale et al., 2010). In fact, data indicate that high school students who participate in a high school internship opportunity often experience less indecision about career pathway choice than their peers who do not participate (Battelle Memorial Institute, 2012). Again, the IDOE and ICC can only achieve their objectives of graduating college and career ready students who are prepared for the high-demand, high-wage projected jobs if school counselors who advise students have the appropriate knowledge and training.

The Role of High School Guidance Counselors

The role of the high school guidance counselor in advising students for career development involves the intersection of theory and practice. While theory serves as the lens for evaluating personal traits and matching traits to career fields, counselors must also consider job projections, the needs of local and regional economies, placement levels, pathways that match school curricula, and the role of technology (Tieger, Baren-Tieger, & Tieger, 2014). Because no single theory of career development is comprehensive, counselors frequently adopt a holistic approach in guiding students toward a self-directed study of career development (Hughes & Karp, 2004). U.S. schools still receive funding from local and state governments, despite pushes by No Child Left Behind legislation toward federal funding initiatives (McCage, 2017). Consequently, each public-school district in the United States could approach career development counseling slightly differently. Counselors also advise on local, regional, and national job forecasts within different occupational sectors, matching those forecasts to individual needs and wants (Lok, 2012). The wide array of potential data on nationwide counselor practice indicates a possibility for many future studies.

According to a 2004 research study on school-based career development by Hughes and Karp, a national poll of guidance counselors showed that "only 8% of school counselors said that their most emphasized guidance goal was helping students plan and prepare for their work roles after high school" (p. 7). Counselors and researchers often identify the distribution of counselor time as a problem for creating accurate advisement systems. However, to work around time constraints, many counselors provide technological inventories that students can use independently alongside college catalogs and non-computerized career information (Parsad & Lewis, 2003). Counselors commonly collaborate with parents and teachers to embed guidance

activities into coursework and conferences (Hughes & Karp, 2004). Nevertheless, the effectiveness of embedding activities is difficult to measure. National counselor education surveys do not specify the length of time spent on individual conferencing, making it difficult to measure the validity of counselor-led advising practices (Parsad & Lewis, 2003).

Furthermore, the varying content of individual conferences and inventories also makes measuring the effectiveness of counselors on career choice an imprecise task (Parsad & Lewis, 2003). In accordance with state law on career education, all students must meet yearly with a counselor to review the career plans that the students began creating in Grade 6. Because this law went into effect in 2015, the first group of sixth graders to devise and continually revise career mapping plans entered eighth grade in 2017. However, according to Hudson and Boivin (2018), Indiana ranked 42nd in the nation for the ratio of counselors to one student. The data analysis on counselor ratios indicated that in Indiana in 2013 there was one counselor for every 541 students. Another survey collected by the IDOE (2017c) indicated that schools provide on average one high school counselor for every 619 students. Since the ASCA recommended a 250:1 student-to-counselor ratio, these statistics demonstrate a need to research.

Theory and Practice of High School Counseling

Educational leaders and organizations have continually adapted career-counseling theory to the wider cultural and economic context, but counseling practice has not necessarily progressed at the same rate. "Never before in the history of our nation have we had a greater need to prepare every student for the greatest range of opportunities after leaving high school," stated Patricia Martin, Vice President for the National Office for School Counselor Advocacy (NOSCA; College Board NOSCA, 2010, p. 2). In response to the ever-growing achievement gaps and skills gap in American high schools, the ASCA revised their framework for the

expected roles of a counselor. In close alignment to previous College Board revisions for counselors, the new guidelines indicate that counselors should spend 80% of working hours in the direct delivery of services to students and in responding to socio-emotional problems (ASCA, 2013). The new guidelines contrast starkly with recent Butler University survey results from counselors who completed the graduate secondary counselor program. Participants rated their confidence and competency levels in eight counselor performance fields. College advisement and career advisement ranked as the lowest two areas (ASCA, 2013). To increase counselors' efficacy in career and college readiness (CCR) measures, the ASCA recently initiated "eight components of college and career readiness counseling" (College Board NOSCA, 2010, p. 3). These eight components are

- college aspirations,
- academic planning for college and career readiness,
- enrichment and extracurricular engagement,
- college and career exploration and selection processes,
- college and career assessments,
- college affordability planning,
- college and career admission processes, and
- transition from high school to college enrollment. (College Board NOSCA, 2010, p. 4)

Individual student planning includes a designated focus on systematic planning to guide students to achieve personal goals and appropriate career pathway action steps. According to educational sociologist Corbett (2009), the chronic uncertainties of modern life and the rapidly changing knowledge economy demand school counselors greatly expand advisement practices.

This reprioritization of counselor time allocation represents a greater emphasis on individual career advisement with traditional revisions. Leaders of both the ASCA and College Board have demonstrated that a restructured counselor schedule is fundamental to providing equitable access to career planning for all students. In a closer examination of the root causes of poor college and career advisement, ASCA also advised schools to maintain a ratio of one school counselor to every 250 students (ASCA, 2013).

Career counseling can only be transformative if it is also equitable. Data from the Educational Longitudinal Study of 2002 (Harackiewicz, Barron, Tauer, & Elliot, 2002) supported the need to decrease the ratios of counselor to students. High school students who visited their school counselor for college information in a one-to-one situation were more likely to apply for college (Bryan et al., 2009). School leaders need to view counselors as influential social capital, having the ability to influence every student. The marginalized impact of CCR must reach all socioeconomic sectors of student populations. One problem area is that counseling individual students on college and career skills must become a priority. For counselors to reach individual students, the counselor-to-student ratio must be 1:250 at most (Soden, 2017). Nevertheless, structural and scheduling approaches are not the only solutions. A more fundamental problem is how counselors implement the advisement and whether the scope of delivery is equitable.

The research literature in Indiana lacks any investigation into how counselors identify a career field for each student and whether these career fields are in alignment with projected jobs for Indiana. Research that clearly identifies Indiana's mainstream advisement practices within the public 9-12 school context is needed. Literature is dominated with trait-type theories of advisement, where personality traits are matched with jobs defined by similar trait types.

Further, research needs to be conducted to determine the extent to which career advisement practices are defined by internal factors like trait types and meaningful work, in comparison to external factors like job availability, regional influences of work, and projected pathway potential for growth. According to researchers Wagner (2008), Friedman (2016), and Parker et al. (2017), knowledge economy workplace changes require a shift to a focus on the external factors of career advisement during the high school years. Research seems to be lacking with respect to state or situational career advisement practices. Most current research conducted on state versus trait theories is focused on anxiety and stress measures within the workplace (Soden, 2017). Therefore, despite the continued dominance of trait-centered theories, analyses of current job performance measures indicate that state or situational theories will better serve graduates entering the 21st century workforce (IDOE, 2017c). State career advisement theories would include an analysis of the capacity needed for critical thinking within different career pathways, which could serve as a tool for counselors to guide students instead of personality traits. Wagner and Friedman both made strong claims that all work in the near future will require some degree of collaboration and innovation, indicating that students scoring high on an introvert scale would be unsuitable for many careers.

Career advisement theories and practices originated during the early 20th century after economic changes necessitated better alignment of workers to high-demand work (Moore, 2017). Over the last century, career advisement theories and practices have continually evolved to meet economic shifts and technological changes. Considering the rise of the knowledge economy and the rapid change of the digital age workplace, contemporary researchers have evaluated the projected needs of the Indiana economy and workplace to determine the career advisement practice and theoretical changes that may prevent a skills gap. The necessary extension of this

research is to ensure that counseling practice adapts accordingly. In accordance with Moore's law and the knowledge economy, career pathways will continually evolve and new jobs will be created continually. This fact changes career advisement theory and practice. The external attributes of career planning include job projections, knowledge and skills needed for work, and regional job creation. Taken together, these attributes constitute ever-present attributes of work. Therefore, counselors will need to work systematically with the Indiana DWD (2017c) and ICC (2015) and develop a system that can continually adapt, including accurate projections of high-demand, high-wage jobs.

According to Bridgeland et al. (2006) in *The Silent Epidemic*, there is another piece central to the career advisement problem within the knowledge economy. "Surveys conducted as a part of this report found that 81% of dropouts felt that efforts to make high school more relevant—including opportunities for real-world learning and connecting school to work—would have encouraged them to stay in school" (Symonds et al., 2011, p. 9). This fact brings into account the inequity of career advisement again. There must be a deeper investigation into counselor perceptions of advisement and a determination of whether counselor attributes like counselor-to-student ratio and school locale have an effect on practices. Research designed to evaluate counselor perceptions on the frequency and intensity of counseling practice will reveal equity of advisement. According to Holzer (2009), most current career choice theories used in career education have not been developed to target career choice processes for females and minorities. While this research describes the students being advised more than the adults advising them, some overlap can be assumed, given the same cultural context.

The void in research on counselor advisement practice and perception based upon personal attributes demonstrates a need to look more closely at the root causes of high school

dropout rates and an ever-growing skills gap. Bridgeland et al. (2006) provided evidence to this point. According to research studies during the 1970s and 1980s, the most important variables in effective counseling are the personal characteristics of the counselor (Barak & LaCrosse, 1975). Prior to these findings, Rogers (1975) identified the counselor's personality as the most essential component in career advisement. If these findings are still evident today, a need exists to examine the impact of counselor personal attributes independent of one another. Research supports the notion that client perception of the counselor is critical to the advising process; however, research does not exist for Indiana counselors to determine if their perception of jobs and students is equally critical to advisement outcomes (Barak & Lacrosse, 1975).

Pertinent Indiana Demographics

Recent research from the Indiana DWD (2017a) indicates that 60% of new Indiana jobs created between 2016 and 2024 will require postsecondary education. The required postsecondary education will range from certifications to advanced degrees and will differ by career field. Currently, no supporting evidence indicates that graduates will meet this demand. According to the Indiana DWD, in 2014 over 14% of adults between 18 and 24 did not have a high school diploma or high school equivalency. In eight Indiana counties, high school dropouts comprised over 30% of 18-24-year-olds (Indiana DWD, 2017a). Researchers (Fleck Education, 2015) suggested that academic unpreparedness persists in Indiana and that traditional approaches to CCR do not effectively disrupt generational poverty cycles. The Census Bureau data show the critical need for greater equity and differentiation in advisement and pathway planning. The data are significant because further data on undergraduates indicate that Indiana is moving away from the goal that 60% of the workforce obtain some postsecondary education. According to statewide wage and workforce measures taken in 2008 and 2012, the number of high school

graduates employed in Indiana grew by 1.5% (Hudson & Boivin, 2018). However, in the same 4 years, the number of graduates enrolled in additional postsecondary education declined by 1.5% (Hudson & Boivin, 2018, p. 124).

In 1990, Indiana families with children had a median household income of $48,097, which had grown to a promising $53,509 by 2000 (Hudson & Boivin, 2018). However, by 2010 that figure had once again dropped to $45,400, indicating an economic decline throughout Indiana. The same concerning pattern exists in the lowest income category, in which the percentage of children ages 5-17 living at or below the poverty level increased by more than 10% between 1990 and 2010 (Hudson & Boivin, 2018). The relationship between economic disadvantage and lack of education is cyclical. Students in disadvantaged groups are disproportionately likely to drop out of school or fail college entrance examinations. These negative economic shifts in household income indicate the need to address the root causes for the decline. Furthermore, teen employment figures show a need for greater equity in advisement of minority and disadvantaged students. The first decade of the 21st century marks the first time since World War II that teen employment fell below 40% (Sum & Khatiwada, 2010).

Table 4

Median Income for Indiana Families with Children

Year	Median Income Levels	Poverty percent, children ages 5-17
1990	$48,097	12.8
2000	$53,509	10.6
2010	$45,400	22.4

Note. Adapted from *The Outlook for the Summer 2010 Teen Labor Market Report*, by U.S. Census Bureau, 2010. Copyright by United States Census Bureau.

The problem becomes more pronounced when disaggregated by socioeconomic factors. While upper-middle-class White teens had an employment rate of 41% during 2010, lower income Black teens only experienced 9% employment (U.S. Census Bureau, 2010). The disparity contributes to the greater problem of inequitable work skills development. Research showed that teen employment allows students to learn critical work skills and evaluate career field choices (Sum & Khatiwada, 2010). Researchers Wilson and Rodgers (2016) noted that the current economy is again widening the Black–White wage gap, despite its narrowing during the 1990s economic boom. According to Wilson and Rodgers, the causes of the recent widening are numerous, including factors such as general wage inequality, decline in union representation, black incarceration rates, and an end of affirmative action policy. However, the researchers failed to address career advisement and career planning in their discussion of possible causes, making a case for a deeper analysis of possible root causes to this wage disparity problem. In 2018, while Indiana experienced a healthy 4% unemployment rate, the Black-White wage gap continued (USDOL, BLS, n.d.). In fact, when analysts desegregated Indiana's 2018 unemployment rates by race, it became clear that Whites experienced a 3.6% unemployment rate, while Blacks experienced an 8.3% unemployment rate (USDOL, BLS, n.d.). It is necessary to determine whether high school counselor perceptions and advisement practices are significant contributors to the ongoing racial disparity in employment.

The Role of State Legislators and Department of Education

According to the College Board Advocacy 2010 report, the total number of jobs in America grew by 63 million between 1973 and 2005. However, the number of jobs held by people with no postsecondary education fell by approximately 2 million jobs during the same time (College Board NOSCA, 2010). This discrepancy indicates a possible lack of attention to

the specific career advisement needs of low-income students. Schools do not track separate data on the placement of graduates and non-graduates 2, 5, or 10 years beyond high school. Research indicated that students in disadvantaged groups are disproportionately likely to drop out of school and forgo college (College Board NOSCA, 2010). Low-income families lack access to the resources needed for college and career readiness, so their children grow up and work low-wage jobs as adults. Without higher education, the cycle continues, perpetuating low social mobility for another generation.

A relationship also exists between this cycle and career advisement practices throughout Indiana. Indiana needs equitable and systematic career advisement practices for all students to disrupt the cycle of generational poverty and disadvantage. Indiana schools need a data collection system to improve career advisement, college enrollment, and career readiness continually. During the last decade, state accountability measures for school districts, ranked A-F, relied upon student achievement in literacy gains. Current state initiatives replace literacy with graduation rates as accountability measures (IDOE, 2017c). It is significant to note that the ICC created a vision in which high schools and postsecondary schools became a viable talent pipeline for Indiana business and industry between 2013 and 2014. However, in 2018 the IDOE adopted school district's accountability measure as high school graduation rates. The ICC (2016) goal is to increase postsecondary enrollment to 60% of Indiana graduates. Despite the change in accountability from literacy scores to graduation rates, the IDOE is not able to align high school graduation with the ICC goal of postsecondary environments. Improved systems of measure would fill the gap in research as well as improve accountability. Ideally, researchers would measure a student group's poverty rates and dropout rates as well as the career advisement practices affecting the same student group.

Indiana legislators designed the strategic plan *Align, Engage, Advance: A Strategic Plan to Transform Indiana's Workforce* in 2013, which lead to the creation of the ICC (2014). State leaders "recognized the need to elevate the importance and recognition of work-and-learn opportunities throughout the state" (Fleck Education, 2015, p. 8). Currently, many public and private Indiana organizations have initiatives for increasing work and learn opportunities. The "aim of the ICC and its Pathways Task Force has been to provide resources and tools that can elevate the importance of work and learn opportunities" (Fleck Education, 2015, p. 8). This statement reflects an objective to eliminate silos and create stronger connections between many Indiana stakeholders.

Reactive Approach to Skills Gap

The current plan lacks a proactive discussion of how to work better with school counselors toward advisement that is better aligned to the job projections researchers now have. Researchers calculated the fastest growing career paths for the near future by synthesizing the Indiana DWD data with data from the BLS. The 2017 redesign of Indiana's Graduation Pathways serves as evidence to a new shift in the importance of CTE programming for all students (IDOE, 2017b). This most current curricular sequencing with embedded career focus for Grades 6-12 includes updated accountability measures and new CTE fund allocation formulas. Again, leaders of the Indiana DWD were charged by the IDOE to emphasize careers that match projected growth of high-demand, high-wage careers (IDOE, 2017a; Indiana DWD, 2017c). The revised funding charts (IDOE, 2017a) are intended to influence advisement practice while strengthening the state economy (Indiana DWD, 2017a).

The Role of Indiana Career and Technical Education

In 2018, the IDOE's restructured graduation requirements recognized the need to emphasize the potential of CTE for all students—not just a select group needing an alternative learning environment. "The goal of today's CTE is simple: to connect students with growing industries in the American economy and to give them the skills and training required for long-term success" ("Career Counseling," 2013, p. 4). By design, local business and industry leaders serve on CTE advisory boards for each career cluster. The purpose of advisory board members is to meet regularlyth CTE administrators and teachers to review course content, discuss new industry practices and standards, and provide a wide variety of work-based learning experiences to students. The Perkins Act requires that each CTE district within Indiana set eight annual student performance targets (McGage, 2017).

In April 2013, the IDOE initiated a comparative analysis study of CTE programs in contrast to the traditionally academic pathways of study. There are two student classifications with CTE: career course and career concentrator. Within the structures of the three diploma tracks, career course students are students who choose to take stand-alone CTE courses, which follow the Core 40 or Core 40 with Honors Diploma tracks, depending on the students' other coursework taken throughout high school (IDOE, 2017b). Career concentrators are students who opt to complete a six-credit Pathway Course Sequence, placing the students on track for the Core 40 Technical Honors Diploma. The latter student group, CTE concentrators, composed 24% (17,570) of all seniors (74,065) graduating in 2012 (IDOE, 2013a). Concentrators can choose from 53 different pathways, which stem from 11 college and career ready pathway course sequences, each of which corresponds with CTE and academic courses. Students undertake

logical sequences of coursework and field experience that prepare the students for postsecondary education or workforce careers. The CCR pathway courses, or *career cluster categories*, are

- agriculture;
- architecture and construction;
- arts, AV, technology, and communications;
- business and marketing;
- education and training;
- health science;
- hospitality and human service;
- information technology;
- manufacturing and logistics;
- public safety; and
- transportation (IDOE, 2017a).

The career clusters were revised in 2010 after state officials collected and analyzed input from more than 300 statewide business and industry representatives. The officials' goal was to form career pathways that would "prepare students to enter high-wage and high-demand careers in the state or local region" (ICC, 2014, p. 20). Prior to 2010, people throughout Indiana still largely viewed CTE coursework as exploratory and lacking rigor (IDOE, 2013b). Amid national calls for increased academic rigor in 2010 that stemmed from nationwide conversations about common core standard adoptions, IDOE leaders wanted not only to align the traditional academic standards but also to use the public conversations as the platform to revise vocational programs as well (IDOE, 2013b).

The primary purpose of the 2013 study was to assess the impact of CTE coursework on student performance, graduation, and preparation for college and a career. Secondly, the study sought to "examine the strength of the relationships between high school career preparation programs and the regional workforce needs of Indiana's businesses and industries" (Fleck Education, 2015, p. 19). By design in Indiana, each of the 47 CTE districts offers an average of 17 CCR career clusters (IDOE, 2017a). Of the 53 pathways available to students, nearly all (49) offer students the opportunity to earn dual credits with accredited Indiana colleges while in high school (IDOE, 2013a). Furthermore, an advisory board in each district must align each of the 53 pathways and meet regularly to evaluate the programming and measure the academic coursework and standards against local and regional business/industry needs. The IDOE leaders have tried to begin CCR discussions during middle school years and to encourage most freshman students to explore various career pathways by taking a semester-long CCR course (IDOE, 2013b). While this course is not mandatory, the fact that leaders view it as a key step in the learning process for high school students shows that the educational leadership of Indiana has taken steps to expand the traditional ways in which counselors advise students on career pathways (IDOE, 2013b).

Summary

Each of the five dominant career advisement theories has operated within a specific historical context of economic and technological realities. Therefore, the contextual specificity of each theory is both a strength in its own age and a weakness in other ages. Because each theory is necessarily dependent on the cultural heuristics of the time, historical theories are imperfect for the needs of the present and future. Just as each career advisement theory has been a response to contextual workplace needs, the career advisement models and practices of 2018

must align with the needs of the knowledge economy (Friedman, 2005; Krumboltz & Levin, 2004).

Indiana's legislators, IDOE, school leaders, counselors, and leaders in CTE have begun to restructure career advisement in accordance with the identified economic changes. Indiana has resources for better career advisement, such as projected career data and digital informational resources but the state's resources are isolated rather than combined to create an efficient flow of information. Leaders must link career advisement models for students to receive the full benefit of career advisement resources. It is necessary to collect data on high school career planning to identify the gaps and complete the advisement model. It is also necessary to collect data on counselor perceptions and then compare these data to projections to determine if school counselor perceptions are aligned to viable pathways for the state. Two significant changes must take place to accommodate the efficiency of information flow in the knowledge economy: (a) a stronger connection between career advisement and economic demand of work and (b) a clearer strategy for postsecondary planning that includes options other than college.

It is hoped my research will build capacity for Indiana to implement similar efforts with the same success. Considering the importance of cultural and economic context, an important component of any new advisement model is adaptability. Filling the gap in knowledge about Indiana high school career advisement is a necessary first step in developing a live model that can improve planning for students far in the future.

Economic conditions have affected the types of job pathways people pursue. In less stable times, people are seeking stability. During economic booms like the 1980s, economic certainty creates a more confident nature and leads people to greater career exploration and risk-taking. Over the last decade, labor market changes have again created an uncertain populace that

need to be advised accurately on key external factors of career planning, namely which pathways will lead to the high-demand, high-wage projected jobs for Indiana. Michael Dimock (2019), President of the Pew Research Center, remarked that the upcoming generation, those younger than Millennials, is even more risk-averse than current Millennials. Because of growing up in the financial crisis of this age, the upcoming generation will likely be less entrepreneurial, looking for the lacking stability of their younger lives. In order to advise accurately, counselors need to advise from external factors of labor market realities and projections and the impact those experiences have on career planning. We need a more expansive model to address the whole construct of career advisement within the context of the knowledge economy and one that can circumvent biases of school counselors.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this study was to evaluate the alignment between career advisement practices within Indiana high schools and counselor projections of high-demand, high-wage careers with the 2014 ICC (2014) framework, established in 2014 to promote Indiana's economic growth. I explored school counselor perceptions of advisement theories and practice throughout Indiana. The ICC intends for every citizen to have equitable access to the information and skill development required for wise decision making toward viable career pathways. I conducted quantitative research by obtaining data on three intersecting social constructs: counselor perceptions of career advisement practices for students, counselor perceptions of their role within a greater statewide framework of career advisement, and counselor perceptions of projected high-demand, high-wage pathways for Indiana. I then compared these data to the data included in my Literature Review from the USDOL, BLS and the Indiana DWD on actual career pathway projections. My goal in conducting this research was to identify any gaps between research and practice by measuring current advisement against projected workplace needs and the ICC state framework for career advisement. This chapter presents the research questions and null hypotheses, the rationale for research design, the survey design, and issues of trustworthiness. This is followed by the data sources, data collection methods, data procedures, limitations, delimitations, and method of analysis. This chapter concludes with a summary of the information presented and previews the remaining chapters in the dissertation.

Research Questions and Null Hypotheses

This study encompassed the following research questions to drive the research:

1. What is the state of Indiana 9-12 school counselors' self-ratings regarding knowledge of career advisement practices and perceptions of high-demand, high-wage careers?
2. Is there a statistically significant difference based upon school locale type (i.e., rural, suburban, and urban) in career advisement practices?
3. Is there a statistically significant difference based upon school locale type (i.e., rural, suburban, and urban) in perceptions of projected high-demand, high-wage careers for Indiana?
4. Does an Indiana 9-12 school counselor's student caseload explain a statistically significant amount of variance in career advisement practices?
5. Does an Indiana 9-12 school counselor's student caseload explain a statistically significant amount of variance in perceptions of high-demand, high wage career pathways?

This study will encompass the following null hypotheses:

$H_0$1: There is no statistically significant difference based upon an Indiana 9-12 school counselor's demographic locale (i.e., rural and urban) and their career advisement practices.

$H_0$2: There is no statistically significant difference based upon an Indiana 9-12 school counselor's demographic locale (i.e., rural and urban) and their perceptions of projected high-demand, high-wage careers for Indiana.

$H_0$3: There is no statistically significant difference based upon an Indiana 9-12 school counselor's ratio per 100 students and their career advisement practices.

$H_0$4: There is no statistically significant difference based upon an Indiana 9-12 school counselor's ratio per 100 students and their perceptions of high-demand, high wage career pathways.

Rationale for Research Design

In reviewing the literature regarding counselor practice at the national level, it was clear that counselors have been identified as critical gatekeepers to student postsecondary success (ASCA, 2013). At the state level, legislators and education leaders have created five specific goals of economic growth and have devised a plan for attaining these goals (ICC, 2014). However, in review of the Indiana DWD and ICC frameworks for projected state economic growth, it was clear that the role of the school counselor was not clearly defined within their frameworks (ICC, 2016; Indiana DWD, 2017a). ICC leaders intend for every citizen to have equitable access to the information and skill development required for wise decision making toward viable career pathways. What was not uncovered during the review was how counselor advisement practice and counselor perceptions of high-demand, high-wage careers will determine the degree to which the ICC can achieve its goals. In review of related studies, two key variables with respect to counselor perceptions and practice were the counselor-to-student ratio and the school locale: urban versus rural (ASCA, 2013; Bridgeland et al., 2006; Fleck Education, 2015; Mader, 2015).

The data obtained from this study may be beneficial in helping Indiana legislators redesign frameworks to be more inclusive of high school counselors. The data may reveal a need for the IDOE to bring together the ICC leadership team with state counselors to align theory and practice systematically in order to meet the ICC's five stated goals for economic growth. The data may also reveal that counselor perceptions of practice and career advisement

significantly differ based upon their school locale and their ratio to student populations.

For the quantitative study, I generated a survey to gather counselor perceptions on the frequency and intensity of their career advisement practice and their perceptions of high-demand, high-wage careers projected for Indiana. The components of school locale and counselor-to-student ratios for advisement were also analyzed as part of the study. The quantitative methodological approach was selected to allow the researcher to collect information from Indiana high school counselors. This dissertation is a quantitative approach utilizing inquiry strategies focused on a survey instrument. The survey questions were developed from a thorough and reflective review of the literature included in Chapter 2 (Creswell, 2003). The survey questions allowed for the collection and analysis of descriptive statistics to identify if differences exist between urban to rural school locales with career advisement and to analyze the impact of counselor-to-student ratios on student placement after graduation.

Moreover, the survey was also designed with two distinct bound sets of questions to lead to a composite score to measure both counselor perceptions of the frequency and intensity of current advisement practice and counselor perceptions of high-demand, high-wage career projections (Appendix A). Ayers et al. (2013) provided evidence that high schools are not currently graduating citizens prepared to meet the projected job growth for Indiana. Further research is needed to identify if a root cause of this problem lies with the role of high school counselors and their perceptions of Indiana's projected work, and the ICC's (2015). While the IDOE and individual school districts have begun to focus efforts on college and career readiness over the last decade, evidence shows that efforts are failing (ICC, 2016; Indiana DWD, 2017a). Therefore, it was necessary to evaluate the alignment of current Indiana career advisement

practices and determine their effectiveness in preparing students to acquire projected high-demand, high-wage jobs.

The broad research question guiding this study was: How do Indiana 9-12 school counselors rate their own knowledge of career advisement practices and perceptions of high-demand, high-wage careers? The independent variables included school locale (rural, suburban, and urban) and counselor caseload (29 or fewer, 300-399, and 400 or more students). The dependent variables included counselor self-rated perceptions of advisement practice and counselor self-rated perceptions of high-demand, high-wage labor market projections for Indiana. As the problem being addressed focused on the alignment between ICC goals and high school career advisement practice, the sample population included all 9-12 Indiana school counselors. By surveying counselors at the onset of the 2018 school year, compiled data will be useful to the ICC, whose goal is to affect the state economic growth between 2016 and 2024.

Survey Design

The construction of the survey instrument was based on the attempt to obtain the perceptions of Indiana school counselors working with students Grades 9-12 to evaluate their perceptions of current advisement practice and projected high-demand, high-wage career projections for Indiana. The survey instrument's development (Appendix A) was initially validated by my dissertation chairperson for presentation to a pilot group of counselors. Content validity was strengthened when the questions were provided to the Fort Wayne Community Schools (FWCS) high school counselors for review and to obtain input as to the bound sets of questions designed to elicit two composite scores (McLeod, 2007). As the researcher is employed with the FWCS district, these counselors were excluded from the official survey through Qualtrics. The FWCS cohort included 16 practicing high school counselors whose range

of experience was between 3 and 32 years of experience. The questions asked of the cohort regarding the survey included the following:

1. Do the questions make conceptual sense?
2. Are the survey questions easy to understand?
3. Did it seem likely that the survey could be completed within 15-20 minutes?
4. Questions 3-10 are specifically designed to create a "bound set" of questions that, when taken together, would create a composite score for Counselor self-reflection on their own "Frequency and Intensity of Career Advisement Practice." What are areas, topics, or practices that you think need to be included for this bound set to be more complete?
5. Questions 11-22 are specifically designed to create a "bound set" of questions that, when taken together, would create a composite score for Counselor self-reflection on their own perception of "High-demand, High-wage Career Projections for Indiana."
    a. Does this bound set of questions appear complete to you?
    b. Are there any questions you would omit? If so, why?
    c. Are there any questions that you would add to this bound set to create a more complete perception of high-demand, high-wage careers?
6. What suggestions do you have for improvements to the survey?

Issues of Trustworthiness

When developing survey questions, there was a deliberate attempt to avoid confusing and leading questions that might cause inaccuracies in the data collected. With the exception of the first two questions, all survey questions utilized a Likert-type scale rating system that was based upon a 1-6 rating system, with scores representing the following: 1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *somewhat agree*, 5 = *agree*, and 6 = *strongly agree*. The

use of a 6-response Likert-type scale is a sound research tool that will allow subsequent researchers to duplicate this study (Creswell, 2003). The Likert scale provided for empirical data and allowed for two composite scores for each counselor for comparative data analysis. The use of six responses was based on research that data analysis tended to be more accurate when participants were more contemplative of their response selection (Alwin & Krosnick, 1991). Participants' perceptions may be considered slight (weak), moderate, or substantial (strong) on either end of the Likert spectrum (Alwin & Krosnick, 1991). With greater variation, it is easier to identify where they are on the strengths of perceptions and then use that number more accurately to determine whether difference or prediction capabilities exist. Inferential testing is better when there is greater variation with responses.

Demographic questions identifying school locale and the number of students in a counselor's caseload were placed following the Likert scale type questions. Given that the cohort participants had only four suggestions for changes overall, the survey instrument appears to have face validity (Creswell, 2003). However, construct validity alone does not necessarily indicate that the test will accurately measure counselor perceptions. The reliability of the two bound sets of questions were determined by the content validity of the questions. For the bound set measuring counselor perceptions of advisement practice, the cohort members suggested the addition of two missing concepts, namely questions 10 and 11 on the final survey. The reviewers indicated that the instructions provided to the sample were clear and easily understood.

Within each bound set of questions, there was a deliberate attempt by the researcher to generate a composite score of six. Each survey statement was linked to research from the literature review. A misinterpretation of the survey statements could result in unreliable composite scores. Therefore, to determine internal reliability, the results of the statements were

used to calculate a Cronbach's alpha score for each group of questions that formed a composite score. In an effort to determine reliability, composite score for statements 1-11, perception of advisement practice, and 2-22, perception of Indiana job projections, needed to have a coefficient alpha of .7 or higher. Since both of these composite scores met the .7 threshold required for validity, I did not need to test for Cronbach's alpha. I was able to conclude the validity of the both composite scores.

Data Sources

The study sample came from the high school counselor population within the state of Indiana. A list of high school counselors was obtained through a written formal request to the IDOE. A copy of the request is found in Appendix C. For the purpose of this study, high school counselors were defined as counselors working with students in Grades 9-12 in an Indiana public school. All public school counselors, Grades 9-12, with the exception of FWCS, were invited to participate in the study. As a safeguard, FWCS counselors were exempted from this study because the researcher is employed by this district and seeks to remove potential confounding variables and validity issues. A sample email requesting their participation can be found in Appendix B.

Data Collection Methods

For the purpose of this quantitative study, Indiana public counselors working with students in Grades 9-12 who had an IDOE recognized email were invited to participate regardless of age, gender, race, or years of experience. An email invitation to participate in the study was sent to this group upon approval from the Institutional Review Board at Indiana State University. A sample of this email is found in Appendix B. All counselors were informed that their participation is voluntary and they can choose to quit the process at any time. While there

were no claims of anonymity to participants, safeguards were implemented to secure participant's confidentiality. These assurances can be found within the email request in Appendix B. No IP addresses were collected during any point.

Data Procedures

The survey was administered through Qualtrics. The study included the whole list of public high school counselors in Indiana provided by the Indiana School Counselor Association. Power analysis indicated that 83 respondents were needed to ensure sufficient enough power to make a determination for the null hypotheses found within this study (SPSS, version 24). A follow-up reminder along with both a statement of appreciation and a reminder to submit if he or she has not previously submitted was sent out at the conclusion of the first week. The survey remained active for a total of 2 weeks. At the conclusion of the second week, a second email thanked all participants for their time and consideration. Data were exported from Qualtrics to SPSS, version 24 for analysis. I checked SPSS files for proper coding with the Likert scale six number sets. Next, I ran Cronbach's alpha for both composite score sets and to follow the procedures that I defined within the issues of trustworthiness. If a determination was made that sufficient reliability exists, I used the questions included to arrive at a composite score. These scores were rounded to the nearest hundredth for analysis purposes. Finally, I conducted all descriptive and inferential testing that are explained more in depth in the method of analysis section.

Assumptions, Limitations, Delimitations

Assumptions

- I assumed that survey results of the 736 Indiana public school counselors will generate a minimum of 20% participation, which will accurately represent most Indiana public school counselors.
- I assumed that my survey's confidential self-assessment results will match the findings identified by Butler University during a 2016-2017 survey of recent graduates from the School Counseling Graduate classes (Butler University, 2017).
- I assumed that the practices and perceptions of high school counselors will not vary significantly by geographic region within the state.
- I assumed that the practices and perceptions of high school counselors will vary by community type, distinguishing between urban and rural.
- I assumed that counselors, despite demographic attributes, will categorize students on a simplistic division between college and non-college for counseling purposes.
- I assumed that the practices and perceptions of high school counselors will not vary based upon the ratio of counselor to student.
- I assumed that my findings will identify potential gaps in the state's plan to create a talent pipeline of citizens preparing to take the high-wage, high-demand jobs needed.
- I assumed that the ICC's goal is reasonable and achievable for Indiana's workforce.
- I assumed that high-demand, high-wage jobs are desirable for most workers and that the Indiana economy will benefit from the creation of more such jobs in the state.

Limitations

- A limitation to this research involved the scope of the project: Advisement practices frequently emphasize internal satisfaction and work that has personal meaning. I highlighted the need to examine more deeply the external factors of career planning and the evolving workplace demands for the knowledge economy age.
- A limitation was the willingness of participants to self-select into the study. I was limited by the percentage of counselors who volunteer to participate in my survey.
- A limitation to this research was generalizability. My interest is in identifying gaps in practice that may inhibit the success of the ICC's efforts. The structures and intersections of Indiana government, business, IDOE, high schools, and postsecondary schools differ from the organizational intersections of other states. Therefore, the findings of this study are not necessarily generalizable to other U.S. states.

Delimitations

- In this study, I focused on high-demand, high-wage work for jobs with educational requirements, including a high school diploma, certification, some college, or a college degree. A delimitation to this research was jobs on either extreme end of education, less than a high school diploma and an advanced degree.
- I did not study internal affective factors of career planning such as finding meaningful work that connects to student passion areas. While internal-focused attributes of career planning have significance, they are not congruent with the study of career advisement practices being aligned to job projections.
- I did not study other internal factors such as generational poverty, parenting, and outside influences that lead to career choices.

- I did not discuss job projections based on natural retirement and death rates. The projections identified in this research study only focused on newly created jobs to emphasize the impact of economic shifts for Indiana.

Method of Analysis

Research Question 1 focused on descriptive analysis and included means, standard deviations, frequencies, and percentages. By reporting out descriptive statistics, I created an overall description of how the data look to determine variability (Creswell, 2003). The first two null hypotheses examined the independent variable of school locale (i.e., rural, suburban, and urban) as it relates to both counselor perception of advisement practice and counselor perception of high-demand, high-wage career projections. A one-way analysis of variance (ANOVA) was the appropriate test for this inferential testing, as the dependent variable had three groups for comparison (Gravetter & Wallnau, 2006). There were three assumptions to test following the one-way ANOVA to determine the validity of the findings. Assumption of homogeneity of variance was tested to ensure the dependent variable scores have equal variance among all three levels of the independent variable. Assumption of normality tests whether the dependent variable is normally distributed among all three levels of the independent variable. The test for outliers provided greater reliability, testing that I do not have a person that would not belong in the population because his or her views are far away from all other participants (Gravetter & Wallnau, 2006). I wanted to ensure the variance between all three variables. I also analyzed the data to ensure that no outliers arise within the dependent score that needed to be eliminated. The third assumption, the test for independence, verified that each participant falls into only one of the three possible locales. Gravetter and Wallnau (2006) explained, “In each case a large value for the test statistic provides evidence that the sample mean differences (numerator) are larger

than would be expected if there were no treatment effects (denominator)" (p. 391). According to the literature review, two key attributes of counselor effectiveness with career advisement include the school locale and the number of students served. If the ANOVA indicated a significant difference between the means of the independent variable levels, then a post hoc test was conducted. I used Tukey HSD post hoc test to determine if the assumption of homogeneity of variance is met. If it violated, I would have used the Games Howell post hoc test, as this test does not assume equal variances (Creswell, 2003).

The fourth and fifth null hypotheses examined the predictor variable of the number of students served by the counselor in relationship to both counselor perception of advisement practice and counselor perception of high-demand, high-wage career projections. Data analysis with Research Questions 4 and 5 utilized a simple linear regression to determine the relationship between the two variables. The three assumptions of normality, linearity and homogeneity of variance were tested to ensure that the data are a reliable predictor. Finally, the data were analyzed to determine the significance, where significant values were compared to the .05 alpha level. If the significance value was equal or less than the .05 alpha, there would be a linear relationship between the counselor perceptions and the number of students served. If there was a significant difference, then the coefficients output were explored to determine how much change in the composite score for that area results with a one-student increase in number served. This was done by interpreting the unstandardized partial regression coefficient (Creswell, 2003).

Summary

This chapter explored the various methodologies and processes involved with this study. The research questions and null hypotheses were presented, and the descriptive and inferential testing decisions were outlined. The survey instrument and processes to determine face and

content validity and reliability were fully described. The study was designed to determine whether statistical difference among the three school locale types are present within Indian high school counselor perceptions of advisement practice and career projections. Further, the study also looked to determine whether statistical difference exists among the number of students served and counselor perceptions of advisement practice and career projections.

CHAPTER 4

FINDINGS OF THE DATA ANALYSIS

This study evaluated the alignment between career advisement practices within Indiana high schools and counselor projections of high-demand, high-wage careers with the ICC (2014) framework, established to promote Indiana's economic growth. The research was based on the differences between rural, suburban, and urban schools in the state of Indiana. The research was also based on the differences between guidance counselor caseloads. All public high school guidance counselors registered with the Indiana School Counselor's Association (ISCA) were provided the opportunity to participate within this study via email. Data were collected from those that responded on the career advisement practices and job projections for the state of Indiana. These variables were analyzed and compared between the two independent variables of school locale and counselor caseload. The data were collected after a survey was sent to respondents via an email.

The survey was released during July 2019 to all Indiana public high school counselors with an email registered with the ISCA. During the course of the survey, 89 respondents opened and started the survey, while 54 completed the entire survey. Upon collection of the surveys, only those 54 that were completely answered were used for data analysis.

The survey asked respondents to categorize the school locale as rural, suburban, or urban and to identify their current caseload. The survey was designed to create two composite scores from 22 questions; each composite score was determined from a set of 11 questions in each set.

The first 11 statements formed the career advisement practices (CAP) composite score, and the second set of 11 statements formed the projected work demands (PWD) composite score for the study. Both composite scores indicated high levels of reliability to form composite scores. The CAP composite score reported a mean of 2.84 (*SD* = .823) with a Cronbach's alpha score of .812. The PWD composite score reported a mean of 3.13 (*SD* = .768) with a Cronbach's alpha score of .815. Therefore, both sets were reliably associated with one another and both surpassed the minimum threshold of .7 (Gravetter & Wallnau, 2006).

All of the multiple-choice questions included options based on a 6-point Likert scale. The survey, generated with Qualtrics software, contained 22 multiple-choice questions. To indicate how respondents identified with their responses, choices included *strongly agree, agree, somewhat agree, somewhat disagree, disagree, and strongly disagree.* The Qualtrics software program imported the data into SPSS, which were then analyzed. The test of a one-way ANOVA was used for all four null hypotheses.

Research Questions

1. What is the state of Indiana 9-12 school counselors' self-ratings regarding knowledge of career advisement practices and perceptions of high-demand, high-wage careers?
2. Is there a statistically significant difference based upon school locale type (i.e., rural, suburban, and urban) in career advisement practices?
3. Is there a statistically significant difference based upon school locale type (i.e., rural, suburban, and urban) in perceptions of projected high-demand, high-wage careers for Indiana?

4. Does an Indiana 9-12 school counselor's student caseload explain a statistically significant amount of variance in career advisement practices?
5. Does an Indiana 9-12 school counselor's student caseload explain a statistically significant amount of variance in perceptions of high-demand, high wage career pathways?

Descriptive Data

Of the 54 high school guidance counselors that responded to the survey within this study, 24 (44.4%) were from rural schools, 14 (25.9%) were from suburban schools, and 16 (29.6%) were from urban schools. The last question on the survey asked respondents to indicate their current caseload number. In order to have accurate SPSS analysis of data, these responses were grouped into specific caseload ranges, with 18 (33.3%) reporting a caseload of under 299 students, 25 (46.3%), reporting a caseload of 300-399, and 11 (20.4%) reporting a caseload of 400 or more.

When counselors were given the statement, "I discuss career options with each students individually at least once during the school year," the majority showed levels of agreement. Of the 54 responses, only 13 (24.1%) were in the category of overall disagreement, and 41 (76.0%) of the respondents were in the agree category. There were 21 (38.9%) of the respondents that strongly agreed that every student is met with individually during the year to discuss career options.

High school counselors were asked if they meet with students in a whole class setting at least once a school year to discuss career options. Of the 54 responses, 19 (35.2%) were in disagreement. Most respondents were in agreement to this statement, with 16 (29.6) responding

to strongly agree, 10 (18.5%) responding to agree, and nine (16.7%) responding to somewhat agree.

To the statement, “All students have an opportunity to take a course specifically designed for career exploration,” the vast majority of respondents agreed. In all, 49 (90.7%) of respondents agreed, with 31 (57.4%) responding with strongly agree, 14 (25.9%) with agree, and four (7.4%) with somewhat agree. Of those who disagreed, two (3.7%) strongly disagreed, one (1.9%) disagreed, and two (3.7%) somewhat disagreed.

When asked if all students are given interest inventories or personality trait assessments for career guidance purposes, 44 (81.5%) agreed to some level, and 10 (18.6%) disagreed to some level. Of those who agreed, 22 (40.7%) strongly agreed, 21 (38.9%) agreed, and one (1.9%) somewhat agreed. Of those who disagreed, three (5.6%) strongly disagreed, six (11.1%) disagreed, and one (1.9%) somewhat disagreed.

Respondents were asked if they viewed career advisement among their primary responsibilities as a counselor. The majority responses here were in disagreement to the statement, with eight (14.8%) responding strongly disagree, 11 (20.4%) disagree, and 13 (24.1%) somewhat disagree. While there were 18 (33.3%) who responded that they somewhat agree with the statement, there were only four (7.4%) who responded with strongly agree or agree.

To the statement, “All students create and actively update a career readiness portfolio during their four years in high school,” there was a split in agreement. There were five (9.3%) who strongly agreed and five (9.3%) who strongly disagreed with the statement. Furthermore, there were 24 (44.4%) who either agreed or agreed somewhat, while 20 (37.0%) either disagreed or disagreed somewhat.

To the statement inquiring about the use of free digital tools for career choice assistance, most respondents noted agreement. Of the 54 respondents, only 12 (22.3%) disagreed with the statement. Of those in agreement, 14 (25.9%) were in strong agreement, 19 (35.2%) were in agreement, and nine (16.7%) were in disagreement.

When counselors responded to whether their advisement practice focused more on labor market projections over trait matching, there were more respondents reporting a disagreement. In all, 36 (66.6%) of the 54 respondents disagreed with that statement. In addition, 12 (22.2%) of respondents marked somewhat agree. There were only six counselors who reported a strong agreement two (3.7%), with four (7.4%) in agreement.

Most counselors were in agreement with the statement that they feel knowledgeable on the extra training requirements needed for a variety of career fields. There were 44 (81.4%) who marked some level of agreement, while only 10 (18.6%) marked a level of disagreement. Of those who did agree, six (11.1%) strongly agreed, 16 (29.6%) agreed, and 22 (40.7%) somewhat agreed with the statement.

Respondents were given the statement, “I know different ways that students can begin to prepare themselves for success in post-high school training, or ways they can earn certifications while in high school.” To this statement, 19 (35.2%) respondents strongly agreed, 24 (44.4%) agreed, and nine (16.7%) somewhat agreed. Of those to disagree, one (1.9%) strongly disagreed and one (1.9%) somewhat disagreed. Therefore, 52 (96.3%) of the total respondents agreed.

Thirty-four (63%) counselors reported an agreement with the statement that their professional development includes specific content on career counseling techniques over the last three years. Of the 34 (63%) in agreement, 11 (20.4%) strongly agreed, 12 (22.2%) agreed, and

11 (20.4%) agreed somewhat. Of the respondents to disagree with this statement, five (9.3%) strongly disagreed, nine (16.7%) disagreed, and five (9.3%) somewhat disagreed.

The first question for the PWD composite score set asked counselors to report on their confidence level in knowing wage differences across several career fields. To this statement, six (11.1%) strongly agreed, 19 (35.2%) agreed, and 19 (35.2%) somewhat agreed. In all, 44 (81.5%) of all respondents agreed. Of those who disagreed, two (3.7%) strongly disagreed, two (3.7%) disagreed, and six (11.1%) somewhat disagreed.

To the statement of being confident in understanding labor market projections across several career fields, counselors had some level of agreement. Of the respondents in agreement, three (5.6%) strongly agreed, 22 (40.7%) agreed, and 14 (25.9%) somewhat agreed. Only two respondents (3.7%) reported to strongly disagreeing with the statement. There were four (7.4%) to disagree and eight (14.8%) who disagreed somewhat.

Respondents were given the statement, “I believe student career choices should be influenced by career salary and labor-market projections for Indiana.” To this statement, most respondents reported to be either in somewhat agreement 25 (46.3%) or somewhat disagreement 13 (24.1%). Counselors who reported to strongly agree were one (1.9%) and agree were four (7.4%). Counselors who reported to strongly disagree were five (9.2%) and disagree were six (11.1%).

When asked whether they believed that certifications or apprenticeships should be defined as valid postsecondary pathways, 51 (94.4%) of respondents reported some level of agreement. Of this group, there were 26 (48.1%) in strong agreement, 20 (37%) in agreement,

and five (9.3%) in somewhat agreement. Those who disagreed reported with one (1.9%) strong disagreement, one (1.9%) disagreement, and one (1.9%) somewhat disagreement.

To the statement of whether certifications offer equal or greater potential of career advancement to college degrees, there was also a majority of counselors to report agreement with that statement. Respondents reported with 15 (27.8%) to strongly agree, 19 (35.2%) to agree, and 12 (22.2%) to agreed somewhat. Of those to mark disagreement with that statement, two (3.7%) were in strong disagreement, two (3.7%) in disagreement, and four (7.4%) somewhat disagreed.

When respondents were asked about their familiarity with the ICC's mission and work, there were no respondents to report strongly agree. Counselors reported with nine (16.7%) to strongly agree and nine (16.7%) to agree, while 12 (22.2%) disagreed somewhat, 15 (27.8%) disagreed, and nine (16.7%) strongly disagreed. With the exception of no one reporting strongly agree, responses were rather even distributed from agree to strongly disagree with this statement.

A total of 40 respondents (68.9%) disagreed overall that they have been encouraged to participate in the National School Counselor Training (NSCT) as a part of counselor professional development. Of those with some level of disagreement, there were 12 (22.2%) to strongly disagree, 22 (40.7%) to disagree, and six (11.1%) to somewhat disagree. No respondents marked strongly agree to this statement. Of those that did report agreement, they were eight (14.8%) to agree and six (11.1%) to agree somewhat.

The next statement, "My school partners with a CTE school for career advisement services for students and/or their families," demonstrated an overall agreement response of 46 (85.2%). Of those who agreed, 19 (35.2%) strongly agreed, 18 (33.3%) agreed, and nine

(16.7%) somewhat agreed. Of those who disagreed, two (3.7%) strongly disagreed, three (5.6%) disagreed, and two (3.7%) somewhat disagreed.

When asked if career advisement sessions with students included examining projected high-demand, high-wage jobs for Indiana, there was a wide distribution of reporting. In all, 32 (59.3%) reported to some level of agreement, while 22 (40.8%) reported to some level of disagreement. Of those in agreement, four (7.4%) strongly agreed, 11 (20.4%) agreed, and 17 (31.5%) somewhat agreed. Of those in disagreement, three (5.6%) strongly disagreed, seven (13%) disagreed, and 12 (22.2%) somewhat disagreed.

A total of 33 respondents (61.2%) reported agreement to providing families with access to IN Demand, O*Net, or BLS projections to research career options. Of these responses, nine (16.7%) strongly agreed, 13 (24.1%) agreed, and 11 (20.4%) somewhat agreed. For those who disagreed with that statement, three (5.6%) strongly disagreed, nine (16.7%) disagreed, and nine (16.7%) somewhat disagreed.

For the final statement in the PWD composite set, counselors responded to the following, "I inform parents of high-demand, high-wage career options for their children multiple times throughout the school year." A majority of the respondents reported some level of disagreement to this statement. In all, 32 (59.3%) disagreed. Of this number, there were seven (13%) who strongly disagreed, 15 (27.8%) who disagreed, and 10 (18.5%) who somewhat disagreed. Of those who did agree, two (3.7%) strongly agreed, nine (16.7%) agreed, and 11 (20.4%) somewhat agreed.

Table 1 indicates those who responded from a rural locale school setting. There were 24 (44.4%) that identified in this area. Table 1 presents the descriptive data for how counselors from rural Indiana perceived their own career advisement practices.

Table 1

Rural Respondents' Perceptions of Career Advisement Practices (CAP)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Career advisement individually	10 (41.7%)	1 (4.2%)	8 (33.3%)	0 (0.0%)	3 (12.5%)	2 (8.3%)
Career advisement whole-class	7 (29.2%)	6 (25.0%)	5 (20.8%)	3 (12.5%)	2 (8.3%)	1 (4.2%)
All take career course	18 (75%)	4 (16.7%)	2 (8.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
All take interest inventories	7 (29.2%)	14 (58.3%)	0 (0.0%)	1 (4.2%)	1 (4.2%)	1 (4.2%)
Career advisement is primary responsibility	2 (8.3%)	2 (8.3%)	7 (29.2%)	6 (25.0%)	3 (12.5%)	4 (16.7%)
All create readiness portfolio	3 (12.5%)	3 (12.5%)	8 (33.3%)	4 (16.7%)	4 (16.7%)	2 (8.3%)
Digital resources provided	5 (20.8%)	11 (45.8%)	3 (12.5%)	1 (4.2%)	1 (4.2%)	3 (12.5%)
Labor market projections guide advise	1 (4.2%)	2 (8.3%)	7 (29.2%)	9 (37.5%)	5 (20.8%)	0 (0.0%)
Knowledgeable on career training needs	4 (16.7%)	6 (25.0%)	9 (37.5%)	3 (12.5%)	2 (8.3%)	0 (0.0%)
Knowledgeable postsecondary pathways	12 (50.0%)	11 (45.8%)	1 (4.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
PD includes career counsel techniques	5 (20.8%)	5 (20.8%)	7 (29.2%)	1 (4.2%)	4 (16.7%)	1 (4.2%)

With respect to counselor perceptions of their own career advisement practice, rural respondents had similar views with the whole sample concerning many of the criteria statements. As to whether career advisement is viewed as a primary counselor responsibility, the whole group sample trends toward somewhat agree and somewhat disagree for a majority of responses, with 31 (57.4%) falling in one of these two categories. This same trend appears with rural counselors as well, with 13 (54.2%) reporting between somewhat agree and somewhat disagree.

Table 1 shows how rural respondents answered the questions relating to career advisement practices. In general, this information showed that rural school counselors consistently provided all students with a career course, as zero rural counselors (0.0%) responded with a level of disagreement to this statement. This response pattern is repeated with the practice of giving all students an interest inventory. Rural counselors had only three (12.6%) respond with a disagreement to this statement, while the whole sample report of disagreement was slightly higher with 10 (18.6%).

Table 2 indicates those who responded from a rural locale school setting. There were 24 (44.4%) that identified in this area. Table 2 presents the descriptive data for how counselors from rural Indiana perceived their own career advisement practices.

Table 2

Rural Respondents' Perceptions of Projected Workforce Demands (PWD)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Confident in IN wage projections	3 (12.5%)	6 (25.0%)	10 (41.7%)	3 (12.5%)	2 (8.3%)	0 (0.0%)
Confident in IN labor market projections	2 (8.3%)	9 (37.5%)	6 (25.0%)	5 (20.8%)	1 (4.2%)	1 (4.2%)
Career choice--labor market projections	1 (4.2%)	3 (12.5%)	13 (54.2%)	4 (16.7%)	0 (0.0%)	3 (12.5%)
Certifications as valid pathway	10 (41.7%)	11 (45.8%)	2 (8.3%)	0 (0.0%)	1 (4.2%)	0 (0.0%)
Certifications equal to college	8 (33.3%)	7 (29.2%)	8 (33.3%)	0 (0.0%)	1 (4.2%)	0 (0.0%)
Familiar with ICC work and mission	0 (0.0%)	6 (25.0%)	2 (8.3%)	6 (25.0%)	6 (25.0%)	4 (16.7%)
Encouraged to participate in NSCT	0 (0.0%)	3 (12.5%)	3 (12.5%)	3 (12.5%)	10 (41.7%)	5 (20.8%)
School partners with CTE	10 (41.7%)	7 (29.2%)	4 (16.7%)	1 (4.2%)	1 (4.2%)	1 (4.2%)
Career advisement on HD, HW IN jobs	1 (4.2%)	8 (33.3%)	8 (33.3)	3 (12.5%)	2 (8.3%)	2 (8.3%)
Families access IN Demand	2 (8.3%)	8 (33.3%)	3 (12.5%)	3 (12.5%)	6 (25.0%)	2 (8.3%)
Families informed IN job options	2 (8.3%)	3 (12.5%)	6 (25.0%)	4 (16.7%)	5 (20.8%)	4 (16.7%)

Table 2 showed results for rural respondents' attitudes toward projected workforce demands for the state of Indiana. The data revealed that this group expressed views largely similar to the whole group. When asked about perceived confidence in their knowledge of wages across occupations, 81.5% of the whole group reported a level of agreement. For the rural respondents, there were 79.2% to report a level of agreement. The same comparison existed with perceived confidence in Indiana labor market projections. The whole group and the rural respondents group each expressed 70.8% level of agreement.

There was an interesting contrast in data between the whole group and the rural respondents with respect to perceptions of projected workforce demands. For the whole group, 94.4% reported some level of agreement that certifications and apprentice tracts are valid postsecondary pathways. However, when asked if these pathways have equal or greater potential than college degrees, the whole group responded much lower, with only 85.2% reporting some level of agreement. For the rural respondents, there was not a difference in how they reported between these two statements. For both statements, valid pathways and potential for career advancement, the rural group responded with 95.8% level of agreement.

Table 3 indicates those who responded from a suburban locale school setting. There were 14 (25.9%) that identified in this area. Table 3 presents the descriptive data for how counselors from rural Indiana perceived their own career advisement practices.

Table 3

Suburban Respondents' Perceptions of Career Advisement Practices (CAP)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Career advisement individually	5 (35.7%)	6 (42.9%)	1 (7.1%)	0 (0.0%)	1 (7.1%)	1 (7.1%)
Career advisement whole-class	4 (28.6%)	1 (7.1%)	2 (14.3%)	1 (7.1%)	5 (35.7%)	1 (7.1%)
All take career course	7 (50.0%)	3 (21.4%)	1 (7.1%)	2 (14.3%)	0 (0.0%)	1 (7.1%)
All take interest inventories	8 (57.1%)	2 (14.3%)	0 (0.0%)	0 (0.0%)	3 (21.4%)	1 (7.1%)
Career advisement is primary responsibility	0 (0.0%)	0 (0.0%)	8 (57.1%)	2 (14.3%)	3 (21.4%)	1 (7.1%)
All create readiness portfolio	1 (7.1%)	3 (21.4%)	6 (42.9%)	2 (14.3%)	1 (7.1%)	1 (7.1%)
Digital resources provided	5 (35.7%)	4 (28.6%)	1 (7.1%)	2 (14.3%)	1 (7.1%)	1 (7.1%)
Labor market projections guide advise	0 (0.0%)	0 (0.0%)	2 (14.3%)	6 (42.9%)	4 (28.6%)	2 (14.3%)
Knowledgeable on career training needs	1 (7.1%)	4 (28.6%)	8 (57.1%)	0 (0.0%)	0 (0.0%)	1 (7.1%)
Knowledgeable on multiple postsecondary pathways	3 (21.4%)	7 (50.0%)	3 (21.4%)	0 (0.0%)	0 (0.0%)	1 (7.1%)
PD includes career counsel techniques	3 (21.4%)	2 (14.3%)	3 (21.4%)	2 (14.3%)	2 (14.3%)	2 (14.3%)

Table 3 showed that suburban counselors agreed overall on statements about their perceived knowledge of multiple postsecondary pathways, the training needed to obtain different careers, and the labor market projections to support pursuing different pathways. Both the whole sample and suburban counselors responded with high levels of agreement to their knowledge on multiple postsecondary pathways, reporting 96.3% and 92.8%, respectively.

Whereas the whole group sample had 75.0% of respondents agree that they met with each student individually to discuss career advisement, 85.7% suburban counselors reported that they did this practice. Moreover, more suburban counselors, 76%, reported to conducting whole-class career advisement sessions than were reported by the whole sample, which was 64%. In another interesting comparison, suburban counselors noted a greater likelihood of engaging students by creating and maintaining a career readiness portfolio during high school. In fact, 71.4% of suburban counselors responded with some level of agreement to the creation of a career readiness portfolio, in comparison to 53.7% of the whole sample.

Table 4 indicates those who responded from a suburban locale school setting. There were 14 (25.9%) that identified in this area. Table 4 presents the descriptive data for how counselors from rural Indiana perceived projected workforce demands for the state of Indiana.

Table 4

Suburban Respondents' Perceptions of Projected Workforce Demands (PWD)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Confident in IN wage projections	1 (7.1%)	6 (42.9%)	5 (35.7%)	1 (7.1%)	0 (0.0%)	1 (7.1%)
Confident in IN labor market projections	0 (0.0%)	6 (42.9%)	5 (35.7%)	1 (7.1%)	1 (7.1%)	1 (7.1%)
Career choice--labor market projections	0 (0.0%)	0 (0.0%)	6 (42.9%)	5 (35.7%)	2 (14.3%)	1 (7.1%)
Certifications as valid pathway	9 (64.3%)	3 (21.4%)	1 (7.1%)	0 (0.0%)	0 (0.0%) 0	1 (7.1%)
Certifications equal to college	3 (21.4%)	8 (57.1%)	1 (7.1%)	1 (7.1%)	0 (0.0%)	1 (7.1%)
Familiar with ICC work and mission	0 (0.0%)	2 (14.3%)	2 (14.3%)	5 (35.7%)	3 (21.4%)	2 (14.3%)
Encouraged to participate in NSCT	0 (0.0%)	1 (7.1%)	1 (7.1%)	2 (14.3%)	4 (28.6%)	6 (42.9%)
School partners with CTE	2 (14.3%)	8 (57.1%)	2 (14.3%)	1 (7.1%)	0 (0.0%)	1 (7.1%)
Career advisement on HD, HW IN jobs	0 (0.0%)	2 (14.3%)	4 (28.6%)	5 (35.7%)	2 (14.3%)	1 (7.1%)
Families access IN Demand	3 (21.4%)	2 (14.3%)	4 (28.6%)	2 (14.3%)	2 (14.3%)	1 (7.1%)
Families informed IN job options	0 (0.0%)	1 (7.1%)	4 (28.6%)	2 (14.3%)	5 (35.7%)	2 (14.3%)

Table 4 indicated responses from suburban counselors of projected workforce demands for Indiana. There were comparisons between this group and the whole sample group data. The suburban group followed the trend with rural counselors, reporting an 85.7% level of agreement to their perceived confidence in Indiana wage projections. Like the whole group's, suburban counselor data also revealed a similar disparity between their belief that certifications are valid pathways and their belief that these pathways have equal or greater potential for career success than college degrees. The whole sample group responded with 94.4% and 85.2% level of agreement. The suburban group responded in like with 92.8% and 85.6% level of agreement.

However, suburban responses did note contrast from the whole sample group on different statements. Most notably, suburban counselors did not report to strongly agree or agree at all to the statement, "I believe student career choices should be influenced by career salary and labor-market projections for Indiana." However, 9.3% of the whole sample group respondents reported to strongly agree or agree with that statement. A similar contrast was also noted in counselor use of high-demand, high-wage job projections with counseling. For this statement, 27.8% of the whole group sample strongly agreed or agreed, while only 14.3% of suburban counselors strongly agreed or agreed. This contrast of views was also shown in how the two groups responded to the statement, "I inform parents of high-demand, high-wage career options for their children multiple times throughout the year." While 20.4% of the whole group strongly agreed or agreed to this statement, only 7.1% of the suburban group strongly agreed or agreed.

Table 5 indicates those who responded from a rural locale school setting. There were 24 (44.4%) that identified in this area. Table 5 presents the descriptive data for how counselors from rural Indiana perceived their own career advisement practices.

Table 5

Urban Respondents' Perceptions of Career Advisement Practices (CAP)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Career advisement individually	6 (37.5)	2 (12.5%)	2 (12.5%)	1 (6.3%)	4 (25.0%)	1 (6.3%)
Career advisement whole-class	5 (31.3%)	3 (18.8%)	2 (12.5%)	1 (6.3%)	5 (31.3%)	0 (0.0%)
All take career course	6 (37.5%)	7 (43.8%)	1 (6.3%)	0 (0.0%)	1 (6.3%)	1 (6.3%)
All take interest inventories	7 (43.8%)	5 (31.3%)	1 (6.3%)	0 (0.0%)	2 (12.5%)	1 (6.3%)
Career advisement is primary responsibility	0 (0.0%)	0 (0.0%)	3 (18.8%)	5 (31.3%)	5 (31.3%)	3 (18.8%)
All create readiness portfolio	1 (6.3%)	2 (12.5%)	2 (12.5%)	2 (12.5%)	7 (43.8%)	2 (12.5%)
Digital resources provided	4 (25.0%)	4 (25.0%)	5 (31.3%)	0 (0.0%)	2 (12.5%)	1 (6.3%)
Labor market projections guide advise	1 (6.3%)	2 (12.5%)	3 (18.8%)	5 (31.3%)	5 (31.3%)	0 (0.0%)
Knowledgeable on career training needs	1 (6.3%)	6 (37.5%)	5 (31.3%)	2 (12.5%)	1 (6.3%)	1 (6.3%)
Knowledgeable postsecondary pathways	4 (25.0%)	6 (37.5%)	5 (31.3%)	1 (6.3%)	0 (0/0%)	0 (0.0%)
PD includes career counsel techniques	3 (18.8%)	5 (31.3%)	1 (6.3%)	2 (12.5%)	3 (18.8%)	2 (12.5%)

Urban counselors responded with similar trends to the whole group sample with respect to their perceptions of career advisement practices. For instance, when asked whether all students are given an opportunity to take a career course during high school, urban counselors and the whole group sample each responded with high levels of agreement, with 87.6% and 90.7%, respectively. Table 5 shows that urban counselor advisement practices are in alignment to the whole sample when it comes to providing individual career advice on an individual basis. Urban counselors reported a 62.5% level of agreement to that statement, in comparison to the whole sample report agreeing with 64.8%. Furthermore, there was a comparison to how urban counselors reported to the statement, "Students and families are provided with free digital resources to assess personality and skill strengths to assist with career choice." There were 81.3% of urban counselors in agreement and 77.8% of the whole sample in agreement with this statement, demonstrating a consistency of counselor perception across locales.

However, Table 5 shows that there are two differences in data reporting when comparing urban responses to the whole group on perceptions of career advisement practices. For the whole group sample, 40.7% of respondents reported that career advisement was a primary responsibility of the counselor role. However, with urban counselors, the agreement level reported was only 18.8%, of which no counselor reported agree or strongly agree.

Table 6 indicates those who responded from an urban locale school setting. There were 16 (29.6%) that identified in this area. Table 6 presents the descriptive data for how counselors from urban Indiana perceived projected workforce demands for the state of Indiana.

Table 6

Urban Respondents' Perceptions of Projected Workforce Demands (PWD)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Confident in IN wage projections	2 (12.5%)	7 (43.8%)	4 (25.0%)	2 (12.5%)	0 (0.0%)	1 (6.3%)
Confident in IN labor market projections	1 (6.3%)	7 (43.8%)	3 (18.8%)	2 (12.5%)	2 (12.5)	0 (0.0%)
Career choice--labor market projections	0 (0.0%)	1 (6.3%)	6 (37.5%)	4 (25.0%)	4 (25.0%)	1 (6.3%)
Certifications as valid pathway	7 (43.8%)	6 (37.5%)	2 (12.5%)	1 (6.3%)	0 (0.0%)	0 (0.0%)
Certifications equal to college	4 (25.0%)	4 (25.0%)	3 (18.8%)	3 (18.8%)	1 (6.3%)	1 (6.3%)
Familiar with ICC work and mission	0 (0.0%)	1 (6.3%)	5 (31.3%)	1 (6.3%)	6 (37.5%)	3 (18.8%)
Encouraged to participate in NSCT	0 (0.0%)	4 (25.0%)	2 (12.5%)	1 (6.3%)	8 (50.0%)	1 (6.3%)
School partners with CTE	7 (43.8%)	3 (18.8%)	3 (18.8%)	1 (6.3%)	2 (12.5%)	0 (0.0%)
Career advisement on HD, HW IN jobs	3 (18.8%)	1 (6.3%)	5 (31.3%)	4 (25.0%)	3 (18.8%)	0 (0.0%)
Families access IN Demand	4 (25.0%)	3 (18.8%)	4 (25.0%)	4 (25.0%)	1 (6.3%)	0 (0.0%)
Families informed IN job options	0 (0.0%)	5 (31.3%)	1 (6.3%)	4 (25.0%)	5 (31.3%)	1 (6.3%)

Table 6 shows the urban respondents' perceptions of projected workforce demands for the state of Indiana. There were several comparisons between the urban responses and those of the whole group. For instance, the groups respectively had 81.5% and 81.3% levels of agreement to their confidence in knowing wage differences between occupations. There was a comparison to how the two groups viewed certifications and apprenticeships as valid postsecondary careers. The whole group reported a 94.4% level of agreement to this statement, while the urban group reported a 93.7% level of agreement.

However, just as with the rural group, the urban respondents demonstrated a disparity with how they responded to certifications and apprenticeships as having equal or greater potential for career success. To this statement, urban counselors only reported a 68.8% level of agreement. The urban group also reported 6.3% strongly agreed or agreed with having familiarity to the work and mission of the ICC. For the whole group sample, 33.4% of respondents either strongly agreed or agreed to being aware of the ICC.

Table 7 indicates those who responded from with a caseload of 299 or fewer students. There were 18 (33.3%) that identified in this area. Table 7 presents the descriptive data for how counselors with caseloads of 299 or fewer students perceived their own career advisement practices.

Table 7

Caseloads under 299—Respondents' Perceptions of Career Advisement Practices (CAP)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Career advisement individually	8 (44.4%)	2 (11.1%)	6 (33.3%)	0 (0.0%)	2 (11.1%)	0 (0.0%)
Career advisement whole-class	7 (38.9%)	3 (16.7%)	3 (16.7%)	2 (11.1%)	3 (16.7%)	0 (0.0%)
All take career course	10 (55.6%)	6 (33.3%)	1 (5.6%)	1 (5.6%)	0 (0.0%)	0 (0.0%)
All take interest inventories	5 (27.8%)	9 (50.0%)	1 (5.6%)	3 (16.7%)	0 (0.0%)	0 (0.0%)
Career advisement is primary responsibility	1 (5.6%)	1 (5.6%)	6 (33.3%)	5 (27.8%)	4 (22.2%)	1 (5.6%)
All create readiness portfolio	1 (5.6%)	4 (22.2%)	4 (22.2%)	2 (11.1%)	7 (38.9%)	0 (0.0%)
Digital resources provided	2 (11.1%)	7 (38.9%)	5 (27.8%)	2 (11.1%)	1 (5.6%)	1 (5.6%)
Labor market projections guide advise	2 (11.1%)	0 (0.0%)	4 (22.2%)	6 (33.3%)	6 (33.3%)	0 (0.0%)
Knowledgeable on career training needs	1 (5.6%)	2 (11.1%)	12 (66.7%)	2 (11.1%)	1 (5.6%)	0 (0.0%)
Knowledgeable postsecondary pathways	4 (22.2%)	12 (66.7%)	2 (11.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
PD includes career counsel techniques	4 (22.2%)	5 (27.8%)	2 (11.1%)	2 (11.1%)	3 (16.7%)	2 (11.1%)

Table 7 represented data from counselors with caseloads of 299 or fewer students. Counselors with 299 or fewer caseloads were likely to be in comparison to the whole sample in every one of the 11 statements that comprised the career advisement practices composite score. There were 48.1% of whole group respondents to show agreement to career advisement being among their primary responsibilities, which was very similar to the 44.4% reporting by counselors with less than 299 student caseloads. With respect to the use of interest inventories, the two groups responded in similar fashion. There were 77.8% of counselors with fewer than 299 students reporting agree or strongly agree to the use of interest inventories, which compared well to the whole sample response of 79.6% agree or strongly agree.

In contrast to the whole group sample responses, however, counselors with 299 or fewer caseloads rarely chose the strongly disagree response within Table 7. When reporting on their perceptions of career advisement practices, there were only four instances when a respondent chose strongly disagree. This trend is the only notable contrast between these two groups.

Table 8 indicates those who responded from a caseload of 299 students or fewer. There were 33.3% that identified in this area. Table 8 presents the descriptive data for how counselors with a caseload of 299 students or fewer perceived projected workforce demands.

Table 8

Caseloads under 299—Respondents' Perceptions of Projected Workforce Demands (PWD)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Confident in IN wage projections	1 (5.6%)	6 (33.3%)	10 (55.6%)	1 (5.6%)	0 (0.0%)	0 (0.0%)
Confident in IN labor market projections	0 (0.0%)	8 (44.4%)	3 (16.7%)	5 (27.8%)	1 (5.6%)	0 (0.0%)
Career choice--labor market projections	0 (0.0%)	1 (5.6%)	8 (44.4%)	4 (22.2%)	4 (22.2%)	1 (5.6%)
Certifications as valid pathway	5 (27.8%)	10 (55.6%)	1 (5.6%)	1 (5.6%)	1 (5.6%)	0 (0.0%)
Certifications equal to college	5 (27.8%)	5 (27.8%)	5 (27.8%)	2 (11.1%)	0 (0.0%)	1 (5.6%)
Familiar with ICC work and mission	0 (0.0%)	3 (16.7%)	5 (27.8%)	3 (16.7%)	5 (27.8%)	2 (11.1%)
Encouraged to participate in NSCT	0 (0.0%)	2 (11.1%)	3 (16.7%)	1 (5.6%)	9 (50.0%)	3 (16.7%)
School partners with CTE	8 (44.4%)	6 (33.3%)	1 (5.6%)	0 (0.0%)	3 (16.7%)	0 (0.0%)
Career advisement on HD, HW IN jobs	0 (0.0%)	4 (22.2%)	6 (33.3%)	4 (22.2%)	3 (16.7%)	1 (5.6%)
Families access IN Demand	2 (11.1%)	4 (22.2%)	2 (11.1%)	5 (27.8%)	4 (22.2%)	1 (5.6%)
Families informed IN job options	1 (5.6%)	1 (5.6%)	7 (38.9%)	3 (16.7%)	4 (22.2%)	2 (11.1%)

Table 8 shows that counselors with caseloads of 299 and fewer students were in agreement with how the whole sample reported in many areas. In response to their familiarity with the mission and work of the ICC, respondents with 299 or less had 44.4% report to some level of agreement. This resembled the whole sample group, that reported 32.3% to some level of agreement. Both groups also reported a similar level of agreement when asked if they were encouraged to participate in NSCT counselor training, with a level of agreement of 27.7% for counselors with 299 or less caseloads and 74% for the whole sample group.

In contrast, however, there were two notable differences in reporting between those with caseloads of 299 and less and the whole group sample. The first two statements within the PWD composite set were confidence statements. To the first statement on perceived confidence in Indiana wage projections, the whole sample set had some level of agreement at 81.5%. However, for counselors with caseloads of 299 or less, the agreement level was 94.5%. The next PWD statement was, "I am confident in my own understanding of differences in job growth and labor market projections for different occupations in Indiana." Both groups noted a decline in level of agreement to this statement from the first statement on confidence in current wage differences across career fields. For the whole sample set, there was a drop of 9.3% in confidence. However, for counselors with caseloads of 299 or less, there was a difference of 33.4% in confidence. In fact, where the whole group had 72.2% to some level of agreement, this group of respondents had 61.1%, with 0.0% at strongly agree.

Table 9 indicates those who responded with a caseload between 300-399 students. There were 25 (46.3%) that identified in this area. Table 9 presents the descriptive data for how counselors with a caseload between 300-399 perceived their own career advisement practices.

Table 9

Caseloads of 300-399—Respondents' Perceptions of Career Advisement Practices (CAP)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Career advisement individually	8 (32.0%)	2 (8.0%)	5 (20.0%)	6 (24.0%)	4 (16.0%)	0 (0.0%)
Career advisement whole-class	6 (24.0%)	5 (20.0%)	4 (16.0%)	2 (8.0%)	6 (24.0%)	2 (8.0%)
All take career course	15 (60.0%)	5 (20.0%)	2 (8.0%)	0 (0.0%)	1 (4.0%)	2 (8.0%)
All take interest inventories	11 (44.0%)	9 (36.0%)	0 (0.0%)	1 (4.0%)	1 (4.0%)	3 (12.0%)
Career advisement is primary responsibility	1 (4.0%)	1 (4.0%)	6 (24.0%)	5 (20.0%)	6 (24.0%)	6 (24.0%)
All create readiness portfolio	3 (12.0%)	2 (8.0%)	7 (28.0%)	5 (20.0%)	3 (12.0%)	5 (20.0%)
Digital resources provided	8 (32.0%)	7 (28.0%)	3 (12.0%)	0 (0.0%)	3 (12.0%)	4 (16.0%)
Labor market projections guide advise	0 (0.0%)	4 (16.0%)	5 (20.0%)	10 (40.0%)	5 (20.0%)	1 (4.0%)
Knowledgeable on career training needs	4 (16.0%)	10 (40.0%)	4 (16.0%)	3 (12.0%)	2 (8.0%)	2 (8.0%)
Knowledgeable postsecondary pathways	10 (40.0%	10 (40.0%)	3 (12.0%)	1 (4.0%)	0 (0.0%)	1 (4.0%)
PD includes career counsel techniques	5 (20.0%)	3 (12.0%)	7 (28.0%)	2 (8.0%)	5 (20.0%)	2 (8.0%)

Table 9 indicated responses from counselors with caseloads between 300-399 students. The statement regarding whether all students take interest inventories had a similar value to the whole sample group. Counselors with caseloads between 300-399 students reported some level of agreement that all students take an interest inventory. Similarly, the whole group sample reported an 81.5% level of agreement. There was also a strong comparison to whether career advisement was viewed as a primary responsibility. Of the whole group, 40.7% reported some level of agreement, while the caseloads of 300-399 also reported 32% with some agreement. To the statement, "Career advisement approach focuses more on labor market projections than on trait matching," there were similar views expressed. For the whole sample, 66.6% disagreed with this statement. For those counselors with 300-399 caseloads, there was a similar level of disagreement, with 64.0%.

To the statement on perceived knowledge of career training needs for students, respondents with 300-399 caseloads reported much lower agreement levels than did the whole group. In fact, this group only reported a 66% level of agreement, whereas the whole sample reported 96.3% level of agreement. This is the only notable contrast between this group and the whole sample.

Table 10 indicates those who responded with a caseload of 300-399 students. There were 25 (46.3%) that identified in this area. Table 10 presents the descriptive data for how counselors with a caseload of 300-399 perceived projected workforce demands for the state of Indiana.

Table 10

Caseloads of 300—399—Respondents' Perceptions of Projected Workforce Demands (PWD)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Confident in IN wage projections	4 (16.0%)	8 (32.0%)	5 (20.0%)	4 (16.0%)	2 (8.0%)	2 (8.0%)
Confident in IN labor market projections	3 (12.0%)	8 (32.0%)	7 (28.0%)	2 (8.0%)	4 (16.0%)	1 (4.0%)
Career choice--labor market projections	1 (4.0%)	3 (12.0%)	10 (40.0%)	7 (28.0%)	1 (4.0%)	3 (12.0%)
Certifications as valid pathway	15 (60.0%)	7 (28.0%)	2 (8.0%)	1 (4.0%)	0 (0.0%)	0 (0.0%)
Certifications equal to college	6 (24.0%)	9 (36.0%)	6 (24.0%)	1 (4.0%)	2 (8.0%)	1 (4.0%)
Familiar with ICC work and mission	0 (0.0%)	5 (20.0%)	2 (8.0%)	6 (24.0%)	7 (28.0%)	5 (20.0%)
Encouraged to participate in NSCT	0 (0.0%)	5 (20.0%)	2 (8.0%)	3 (12.0%)	11 (44.0%)	4 (16.0%)
School partners with CTE	9 (36.0%)	5 (20.0%)	6 (24.0%)	2 (8.0%)	0 (0.0%)	2 (8.0%)
Career advisement on HD, HW IN jobs	3 (12.0%)	6 (24.0%)	8 (32.0%)	4 (16.0%)	2 (8.0%)	2 (8.0%)
Families access IN Demand	3 (12.0%)	9 (36.0%)	3 (12.0%)	4 (16.0%)	4 (16.0%)	2 (8.0%)
Families informed IN job options	1 (4.0%)	5 (20.0%)	2 (8.0%)	5 (20.0%)	8 (32.0%)	4 (16.0%)

Respondents for the group of caseloads of 300-399 students answered similarly to the whole sample group when asked about their perceived confidence in Indiana labor market projections, with 72.0% in some level of agreement to the statement. The whole sample group had reported 72.2 % to some level of agreement. There were other notable patterns of agreement between these two groups. As to their perceptions of certifications as valid pathways, this group reported an agreement level of 96.0%, while the whole group reported 94.4%. As to whether certifications had equal or greater potential to college degrees for career success, this group reported an agreement level of 84.0%, while the whole group reported 85.2%.

The greatest contrast between how the two groups reported to the PWD composite set statements was with the first statement, "I am confident in my own knowledge of differences in wages across occupations." For the counselor group with caseloads of 300-399, the level of agreement noted was the lowest of any group, with 68.0% reporting to some level of agreement. The whole sample group had reported 81.5% to some of level of agreement to this statement. Furthermore, in the counselor groups of 299 or fewer and 400 or more, each reported some level of agreement on their confidence at 94.5% and 91.0%, respectively.

Table 11 indicates those who responded from a student caseload of 400 or more. There were 11 (20.4%) that identified in this area. Table 11 presents the descriptive data for how counselors with a student caseload of 400 or more perceived their own career advisement practices.

Table 11

Caseloads of 400 or more—Respondents' Perceptions of Career Advisement Practices (CAP)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Career advisement individually	5 (45.5%)	5 (45.5%)	1 (9.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Career advisement whole-class	3 (27.3%)	2 (18.2%)	2 (18.2%)	1 (9.1%)	3 (27.3%)	0 (0.0%)
All take career course	6 (54.5%)	3 (27.3%)	1 (9.1%)	1 (9.1%)	0 (0.0%)	0 (0.0%)
All take interest inventories	6 (54.5%)	3 (27.3%)	2 (18.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Career advisement is primary responsibility	0 (0.0%)	0 (0.0%)	6 (54.5%)	3 (27.3%)	1 (9.1%)	1 (9.1%)
All create readiness portfolio	1 (9.1%)	2 (18.2%)	5 (45.5%)	1 (9.1%)	2 (18.2%)	0 (0.0%)
Digital resources provided	4 (36.4%)	5 (45.5%)	1 (9.1%)	1 (9.1%)	0 (0.0%)	0 (0.0%)
Labor market projections guide advise	0 (0.0%)	0 (0.0%)	3 (27.3%)	4 (36.4%)	3 (27.3%)	1 (9.1%)
Knowledgeable on career training needs	1 (9.1%)	4 (36.4%)	6 (54.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Knowledgeable postsecondary pathways	5 (45.5%)	2 (18.2%)	4 (36.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
PD includes career counsel techniques	2 (18.2%)	4 (36.4%)	2 (18.2%)	1 (9.1%)	1 (9.1%)	1 (9.1%)

There were some similar patterns of response with how counselors with caseloads of 400 or more students perceived career advisement practices with the whole sample group responses. To the statement on perceived knowledge of multiple postsecondary pathways available in Indiana, counselors with 400 or more caseloads responded with 100.0% levels of agreement to each statement. This is similar to the whole group sample reporting of 96.3% to some level of agreement.

Table 11 indicates interesting contrasts to the whole group sample with respect to having strong views on either end of the Likert-scale spectrum. To the statement on career advisement as a primary responsibility, counselors with caseloads of 400 or more had 0.0% select either strongly agree or agree, whereas the whole group had 8.4% choose one of these two. There was a similar pattern as to whether labor market projections should guide career advisement. Again, 0.0% of this group selected either strongly agree or agree, whereas 40.7% of the whole group marked either strongly agree or agree. For counselors with caseloads of 400 or more students, there were six instances where respondents did not choose disagree or strongly disagree as a response. In fact, there were four statements where this group expressed 0.0% disagreement. For example, 100.0% of respondents agreed that all students take an interest inventory and receive career advice individually. However, the whole group data for these is 79.6% and 74.1%, respectively. Furthermore, this group also reported with 100.0% level of agreement to being knowledgeable on the training needs for postsecondary pathways, which is nearly 20% higher than the whole group reporting of an 81.1% level of agreement.

Table 12 indicates those who responded from a caseload of 400 or more students. There were 11 (20.4%) that identified in this area. Table 12 presents the descriptive data for how

counselors with a 400 or more student caseload perceived projected workforce demands for the state of Indiana.

Table 12

Caseloads 400 or more—Respondents' Perceptions of Projected Workforce Demands (PWD)

Statement	Strongly Agree *n* (%)	Agree *n* (%)	Somewhat Agree *n* (%)	Somewhat Disagree *n* (%)	Disagree *n* (%)	Strongly Disagree *n* (%)
Confident in IN wage projections	1 (9.1%)	5 (45.5%)	4 (36.4%)	1 (9.1%)	0 (0.0%)	0 (0.0%)
Confident in IN labor market projections	0 (0.0%)	6 (54.5%)	4 (36.4%)	1 (9.1%)	0 (0.0%)	0 (0.0%)
Career choice--labor market projections	0 (0.0%)	0 (0.0%)	7 (63.6%)	2 (18.2%)	1 (9.1%)	1 (9.1%)
Certifications as valid pathway	6 (54.5%)	3 (27.3%)	2 (18.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Certifications equal to college	4 (36.4%)	5 (45.5%)	1 (9.1%)	1 (9.1%)	0 (0.0%)	0 (0.0%)
Familiar with ICC work and mission	0 (0.0%)	1 (9.1%)	2 (18.2%)	3 (27.3%)	3 (27.3%)	2 (18.2%)
Encouraged to participate in NSCT	0 (0.0%)	1 (9.1%)	1 (9.1%)	2 (18.2%)	2 (18.2%)	5 (45.5%)
School partners with CTE	2 (18.2%)	7 (63.6%)	2 (18.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Career advisement on HD, HW IN jobs	1 (9.1%)	1 (9.1%)	3 (27.3%)	4 (36.4%)	2 (18.2%)	0 (0.0%)
Families access IN Demand	0 (0.0%)	0 (0.0%)	4 (36.4%)	6 (54.5%)	1 (9.1%)	0 (0.0%)
Families informed IN job options	0 0	3 (27.3%)	2 (18.2%)	2 (18.2%)	3 (27.3%)	1 (9.1%)

There were a few data comparisons, within the PWD composite score report, between counselors with caseloads of 400 or more students and the whole sample group. This group reported 100.0% to some level of agreement that certifications and apprenticeships were valid postsecondary pathways. This is in line with the whole group report to 94.4% level of agreement. The whole group sample demonstrated a 9.2% decline in agreement from the previous statement to the next statement, "Certifications and apprenticeship tracts have equal or greater potential of career success." Similarly, counselors with 400 or more student caseloads also showed a 9.2% decline in reporting some level of agreement between those two statements.

To the statement of whether labor market projections should guide career advisement practices with students, the whole group sample reported a 55.6% level of agreement. However, for counselors with caseloads of 400 or more students, the level of agreement reported was 63.6%. In fact, this 63.6% level of agreement was the highest reported by any of the other five groups to this statement as well. This pattern presented again with the statements on confidence in Indiana labor market projections and viewing certifications as equal or greater in potential to college degrees. Whereas the whole group reported an 85.2% level of agreement to their confidence in Indiana labor market projects, this group reported 90.9%. To the statement on whether certifications are equal or greater in potential to college degrees, the whole sample group reported an 85.2% level of agreement, while counselors with 400 or more caseloads reported 90.9%. Again, in both instances, this group reported highest percentages with the levels of agreement than any of the other groups or the whole group.

Inferential Statistics

The null hypotheses were developed and tested for each area signified by the research questions. The following represent the null hypotheses:

$H_0$1: There is no statistically significant difference based upon an Indiana 9-12 school counselor's demographic locale (i.e., rural and urban) and their career advisement practices.

$H_0$2: There is no statistically significant difference based upon an Indiana 9-12 school counselor's demographic locale (i.e., rural and urban) and their perceptions of projected high-demand, high-wage careers for Indiana.

$H_0$3: There is no statistically significant difference based upon an Indiana 9-12 school counselor's ratio per 100 students and their career advisement practices.

$H_0$4: There is no statistically significant difference based upon an Indiana 9-12 school counselor's ratio per 100 students and their perceptions of high-demand, high wage career pathways.

The first null hypothesis focused on whether there is a statistically significant difference based on counselor's demographic locale on the composite score for career advisement practices. A one-way ANOVA was utilized to determine whether such differences existed. This inferential test is appropriate when testing scores on one dependent variable (CAP) with an independent variable (locale) having more than two levels (rural, suburban, and urban).

Three assumptions of a one-way ANOVA were tested to ensure the reliability of the inferential findings. First, there were no outlier scores on the dependent variable, as all data points on the box plots fell within 1.5 standard deviations of the edges. According to statistician

Galili (2011), "When reviewing a boxplot, an outlier is defined as a data-point that is located outside the fences of the boxplot." Second, the dependent variable scores were tested statistically using the Shapiro-Wilk's test. This test found non-significance at each level, indicating a normal distribution of scores ($p > .05$). Third, there was a test to determine if the assumption of homogeneity of variance was violated. Homogeneity of variance was tested with Levene's test of equality of variances and was not significant, $F(2, 51) = 1.00$, $p = .38$. This indicates that the variances on the dependent variable scores among the three levels of rural, suburban, and urban were equal to one another.

The means on the CAP composite score were not significantly different from one another based upon rural ($M = 2.66$, $SD = .62$), suburban, ($M = 2.94$, $SD = 1.10$), and urban ($M = 2.40$ $SD = .72$) locale types. The ANOVA only tell us whether there are differences among out groups (Gravetter & Wallnau, 2006). A one-way ANOVA was conducted to ascertain differences in perceptions of career advisement practices among the three groups. The model did not indicate significance difference between any of the scores, $F(2, 51) = 1.21$, $p = .31$. Since the value is higher than the .05 alpha, the first null hypothesis was retained (Gravetter & Wallnau, 2006).

The second null hypothesis focused on whether there is a statistically significant difference based on counselor's demographic locale on the projected workforce demands composite score. A one-way ANOVA was utilized to determine whether such differences existed. This inferential test is appropriate when testing scores on a dependent variable (PWD) with an independent variable (locale) with more than two levels (rural, suburban, and urban).

The assumptions of a one-way ANOVA were tested to ensure the validity of the inferential findings for the second null hypothesis. There were no outliers scores on the dependent variables, as all data points on the box plots fell within 1.5 standard deviations of the edges. Second, the dependent variable scores were tested statistically using the Shapiro-Wilk's test. This test found non-significance at each level, indicating a normal distribution of scores ($p > .05$). Third, there was a test to determine if the assumption of homogeneity of variance was violated. Homogeneity of variance was tested with Levene's test of equality of variances and was not significant, $F(2, 51) = .08$, $p = .92$. This indicates that the variances on the dependent variable scores among the three levels of rural, suburban, and urban were equal to one another.

The means on the PWD composite score were not significantly different from one another based upon rural ($M = 3.07$, $SD = .72$), suburban ($M = 3.27$, $SD = .96$), and urban ($M = 3.10$, $SD = .68$) locale types. The ANOVA only tell us whether there are differences among out groups (Gravetter & Wallnau, 2006). A one-way ANOVA was conducted to ascertain differences in perceptions of projected workforce demands among the three groups. The model did not indicate significance difference between any of the scores, $F(2, 51) = .31$, $p = .73$. Since the value is higher than the .05 alpha, the second null hypothesis was retained (Gravetter & Wallnau, 2006).

The third null hypothesis focused on whether there is a statistically significant difference based on a counselor's student caseload and the composite score for career advisement practices. A one-way ANOVA was utilized to determine whether such differences existed. This inferential test is appropriate when testing scores on a dependent variable (CAP) with an independent variable (caseload) with more than two levels (299 or fewer, 300-399, 400 or more).

The assumptions of a one-way ANOVA were tested to ensure the validity of the inferential findings for the third null hypothesis. There were no outliers scores on the dependent variable, as all data points on the box plots fell within 1.5 standard deviations of the edges. According to statistician Galili (2011), "When reviewing a boxplot, an outlier is defined as a data-point that is located outside the fences of the boxplot" (para. 3). Second, the dependent variable scores were tested statistically using the Shapiro-Wilk's test. This test found non-significance at each level, indicating a normal distribution of scores, Shapiro-Wilk's test, $p > .05$. Third, there was a test to determine if the assumption of homogeneity of variance was violated. Homogeneity of variance was tested with Levene's test of equality of variances and was not significant, $F(2, 51) = .76$, $p = .48$. This indicates that the variances on the dependent variable scores among the three levels of rural, suburban, and urban were equal to one another.

The means on the CAP composite score were not significantly different from one another based upon 299 or fewer ($M = 2.67$, $SD = .67$), 300-399, ($M = 3.01$, $SD = .96$), and 400 or more ($M = 2.59$, $SD = .66$) caseloads. The ANOVA only tell us whether there are differences among our groups (Gravetter & Wallnau, 2006). A one-way ANOVA was conducted to ascertain differences in perceptions of career advisement practices among the three groups. The model did not indicate significance difference between any of the scores, $F(2, 51) = 1.21$, $p = .34$. Since the value is higher than the .05 alpha, the third null hypothesis was retained (Gravetter & Wallnau, 2006).

The fourth null hypothesis focused on whether there is a statistically significant difference based on counselor's student caseload and the composite score for projected workforce demands. A one-way ANOVA was utilized to determine whether such differences

existed. This inferential test is appropriate when testing scores on a dependent variable (PWD) with an independent variable (caseload) with more than two levels (299 or fewer, 300-399, and 400 or more).

The assumptions of a one-way ANOVA were tested to ensure the validity of the inferential findings for the fourth null hypotheses. There were no outliers scores on the dependent variable, as all data points on the box plots fell within 1.5 standard deviations of the edges. Second, the dependent variable scores were tested statistically using the Shapiro-Wilk's test. This test found non-significance at each level, indicating a normal distribution of scores, ($p > .05$). Third, there was a test to determine if the assumption of homogeneity of variance was violated. Homogeneity of variance was tested with Levene's test of equality of variances and was not significant, $F(2, 51) = .43$, $p = .66$. This indicates that the variances on the dependent variable scores among the three levels of rural, suburban, and urban were equal to one another.

The means on the PWD composite score were not significantly different from one another based upon 299 or fewer ($M = 3.19$, $SD = .78$), 300-399, ($M = 3.15$, $SD = .83$), and 400 or more ($M = 2.99$, $SD = .65$) caseloads. The ANOVA only tell us whether there are differences among out groups (Gravetter & Wallnau, 2006). A one-way ANOVA was conducted to ascertain differences in perceptions of career advisement practices among the three groups. The model did not indicate significance difference between any of the scores, $F(2, 51) = .24$, $p = .79$. Since the value is higher than the .05 alpha, the fourth null hypotheses was retained (Gravetter & Wallnau, 2006).

Summary

This chapter explored current career advisement practices within Indiana high schools and counselor projections of high-demand, high-wage careers for the state. To investigate this, four null hypotheses and one additional research question were addressed. Of the 54 high school guidance counselors that responded to the survey within this study, 24 (44.4%) were from rural schools, 14 (25.9%) were from suburban schools, and 16 (29.6%) were from urban schools. Respondents were also grouped according to caseload, with 18 (33.3%) reporting a caseload of under 299 students, 25 (46.3%) reporting a caseload of 300-399, and 11 (20.4%) reporting a caseload of 400 or more. Descriptive statistics were analyzed to determine relationships between these location types and between the different caseload groups.

Inferential statistics were then used to test the four null hypotheses. Since there were three levels within each independent variable, an ANOVA was used to test each of the four null hypotheses. To ensure the validity of the findings of the inferential data, the assumptions of a one-way ANOVA were tested. The assumptions of detecting outliers, normality, and homogeneity of variance were each tested and met. The findings found no significance. None of the four nulls were found to have statistical significance.

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

In 2014, the state of Indiana launched the ICC (2014) with the intent of streamlining secondary education to postsecondary education, apprenticeship tracts, and certification training programs in order to meet the projected demands of needed career fields for the state. This quantitative study aimed to evaluate public high school counselor perceptions of their career advisement practices and their projections of Indiana's high-demand, high-wage careers. The independent variables in this study were school locale (i.e., rural, suburban, and urban) and counselor caseload (i.e., 299 and fewer, 300-399, and 400 or more students). The dependent variables in this study were career advisement practices and projected workforce demands.

There have been many studies throughout Indiana analyzing labor market projections for high-demand, high-wage careers. There have also been many studies on career advisement practices for both K-12 and higher education. However, as stated in the ICC (2014) vision statement, most state institutions continue to operate as silos, making it difficult to evaluate the alignment between the ICC mission, labor market projections, and current high school career advisement practices. Within high schools, career advisement remains largely a function of guidance counselors; thus, counselors become critical gatekeepers to student postsecondary success (ASCA, 2013).

This chapter is divided into four sections. This chapter begins with a discussion of the findings, including a summary of the quantitative data analysis. The second section of this

chapter provides implications of the quantitative data analysis. The next piece of this chapter examines the limitations of this study. The final section contains possible areas for future research.

Findings

The fundamental research question leading this study was, "What is the state of Indiana 9-12 school counselors' self-ratings regarding knowledge of career advisement practices and perceptions of high-demand, high-wage careers?" This question was designed to determine if counselor perceptions and practices align to the purpose of the ICC, created by Indiana legislators in 2014. To investigate this question, survey results form 54 public counselors were analyzed. Five research questions and four supporting null hypotheses were developed. Each of the null hypotheses will be detailed in the proceeding subsections.

Null Hypotheses 1

$H_0$1. A one-way ANOVA test revealed that no statistically significant difference existed between a counselor's school locale (i.e., rural, suburban, and urban) and their perceptions of career advisement practices. The null hypothesis for counselor locale and career advisement practices was retained.

Null Hypotheses 2

$H_0$2. A one-way ANOVA test revealed that no statistically significant difference existed between a counselor's school locale (i.e., rural, suburban, and urban) and their perceptions of projected workforce demands for the state of Indiana. The null hypothesis for counselor locale and projected workforce demands was retained.

Null Hypotheses 3

$H_0$3. A one-way ANOVA test revealed that no statistically significant difference existed between a counselor's caseload (i.e., 299 or fewer, 300-399, and 400 or more) and their perceptions of career advisement practices. The null hypothesis for counselor caseload and career advisement practices was retained.

Null Hypotheses 4

$H_0$4. A one-way ANOVA test revealed that no statistically significant difference existed between a counselor's caseload (i.e., 299 or fewer, 300-399, and 400 or more) and their perceptions of projected workforce demands for the state of Indiana. The null hypothesis for counselor caseload and projected workforce demands was retained.

Implications of Research

There are numerous expected audiences that might benefit from this research study, including the ICC (2014); the Indiana DWD; the IDOE; district and school leaders; CTE directors; high school, middle school, and elementary school counselors; and Indiana families. Each of these entities might find meaningful application from this research, but the overall effect of the research was to demonstrate that silos are an obstacle that must be addressed. The ICC's (2014) vision is to ensure that "every Indiana citizen has access to the information, education and skills required for career success" (p. 5). If the ICC is to reach this goal, school counselor perceptions and practices are fundamental. Counselors need to be working alongside legislators, business and IDOE leaders, and the Indiana DWD. I have organized the implications into four categories and titled each section by the group that could potentially be impacted. However, it is in the unifying of these groups that the research might have the greatest potential. I am calling

for an intentional and holistic approach toward preparing citizens for the actual high-demand, high-wage jobs projected between now and 2024.

Implications for Indiana State Agencies: ICC, DWD, and IDOE

In 2014, the Indiana legislature created the ICC in response to the need to transform the state's workforce. Those who took part in the first two years of meetings included then-Governor Pence, Lieutenant Governor Ellspermann, and representatives of the DWD, IDOE, Ivy Tech, and various businesses from the state (ICC, 2014). The design of ICC (2014) membership alone gives evidence of the silo thinking that continues to impede efforts to prepare a strong workforce ready to meet labor market projections. Considering counselors are significant gatekeepers to student postsecondary success, it shows poor judgment on the part of state leaders not to include them in discussions. Moreover, when this research began, the ICC (2016) had launched an extensive research packet created in large part by the DWD, IDOE, and state business leaders working to highlight the significant problems in meeting labor market projections. Sadly, after 2017, there are no updates to their website (ICC, 2016), which leads to the belief that the group has failed already in meeting its stated mission.

Furthermore, in January 2019 the IDOE launched another career ready preparation framework with a similar mission to that of the ICC (IDOE, 2019). The IDOE (2019) stated,

> Senate Enrolled Act 297 states that not later than July 1, 2019, each school within a school corporation shall include interdisciplinary employability skills standards established by IDOE, in conjunction with the Department of Workforce Development, and approved by the State Board of Education, in the school's curriculum. (para. 1)

Every state public school is now tasked with embedding the employability standards in each K–12 grade level. The standards are based on the National Employability Skill Standards from the Office of Career, Technical, and Adult Education (OCTAE), the Indiana DWD's Employability Skills Benchmarks, and the Governor's Work Ethic Certificate (IDOE, 2019).

While the creation of these new employability skill standards appears to be a step in bringing silo organizations together, again there was no inclusion of the ISCA when designing the standard sets. I see this as another *theoretical fails to meet practical* attempt to reform schools. Building-level leaders and classroom teachers are now working to meet and embed these standards into already overburdened curriculum standards. If career advisement falls on the role of the counselor, any implementation of employability skills should have sought the inclusion of the ISCA. Furthermore, state leaders are focusing on specifically creating a workforce prepared to meet the high-demand, high wage needs of the near future (Indiana DWD, 2017c). However, when asked whether career choices should be influenced by career salary and labor market projections for Indiana, counselors responded with 1.9% in strong agreement and 7.4% in agreement to that statement. This response represents a significant gap in attitudes that has the potential to be an obstacle for workforce preparation. The implications here are worth noting. While all regional DWD meetings include CTE directors, they do not include traditional school counselors. If the state aim is toward the identified high-demand, high-wage careers, perhaps counselors who do the advising should be informed of these potential career opportunities on a regional and state level.

Implications for District School Leaders and CTE Directors

I believe strongly that in order for the new employability standards to have an impact and prepare students for projected high-demand, high-wage careers, school leaders will need to consider adding a career specialist to their leadership teams. The release of the state initiative in 2019, requiring school compliance by July 2019, demonstrates another surface attack at a deeply embedded problem. As the instructional coach for a large urban CTE school, I have already been contacted by two elementary principals reaching out for help from CTE teachers with meeting these new standards. Rather than task overburdened school principals and teachers with figuring out how to teach the required employability mindsets, work ethic, learning strategy, and social and emotional skill standards (IDOE, 2019) at each grade level K–12, state leaders could have included CTE directors and counselors in creating a unified planned approach.

Every year across the state of Indiana, CTE directors work with their teams to bring counselors in to observe programs fist hand. The goal is largely to defeat a continued negative stigma that still exists with respect to working in the trades. The trades jobs, many of which are IT based, are among those fastest growing projections we are trying to meet as a state. However, CTE leaders still need to market their programs and prove that they are worthy postsecondary options to traditional school counselors. This need is evidenced in the survey results in the significant difference between the percentage of counselors who believed certifications were a valid postsecondary pathway and the percentage who felt certifications led to the same success level as a college degree. Until this attitude shift in counselors happens, student advisement into the trades could be adversely affected.

If the state had created a board that included every key player to plan the employability standards, a CTE director might have been able to identify how to use their classes to help classroom teachers meet the new competencies in meaningful ways. Directors could also then consider use of Perkins V funding, which emphasizes the use of grant monies toward career training. Over 85% of respondents noted that their school partners with a CTE school currently. For the nearly 15% that do not, an inclusive board also could have provided an opportunity to unify CTE and traditional schools successfully across the state.

Implications for High School, Middle School, and Elementary School Counselors

Counselors are the people who could best apply the findings from this research to their own practice. For the IDOE employability standards, two of the K–12 mindsets addressed are adaptability and decision making with respect to career choices. Just as high school counselors would benefit from working directly with advisory boards, I believe that middle and elementary school counselors would also benefit from regular conversation with business, industry, and community leaders. New career fields are continually being created. Within the IT pathway alone there are several jobs that did not exist even five years ago, including many social media marketing positions, iCloud architects, project design team leads, and creative project design leads. While there once were developers and networkers, many software development companies are combining these positions into one. I find it unreasonable to think that counselors have a full grasp of career changes across a wide spectrum of industries, especially on the level required for accurately advising students.

Furthermore, I believe that if all three levels of counselors where actively meeting with advisory boards to be more informed, they could also then have more meaningful vertical

alignment among them. For instance, I worked with an automotive student last year who attended a CTE school in the mornings and a prestigious private school in the afternoons. When I realized that this student had scored in the 98th percentile for PSAT testing during his sophomore year, I inquired if anyone had supported his choice to attend the CTE automotive program. His response was, "No one did. I had to fight my parents and my counselors to be in the program over staying full time at my high school." I then asked what his career goals were that dictated his decision to enroll in this program. He remarked that he wanted to become a mechanical engineer. In his opinion, learning engine fundamentals for two years would push his engineering knowledge much further than taking more liberal arts courses. This one example speaks volumes to the errors of judgment gatekeepers can make that have serious consequences to students' futures. Had his counselor served on an advisory board with engineers, he might have realized the influence that learning engine fundamentals could have to developing this type of disciplinary literacy.

Implications for Indiana Families

According to O'Shaughnessy (2018), **"**The official four-year graduation rate for students attending public colleges and universities is 33.3%. The six-year rate is 57.6%. At private colleges and universities, the four-year graduation rate is 52.8% and 65.4% earn a degree in six years" (para. 4). O'Shaughnessy has studied college graduation rates for over a decade and reported that the federal government has just recently included statistics separating Pell Grant college graduation rates as a sub set. This is significant as it shows how students form lower income brackets are faring in school. According to the 2018 data, Pell Grant students are less likely to graduate than students with higher incomes. "According to the new results, 41.2% of

Pell Grant students graduated within six years while 55.4% of students who did not qualify for subsidized federal loans or Pell Grants graduated within that time period" (O'Shaughnessy, 2018, para. 14). Just as earlier research from Chapter 2 emphasized the racial divide within Indiana, these national data point to the need for more equitable career advisement. Furthermore, it could be that the career advisement approach needs to be more systematic.

I believe that district leaders should create systematic career advisement plans that bring families into the planning process. With the technological platforms that exist today, it would be both economically feasible and efficient to include parents in career investigation and career exploration alongside their students. Again, if state educational leaders could either create advisory boards for school counselors or add career advisement specialists to each district team, Indiana families would be significantly empowered to make wiser decisions about the best viable postsecondary pathway for their child.

Recommendations for Further Study

I designed research questions to guide this study with four goals in mind. I wanted to identify how counselors view their own career advisement practices and whether Indiana counselors believe that labor market projections should be a guiding principle for this advisement. I also wanted to identify the confidence level of counselors with respect to their perceived knowledge of labor market projections for the state. Finally, I wanted to explore how CTE factors into the practice of advisement, with respect to alternate pathways and views of certifications and apprenticeship tracts. To answer those research questions, I conducted a quantitative research study. There are many other potential studies that researchers could employ to further explore this topic. Due to the unfortunately small sample size in this survey, I

feel that a starting point might be to redesign this survey in Indiana where hundreds of counselor responses could be collected and analyzed for greater validity.

Originally, I expected to find evidence that high school counselors admittedly need greater support, resources, and training for advising students toward acquiring jobs in the future. However, counselors responded with high levels of confidence. As an educator who spent 15 years in the traditional high school setting and another six years with CTE, I can attest that my own understanding of career pathways and potential career success has grown tremendously over the last six years. I realize that awareness of a problem is the first step to solving the problem. I was trying to capture this awareness with the two survey composite sets, attempting to demonstrate a gap in knowledge of labor market projections. I believed that counselors would score low on the confidence statements with respect to job projections. This was not the case. However, this goes against the results of a 2017 survey of recent Butler University graduates of the school counselor program. The Butler University survey included counselors who had completed the graduate secondary counselor program. Participants rated their confidence and competency levels in eight counselor performance fields, where career advisement was the lowest across the last six evaluation forms (Butler University, 2017).

A potential research study could explore the role of internships at high school levels. In a recent study, the Battelle Memorial Institute (2012) reported "that among state students who complete an internship in Indiana, 73% were either employed or continuing their education and remained in Indiana, compared to 64% who did not complete an internship" (p. 2). State education leaders and individual students will benefit by examining this research to consider how to use internships within career advisement and the scope of the ICC's planning, allowing the

state to solve problems through new information and innovative insights provided by systematic study. Internships have the potential to elevate career advisement to higher levels than thought possible.

I believe it prudent to explore shifting from traditionally held beliefs in trait-based theories of career advisement to more state-based theories. The European Training Foundation (Zelloth, 2009) recently released an extensive study with respect to gaps in training and education required to fill current labor market needs across Europe. One key conclusion from this study coincides with Bandura's social cognitive theory of career advisement. According to the ETF report, between secondary and tertiary school into young adulthood, people need to learn career management skills and apply those to job shadows and apprenticeship programs (Zelloth, 2009). According to Bandura (1985), it is in providing opportunities and new exposures to job-related experiences that we can influence self-efficacy in all children. Here you see the external, state-based theories of career advisement being emphasized as strategic career development interventions. To evidence the need to explore this topic with a sense of urgency, one need study college degree completion rates. According to recent data released by the U.S. Census, four-year graduation rate for students attending public colleges and universities is 33.3% in the United States (O'Shaughnessy, 2018). This indicates that far too many students are graduating from high school without being on the right pathway. If people could learn and practice career management skills and decision making, and have systematic exposure to several career fields, perhaps college graduation rates could also be positively influenced.

Another way to further explore this topic would be to study decision making. In his recent bestseller, *Thinking Fast and Slow,* economist Kahneman (2015) noted that the human

mind is a machine designed to jump to conclusions. In explaining how associative heuristics naturally lead us to drawing wrong conclusions, Kahneman used a career advisement example. One example of how automatic activities of decision making occur is to "recognize that a "meek and tidy soul with a passion for detail" (Kahneman, 2015, p. 24) resembles an occupational stereotype. This is the type of counselor decision making that I see regularly at a CTE school. Students are continually placed in graphic design because they like to draw. There is no drawing involved in the graphic design standards. Someone loves to watch YouTube videos and is placed in TV production. These incidents are the result of heuristics in judgement at the counseling level. It is not the fault of the counselor; it is simply the human brain at work in its natural state. Kahneman also noted that decision making is often challenged by overconfidence. "The confidence that individuals have in their beliefs depends mostly on the quality of the story they can tell about what they see, even if they see little" (Kahneman, 2015, p. 87). This challenge can be evidenced by the story of the automotive student with the intent of studying engineering. Kahneman's research points to a need for further study of career advisement to determine the degree to which decision making affects career counseling.

A final recommendation for further study is to focus on how schools and community partners collaborate to support teachers in implementing the new employability standards. Having a background in both traditional high school teaching and CTE instructional coaching, I can see firsthand the impact an advisory board council has on actual classroom practices. I strongly believe that a first step in working to end silo mentality would be to create advisory boards for all schools, where all teachers and counselors would have opportunities throughout the school year or during summer sessions to listen to business and industry leaders. Teachers

could explain the new state employability standards, give examples of their current curriculum and classroom practices, and work with leaders to design more meaningful experiences in the classroom. We need to harness the power of the information age. Fullan, Quinn, and McEachen (2017) advocated a push for deep learning and leveraging digital tools such as Skype to bring community leaders into our classrooms more regularly. This approach could also work to broaden deeply the scope and practice of career advisement. One persistent problem continues to be that career options are now increasing exponentially, and there is no way that overburdened teachers and counselors can possibly keep pace. It seems obvious that bringing community and business leaders systematically into our K–12 classrooms via technology tools is a great approach to streamlining an effective practice. I strongly believe that creating advisory boards is a wise first step toward this end.

Summary

The fundamental research question leading this study was, "What is the state of Indiana 9-12 school counselors' self-ratings regarding knowledge of career advisement practices and perceptions of high-demand, high-wage careers?" This question was designed to determine if counselor perceptions and practices align to the purpose of the ICC, created by Indiana legislators in 2014. To investigate this question, survey results form 54 public counselors were analyzed. Five research questions and four supporting null hypotheses were developed. Each of the null hypotheses was retained. However, the data analysis highlights key implications of the study. There are numerous expected audiences that might benefit from this research study, including the ICC; the Indiana DWD; the IDOE; district and school leaders; CTE directors; high school, middle school, and elementary school counselors; and Indiana families. Each of these

entities might find meaningful application from this research, but the overall effect of the research was to demonstrate that silos are an obstacle that must be addressed.

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APPENDIX A: HIGH SCHOOL COUNSELOR SELF-RATED PERCEPTIONS SURVEY

Please respond to the following questions to the best of your ability.

Answer the following questions based upon the Likert Scale provided.

(*1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = strongly agree with the statement provided.)*

1. I discuss potential career options with each student individually least once during the school year.	1	2	3	4	5	6
2. I discuss potential career options with students in a whole class setting (with every class) at least once during the school year.	1	2	3	4	5	6
3. All students have an opportunity to take a course specifically designed for career exploration.	1	2	3	4	5	6
4. All students are given interest inventories or personality trait assessments for career guidance purposes.	1	2	3	4	5	6
5. Career advisement is my primary responsibility as counselor.	1	2	3	4	5	6
6. Students all create and actively update a career readiness portfolio during their 4 years in high school.	1	2	3	4	5	6

APPENDIX A: HIGH SCHOOL COUNSELOR SELF-RATED PERCEPTIONS SURVEY

7. My professional development has included training on career counseling techniques during the last 3 years.	1	2	3	4	5	6
8. Students and families are provided with free digital resources (i.e., Kuder) to assess personality and skill strengths to assist with career choice.	1	2	3	4	5	6
9. In advising students on career choice, our approach focuses more on labor market projections than on psychological/social trait matching.	1	2	3	4	5	6
10. I have ample knowledge of the extra training students require to pursue each career.	1	2	3	4	5	6
11. I know different ways that students can begin to prepare themselves for success in post-high training, or ways they can start to earn required certifications or experience while in high school.	1	2	3	4	5	6
12. I am confident in my own knowledge of differences in wages across occupations.	1	2	3	4	5	6
13. I am confident in my own understanding of differences in job growth and labor market projections for different occupations in Indiana.	1	2	3	4	5	6

APPENDIX A: HIGH SCHOOL COUNSELOR SELF-RATED PERCEPTIONS SURVEY

14. I believe student career choices should be influenced by career salary and labor-market projections for Indiana.	1	2	3	4	5	6
15. I believe that certifications, apprenticeship tracts, and nondegree certifications are defined as postsecondary pathways.	1	2	3	4	5	6
16. I believe that nondegree certifications/credentials have equal or greater potential than college degrees for career advancement.	1	2	3	4	5	6
17. I am familiar with the mission and work of the Indiana Career Counsel (ICC).	1	2	3	4	5	6
18. I have been encouraged to participate in the National School Counselor Training as a part of counselor professional development.	1	2	3	4	5	6
19. My school partners with a CTE school for career advisement services for students and/or their families.	1	2	3	4	5	6
20. My career advisement sessions with students include examining projected high-demand, high-wage jobs for Indiana.	1	2	3	4	5	6

APPENDIX A: HIGH SCHOOL COUNSELOR SELF-RATED PERCEPTIONS SURVEY

21. Students and families are provided with access to O*Net, IN Demand, and/or the Bureau of Labor Statistics to research career options.	1	2	3	4	5	6
22. I inform parents of high-demand, high-wage career options for their children multiple times throughout the school year.	1	2	3	4	5	6

23. Which of the following school locale types best matches your current school?

_____rural (below 2,499 residents),

_____suburban

_____ urban

24. Current ratio of counselor to student for your school

1 counselor: _____ students

Thank you for your participation with this survey.