INDUSTRY'S ROLE IN SECONDARY SCHOOL SYSTEM ACCOUNTABILITY FOR COLLEGE AND CAREER READINESS

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AUTHORIZATION TO SUBMIT

DISSERTATION

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DEDICATION

This dissertation is dedicated to my family, friends, and colleagues for their continued support and dedication during not only this adventure but throughout my personal and professional life. Additionally, it is dedicated to those within our industry who provide invaluable leadership and direction to ensure students, regardless of state of professional life, are learning, growing, and becoming the professionals needed for our future success.

ABSTRACT

College and career readiness efforts continue to increase through secondary and postsecondary educational institutions, and stakeholders expect an educational system that truly prepares a student to be college and career ready. Mixed methods research was completed to better understand industry's role in accountability of secondary schools' efforts for college and career readiness. Two groups of participants existed: (1) the graduating cohort class of 2018 from a school district having multiple high schools within Idaho and (2) students who graduated within the last 3 school years (2017, 2018, or 2019). Group 1 participants completed a pretest and posttest related to workplace readiness standards and results were analyzed using independent *t* tests. The *t* tests provided evidence that although there was not a statistically significant difference between the pretest-to-posttest growth of the two subsets of students (CTE concentrators and nonconcentrators), there were statistically significant differences between the pretest scores and between the posttest scores of each subset. Group 2 participants completed a survey developed by the researcher and results were analyzed using frequencies. Data from the Group 2 survey identified four specific ways participants believe industry should contribute to secondary education efforts toward college and career readiness.

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Chapter I

Introduction

"An essential function of school systems is to prepare students to lead productive lives as contributing members of society. Implicit is an expectation that high school graduates master content knowledge and skills that enable their transition into college and careers" (Malin & Hackmann, 2017, p. 606).

High-quality secondary education provides a significant springboard to a student's future success. Ensuring a reliable and valid way to evaluate the efficiency and effectiveness of a comprehensive secondary school remains undefined (Hunt et al., 2016; Ried, 2017; Zhan & Sherraden, 2011). Today's education systems do not have an evaluation tool for accountability. Only teacher evaluations are completed, which are rooted in the belief that student learning is the single irrefutable criteria as the definition for teaching effectiveness (Schooling et al., 2010).

The evaluations within school systems focus on teacher and administration performance; however, common evaluation tools do not correlate the teacher performance with student growth. In fact, many only provide the bureaucratic checkbox needing to be completed by building administration to satisfy the requirements placed upon them by district leadership who has requirements placed upon them by state and federal legislation (Young et al., 2015). Some evaluation systems employ value-added models which evaluate teachers based on the academic growth of their students throughout the course of the year (Braun, 2005; Darling-Hammond, 2000; Weick, 1995).

With results from 1.5 million high school students who took the ACT standardized assessment, the ACT organization shared that only "24% [of students] met all four college readiness benchmarks and only 28% met one of the four college readiness benchmarks" (Creech

& Close, 2013, pp. 314-315). While this assessment tool only measures a student's likelihood of *college* success, the four benchmarks being measured (English, mathematics, reading, and science) are identified as essential for college *and career* readiness success (College and Career Readiness and Success Center, 2014). A successful school system must provide the necessary preparation for students to be both college and career ready (Malin & Hackmann, 2017). As articulated by the College and Career Readiness and Success Center (2004), "Often the measurement tools do not include non-academic skills, which are critical to include in college and career readiness definitions, models, and frameworks" (p.160).

While efforts continue to identify ways to measure a successful secondary system, additional research is needed. For example, a recent study in Virginia worked to validate a statewide teacher evaluation system where instead of using the results from student assessments to rate the teacher, the rating of the teacher was correlated to overall performance of students (Xu et al., 2016). The evaluative tool deemed best to measure success in relationship to teacher, student, and system performance changes based on ideology. The passing of the Every Student Succeeds Act, No Child Left Behind, and the Higher Education Act have placed increased expectations on identifying and measuring accountability to ensure institutions and educational organizations are meeting benchmarks. Despite these efforts, there is still no reliable matrix for stakeholders who receive graduated students to use for evaluating those students' ability to succeed in their chosen postsecondary endeavors. Although vocational programs provide a more seamless pathway to the labor market with the skills and traits needed for success, students who do not participate in such programs during the high school years do not receive the focalized college and career readiness needed for success (Raffe, 2003). These efforts and relationships between secondary education and industry provide for a more meaningful and relevant training

as well as education based on industry's consistent input and guidance to ensuring students are job ready when they exit their secondary program of study.

Historically, high school students were placed into either a vocational or "general" track within their secondary education pursuits based on their early studies (Bishop, 1988). Students who were successful in their learning within the vocational track experienced higher employment rates and engagement in the labor market along with a higher monthly pay when compared to their peers who completed the general track. Whether pay and employment rates are a true measure of college and career readiness for students who complete secondary education remains to be defined. The question of whether industry could provide another measurement in the system's ability to prepare students to be college and career ready should be investigated further.

Federal Career Technical Education (formerly vocational education) Perkins Legislation requires industry to be engaged in local program development and planning to ensure the local school systems provide the training and education needed for the local workforce. This legislation provides for a natural integration of industry into Career and Technical Education (CTE) programs and initial development of mentorship roles for both students and educators.

There is no shortage of efforts from state and federal stakeholders to identify additional accountability within school systems. In 2009, President Obama signed into law Race to The Top (RTT), an initiative providing significant funding ($4.35 billion) for states that would focus on reforming education and utilize student data to improve instruction, hire and retain highly qualified teachers, and work to align states to common educational expectations (Morgan, 2018; Reid, 2017; Scott, 2013). Many states have been working to create new evaluation systems to meet the requirements placed upon them and to provide evidence they are effective. Identifying the definition of effective teaching has become one of the most challenging obstacles states face

(Hunt, et al., 2016). As states continue to redefine the teacher evaluation process and requirements, extensive work and preparation goes into a state's evaluation tool to ensure compliance with RTT. This work must be based on evidence to support the impact student achievement has on overall effectiveness of a system (Mathis, 2015; Morgan, 2018). Research shows that "teacher quality is the most important in-school factor affecting growth in student achievement" (Aldeman, 2017).

Previous generations may have been able to rely on the completion of a university degree for guaranteed financial success; however, today's generation does not have the same luxury. Today's employers seek candidates with globalized skill sets (Jacobson et al., 2009). New hires are expected to possess skills of adaptability, collaboration, problem solving, and critical thinking (Andrews & Wooten, 2005; Armstrong, 2007; Conley, 2010). The Career and Technical Education Consortium of States (CTECS), a nonprofit organization established in 1973, drives much of the theoretical framework for the research and analysis of skills. With the guidance and direction of industry, CTECS has produced the Workplace Readiness Skills standards to identify and measure a student's professional skill development. These skills are measured through 21 standards mapped to workplace readiness, which include necessary characteristics desired from industry. The skills are broken down into three component areas: a) personal qualities and people skills, b) professional knowledge and skills, and c) technology knowledge and skills. The theoretical framework will be examined in depth within the literature review (Chapter 2).

Statement of the Problem

If stakeholders are to expect an educational system that truly prepares a student to be college and career ready, utilizing multiple factors of evaluating that system is critical (Fujino, 2013). Understanding and identifying the value and role that industry should play in secondary

school system accountability and its efforts to prepare students for college and career readiness has yet to be defined. When evaluation systems are effective and rigorous, initial evidence shows a positive relationship between teacher performance and student achievement (Kimball et al., 2004).

> Educators, researchers, and policymakers concur that the traditional view of learning, focused on knowledge and procedures of low cognitive challenge and regurgitation of superficial understanding, does not meet the demands of the present and future. Competitive industries in the 21st Century will be those whose workers can solve complex problems and design more efficient techniques to accomplish work (Danielson, 2013, pp. 14-15).

Employment continues to shift into an anomaly where employees do not stay at jobs, or even careers, for an extended amount of time, but rather often change multiple times within their professional career. As a result of this challenge, there is more of an emphasis placed on trainability and critical thinking rather than skill set (Kuzmina & Carnoy, 2016). However, these abilities are not measured by high-stakes assessments. While CTECS provides a written assessment tool to measure the 21st century skills employers seek in their desirable candidates, perhaps a nonwritten assessment could provide more reliable measurements of a student's likelihood of success in today's economy. This shift from a need to only measure academic skills and abilities to measuring the skills sought by employers has occurred because of the robust and complex changing economy.

Generational changes and the introduction of technology have altered the needs for specific and targeted education and learning. Currently, there are five generations which make up our society. Each generation plays an active role within the workforce. The most recent

generation is Gen Z, which includes youth who were born after 1996. While Gen Z is the youngest, Millennials (born 1977-1995) are the largest generation in the United States workforce. And because this generation is also the fastest-growing customer base in the economy, they continue to drive and make significant consumer demand (Generational Breakdown, n.d.).

Decision makers have identified that historical practices for evaluating systems may not be enough to ensure student success and thus have introduced the utilization of student achievement data as a component of a teacher's evaluation (Washington, 2011; Young, et al., 2015). This practice has provided heightened stress for administrators and teachers to ensure the tools are valid and reliable (Stumbo & McWalters, 2012; Washington, 2011; Young, et al., 2015). This, however, does not take into account an entire system, but rather isolated student success.

The purpose of this mixed methods study was to explore and identify industry's role in ensuring accountability for college and career readiness efforts in secondary education and how industry input and influence fits into the larger scope of system accountability. Relying on teacher evaluations and student academic data to form the rating of a school system undermines the efforts made to ensure students possess the skills and traits needed to be competitive in their futures. This research may provide perceptions from related stakeholders for how industry input can ensure accountability for these efforts.

Background

Understanding how to best evaluate a school system's effectiveness of college and career readiness preparation encompasses a multitude of data points, feedback, and demonstrated student achievement (U.S. Department of Education, 2009). With No Child Left Behind adopted

in 2002, states were given far greater discretion in each system's ability to define accountability. As a result of this discretion, it is time for policymakers to review outcome-based accountability systems of multiple forms of evidence (Gill et al., 2016). Factors outside of student performance on assessments to use as data points in reviewing a system's overall success with the work done through No Child Left Behind and Race to the Top have yet to be identified.

The term *succeed* is defined as "completing entry-level courses with a level of understanding and proficiency that makes it possible for the students to be eligible to take the next course in the sequence of the next-level course in a subject area" (Conley, 2007, p.5). Often, college and career readiness is measured with the same achievement indicators used for high school. This includes college admission exam scores and grade point average. However, the indicators for college and career readiness do not align with the same skills that first-year students enrolled in college need to be successful (Lombardi et al., 2018).

Research Questions

The intent of this study was to identify evaluation information that would be useful to a broad range of community stakeholders in a local educational system, such as industry and educational leaders, students, parents, and employers. Each of those individuals has no shortage of a desire for students to be provided the highest quality education during their Pre-K-12 experience; however, identifying how to best evaluate that quality remains at the forefront of the discussion. With the aim at helping to improve our local educational systems, this study posed the following questions:

1. What do students believe is industry's role in accountability of an educational system's college and career readiness efforts?

2. How does industry's involvement in the educational system's college and career readiness efforts impact a student's level of preparation for being college and career ready?
3. How do students feel the educational system has prepared them to be college and career ready?

Description of Terms

Throughout the research, several laws, definitions, and facts surface which may need additional explanation. The following are those definitions:

American Recovery and Reinvestment Act (ARRA). Signed into law in 2009 by President Obama (designed to promote educational reform using competitive grants.

Capstone student. Career Technical Education student enrolled in a culminating course of a program of study.

Career Technical Education (CTE) (formerly known as Vocational Education). Education provided to students with a focus on career or job technical and professional skill development.

Every Student Succeeds. Signed into law by President Obama in 2015 and includes provisions to help ensure success for students and schools.

Danielson Framework. Research-based set of domains of instruction used to evaluate instructional practices (Danielson, 2013).

Ethnographic approach. "To describe the way things are and the ways people should act" (Rossman & Rallis, 2012, p.93).

No Child Left Behind (NCLB). Put in place to expose achievement gaps among underserved students, spurring an important national dialogue on education improvement (U.S. Department of Education, 2012).

Student growth goals. Goals written by an evaluator or teacher to accurately evaluate student learning or growth within a specific measured standard or set of standards. Growth measurement requires a pretest and posttest.

Value-added model. Model in which teachers can show increased performance in students through assessments, typically done as pre and postassessments.

Workplace Readiness Assessment. Assessment used to measure workplace readiness standards required in Idaho for students who are enrolled in capstone courses and seniors currently enrolled in their second CTE course.

Significance of the Study

Significant focus and increased funding has been made over the past decade to help with college and career readiness. However, those efforts have yet to come with any type of accountability. Much of the evaluation is based on the student graduation rate and enrollment into a postsecondary endeavor. Work done by the American Youth Policy Forum strives to ensure college and career readiness is being measured and that the measurement is an accurate representation of the vitality to be ready for the next step (Lewis, 2010). Because of education programs that utilize a CTE model, industry's engagement is already present in an evaluation of the system's ability to produce college and career ready graduates. However, those secondary programs without a CTE model do not have a natural connection to industry comparatively.

When accountability is not focusing on the overall college and career readiness of a student and focuses solely on teacher performance and student attainment through standardized

tests, “there is a significant difference between being prepared for college admissions and being prepared for college success” (Nishimura, 2014, p.14). Most research focuses on mathematics and reading to measure attainment without explicit tools to measure college and career success (Malin & Heckman, 2017) and since “students no longer define themselves nor sort themselves into singular categories: those going to college, those not going to college, those going to work,” secondary educational systems must ensure students are equally prepared for both (Demarest & Gehrt, 2018, p.23). Understanding where and how industry contributes value in this accountability is a dire need.

Overview of Research Methods

Building the conceptual framework surrounding industry’s role in ensuring college and career readiness of secondary graduates was critical to determining the methods, questions, and analysis of this study. Ravitch and Riggan (2017) explain that a clear conceptual framework is a key part of the research process. The conceptual framework provides for both the why and how research should be done (Ravitch & Riggan, 2017). The big-picture view of the framework provides a lens including the personal interest of the researcher (assumptions and feelings), the literature review, and a theoretical framework (the ability for the researcher to explain the relationships between their theories and the research).

The researcher used a mixed method approach including a focus on society and culture, while also utilizing an ethnographic approach to better understand student opinions on their level of college and career readiness and how industry could engage to these efforts. It is important to understand the distinctions of these approaches to help clarify and explain the researcher’s personal interests and the impact those had in choosing this research topic. The ability of the researcher to identify a clear theoretical framework provides a significant guide to better

understand the value placed on industry's role in ensuring that secondary systems are providing college and career readiness to students. Furthermore, developing a visual representation between the variables and key topics provided the researcher with a consistent reminder of the goal to be achieved.

At the end of the development of both a theoretical framework and conceptual framework, the researcher found a mixed methods approach would be used for this study. The desire to better understand feelings and analyze supporting data provides a clearer context for the need to utilize both qualitative and quantitative research methods. Quantitative data collected spring 2018 from students completing the Workplace Readiness Skills assessment within a selected school district in Idaho was used to identify the level of preparedness of graduating seniors. The data were then compared between capstone students who completed a CTE pathway (an environment which provides direct relationships and mentorships from industry) and students who did not complete any CTE pathways (environments not providing a naturally defined relationship between industry and students, through internships). Qualitative data from student input on their feelings about their level of preparedness were collected through an online survey. These results were analyzed and themes identified within the framework developed by the CTEC Workplace Readiness Skills.

With industry's increased emphasis toward having students possess more professional skills rather than technical skills and in order to meet secondary education's goal of preparing graduates to be college and career ready, industry must be engaged in the work of the educational system's accountability tools. Engaging industry in these important efforts provides a way for students exiting the secondary system to be job ready and able to meet the demands of

the entry-level workforce. Advice and input from industry partners could result in students' ability to meet the needs of all employers more effectively.

Chapter II

Review of Literature

Introduction

Economic growth and prosperity are dependent on the success of educational systems in preparing students for their futures. This literature review will provide a brief synopsis of how secondary education systems have historically measured accountability, changes in accountability components, and accountability of the key internal stakeholders and the complex roles they play. In addition, this chapter will explore the further reaching group of stakeholders from an external standpoint who currently have no role in accountability but rely on an effective secondary education system and its ability to prepare students who are college and career ready, able and willing to engage in the workforce, and productive members of the economy.

The measurement of educational system accountability has changed greatly throughout history. While different administrations at the state and federal levels may change focus and the matrices used to measure and define accountability, the role of school systems has remained constant—to prepare students to be college and career ready as they graduate from their high school experience. As articulated by Malin and Hackmann (2017):

> An essential function of school systems is to prepare students to lead productive lives as contributing members of society. Implicit is an expectation that high school graduates master content knowledge and skills that enable their transition into college and careers. (p.606)

The ability to define and list all educational stakeholders would be nearly impossible as such a list would be indefinite. Everyone within an economy is in one way or another tied as a stakeholder to secondary education. However, while the role of each person could be

multifaceted or singular, internal or external, direct or indirect, each of them remains a stakeholder, vested with a need for success.

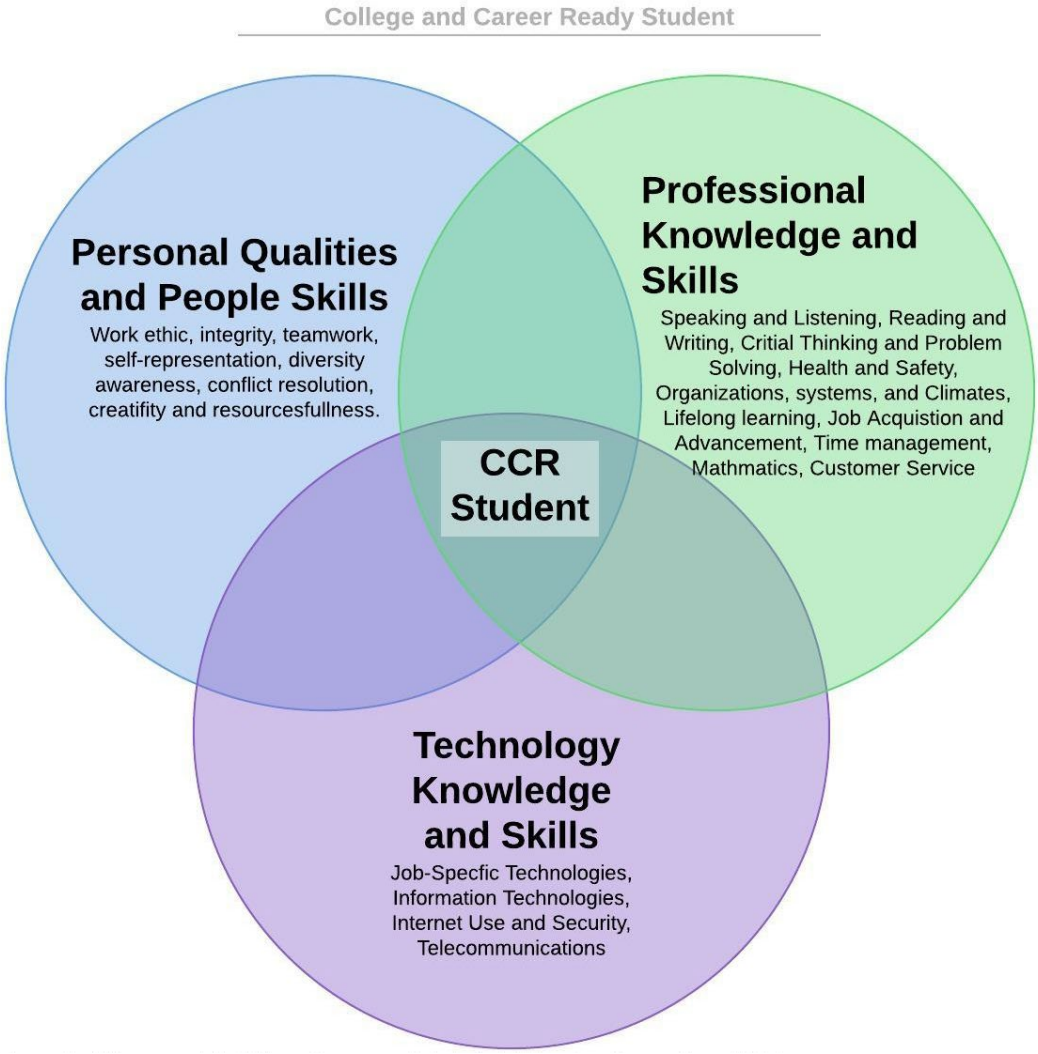
Theoretical Framework

The development of a theoretical framework was crucial for this research. The framework evolved over a significant period of time as the topic and questions were refined to better meet the desired goals of research. In order to provide a clear understanding of the value of having industry involved in school system accountability, the framework was developed through research and better understanding of the characteristics and traits desired in recent graduates from the perspective of people in industry. The focus became the relationship between a student's experiences in high school and the development of personal qualities and people skills, professional knowledge and skills, and technology knowledge. Learning more about the history of the educational system and importance of multi-factored accountability helped the researcher identify and understand what current tools paired with future tools could support industry's engagement in efforts to insure college and career readiness accountability.

The robust research done by the Career and Technical Education Consortium of States (CTECS) and the industry-critical work on their Workplace Readiness Skills provided a theme and framework of three large scopes of importance needed to review and identify industry's role in ensuring college and career readiness in secondary students. Figure 1 shows the framework. The development of the Workplace Readiness Skills was initially done by the Commonwealth of Virginia, in which industry identified skills critical for success in the workforce.

Figure 1

Theoretical Framework Built From Career and Technical Education Consortium of States



Note. Source: Career Technical Education Consortium of States

One of the critical stages in a student's pursuit of "career readiness" includes exploring interests. These exploration activities should assist the development of a student's knowledge of self and the work they intend to pursue (Phillips & Blustein, 1994). Research continues to inform and share concern about the relationship between education and student employability within the workforce (Perera et al., 2017).

Federal Perkins Legislation continues to elevate the expectation for secondary school systems to collaborate with industry to ensure students leaving Career and Technical Education (CTE) programs are ready for the challenges and demands of the local workforce. While the increased expectations are specific to Federal Perkins Legislation and those programs within CTE, the direction of the current administration is toward strengthening the relationships between employers and educators.

In the most recent Federal Perkins reauthorization, formally the Strengthening Career and Technical Education for the 21st Century Act, President Donald Trump provided initiatives to ensure that the programs being offered within CTE in local high schools are truly warranted in the local area. To ensure this, there were three requirements within the legislation: 1) States and districts must complete a needs assessment which demonstrates how CTE programs are aligned to current in-demand industry and occupations; 2) States must consult with industry and business representatives in developing annual plans; and 3) Competitive grants can be awarded to programs with innovative approaches and alignment of program skills with workforce demands. These requirements are only for those schools and states who receive Federal Perkins funding in addition to general education funds.

The Evolution of School System Accountability

Accountability is a process that identifies who is responsible and what they are responsible for. Accountability is usually considered and starts when a desired outcome is not reached. Often, when outcomes do not seem to meet the expectations of stakeholders, systems are readjusted so the consequences for not attaining the expectations of the accountability system or tool will prompt behavioral response and improvement, resulting in meeting stated expectations. The United States Department of Education has implemented a multitude of

programs, acts, and regulations over the decades aimed at accountability and ensuring students are gaining necessary skills and knowledge.

President Barak Obama signed into law on February 17, 2009, the American Recovery and Reinvestment Act (ARRA) of 2009 which included $4.35 billion for Race to the Top (RTT) (U.S. Department of Education, 2017). Only one of the provisions was focused on improving and making education America's number one priority. To apply for grant funds, states were required (without statutory or regulator barriers) to link data regarding student achievement or growth to teacher and principal evaluations (U.S. Department of Education, 2009). Growth and achievement had to be measured for each individual student. While the document provided definition to the Department of Education's terminology, it left significant room for interpretation. For example, under *student achievement*, two options existed: (a) a student's score on a state's assessment or (b) other measures of student learning (U.S. Department of Education, 2017; Michigan Department of Education, 2015). As a result, local education agencies used assessments created by district or building staff as the tool to measure student growth. Although RTT required states to use student growth data in teacher evaluations, it did not provide any quantifiable number required to demonstrate growth (U.S. Department of Education, 2017).

The Obama administration also began the exploration of holding postsecondary institutions more accountable. In 2013, President Obama announced his intent to develop a rating system for colleges based on 1) access, 2) affordability, and 3) student outcomes. Unfortunately, after two years of attempting to solicit feedback from higher education experts, the Obama Administration scrapped the rating system in addition to the linkage of federal funding to the college's performance. Accountability works, but not as well as individuals would hope or as intended.

Spending, as well as accountability efforts, for K-12 education has continued to rise over the years, from $5,984 per pupil in 1970 to $13,142 per pupil in 2013 (expressed in 2015 dollars) (Deming & Figlio, 2016). Reading scores rose by only 4 percentage points between 1970 and 2013. On the positive, graduation rates rose by 10 percentage points between 2000 and 2013.

There is no question stakeholders deserve a school system that provides a strong outcome of students who are prepared for the next step in their journey (Gunzenhauser & Hyde, 2007). However, the phenomenon of accountability that has occurred through multiple state and federal laws and policies have the public continuing to ask the questions of which types of internal and external accountabilities are relevant and how to ensure their effectiveness. Which factors should provide impact on accountability, and how can they meet the need to have cohesive efforts to ensure there is improved student learning (Sirotnik, 2004)?

Allowing local authorities the ability to select which accountability factors shall be used has created a perception that the more tests and measurements used, the better a system is able to articulate results and provide stakeholders with accountability (Gunzenhauser & Hyde, 2007). While a significant number of accountability systems focus on testing and student data, identifying the value of those tests and whether they truly reflect an increase in the overall performance a student should attain within a given course remains unknown (Gunzenhauser & Hyde, 2007).

The Role of the Administrator in a System Evaluation

With the implementation of RTT and the high-stakes assessments tied to teacher evaluations, principals have seen a transition in their roles from being simply an evaluator to being an instructional leader working to assist teachers in their pedagogy, hoping for an end result of increased student performance and achievement (Reid, 2017; Chetty et al., 2014). As

the role of the principal changes to become dual, the difficulty of the position increases. Whereas a mentor or coach may have been provided in the past for teachers needing increased support, the principal is now expected to share in that responsibility, providing a level of difficulty from the teacher's perspective of being able to be open and honest about struggles and areas in which they seek assistance. Today's principals, even though evaluation has always been a part of their duties and responsibilities, have a much higher stake in this process because the evaluations are aligned to a multitude of career-defining decisions (Michigan Department of Education, 2015; U.S. Department of Education, 2009; Benner, 2016).

As the stakes continue to rise, administrators prepare to better understand the complete components of teacher evaluations. Overall, principals whose districts are using the Danielson Framework as the evaluation model are more positive about the evaluation's purpose and ability to objectively measure teacher behaviors than are principals who use other systems. Although the Danielson Framework does not require student growth data or industry feedback for a teacher's evaluation, it does allow for teachers to provide evidence of student feedback for improvement to their classroom and instruction. During the early years of education, principals did not have the authority to change teacher and school practices (Bidwell, 2011), yet today's principals play a significant role in reform and implementation.

During the early years of No Child Left Behind (NCLB), the word "accountability" became synonymous with teacher evaluations based on high-stakes testing. This forced state departments of education to include measurable student growth in the evaluation of teachers and administrators. These high-stake tests came under substantial attack by teacher unions, cheating scandals ended careers of prominent teachers and principals, and parents started demanding the right for their students to opt out of the standardized tests (Gill et al., 2016). It is important to

remember with the lack of results from the years since NCLB that there is limited data identifying conditions where school accountability systems have made student achievement worse (Elliott & Hout, 2011).

There are four types of behavioral accountability applicable to education policy: rule-based, market-based, outcome-based, and professional accountability (Gill et al., 2016). Commonly found in education is rule-based accountability—following and adhering to state or federal policy developed to govern with mandated expectations and by defining activities that are not permitted within an environment. Historically, rule-based accountability was used to set parameters for things such as approved textbooks, class sizes, hours, spending, etc. Fortunately, most of the past century rule-based accountability did not include regulations for instruction and provided the teacher wide discretion in this area (Mendl, 1999).

Market-based accountability is prevalent within most industries. In education, it identifies conditions under which students and parents are allowed to move to a more suitable or desirable school. A market-based tool can be used to maintain accountability efforts in the hands its customers (students and parents). Today's educational systems may not need to focus too much on market-based approaches as there are limited options for students outside of their assigned local school district based on geographical residence. With an increase in student choices through charter schools, however, a shift may occur that causes public education and individual districts to pay closer attention to marketing-based accountability factors.

Outcome-based accountability, which would have almost been unknown 25 years ago in education, provides clear expectations for students and their performance with tests to measure their proficiency (Gill et al., 2016). Starting in the early 1990s with the beginning of the Improving America's Schools Act (precursor to NCLB), states were required to begin the

process of identifying and developing proficiency standards, assessing students within multiple grade levels, and reporting those school-specific results to the Department of Education. In 2002, the Department of Education through NCLB mandated sanctions to schools who were not meeting their proficiency targets.

Finally, professional accountability systems include those policies related to and regulating the standards of conduct and expectations for the professionals within the education system. From the implementation of the Improving America's Schools Act to the Every Student Succeeds Act and other laws in between, professional accountability metrics have greatly changed the roles and responsibilities of both teachers and administrators within school districts and educational systems. In addition to tracking these requirements for professional accountability, administrators must also ensure teachers are receiving professional development for growth and improvement when a teacher is not performing at an acceptable level. In fact, although all four types of accountability tools can be used in an overall accountability system, it is important to remember a large component of success from any system is the need for feedback and continuous improvement (Schillemans & Smulders, 2015).

Accountability Measured by Teacher Evaluation

Understanding how to best evaluate a school system encompasses a multitude of data points, feedback, and demonstrated student achievement (U.S. Department of Education, 2009). Although Race to the Top and the Elementary and Secondary Education Act provided some direction to states and local education agencies on expectations for teachers, the scope of expectations has been left broad enough to allow for interpretation, which creates added struggles for ensuring rigor and consistent evaluations statewide. Challenges present in allowing a local education agency to develop their own assessments include knowing the reliability and

validity of those tools, and the inability to ensure teachers are not provided access to questions (to avoid "teaching to the test"). Also, when an educator moves from one school to another within a district, their administrator's expectations may vary providing significant differences between annual evaluations. More importantly, when an educator's file follows them from one district to another, evaluations can vary greatly.

Effective teacher evaluations are among the most critical aspects of ensuring high-quality student achievement. Yet despite this agreement between policymakers and researchers, the United States continues to fall short of being able to objectively and accurately identify high-quality teachers. As an example of the inability to be objective and accurate, in 2014, 97% of Michigan's teachers were rated effective or highly effective despite students' overall low achievement on state assessments (Chetty et al., 2014; Darling-Hammond, 2000; Michigan Department of Education, 2015). Prior research suggests that teacher evaluation policies are intended to perform two primary functions: teacher improvement and teacher accountability (Hanushek & Rivkin, 2010; Kraft & Gilmour, 2015; Steinberg & Donaldson, 2016).

Maslow and Kelly (2012) identified that schools where the primary purpose of teacher evaluation was for formative purposes gave more time and attention to the holistic teacher evaluation process. Knowing that teacher evaluations are supposed to be used as a method to show accountability, administrators and teachers endeavored to ensure the tools being used and the data imbedded within the tools showed some type of student performance (Maslow & Kelly, 2012).

Student Performance Data

Models that evaluate teachers by using data related to student growth can be referred to as classroom value-added models. The variables of student achievement are extremely hard to

quantify for all teachers within a school system because some teachers do not have students taking assessments related to their instructional areas. For example, a teacher who teaches an elective course may not have a statewide or districtwide assessment which would be included in the performance indicators. Classifying a teacher under a rating of 1 to 5 based on the growth of students during a school year is impossible unless the rating uses an average of the student's scores across all disciplines being measured (school-wide value added) (Daley & Kim, 2010). Being a component of a teacher evaluation model called TAP: The System for Teacher and Student Advancement, the value added for a teacher in relationship to student growth assumes the data are accurate and related directly to the teacher. The best method to measure the accuracy and relationship is to use multiple year data points. However, this would also require districts to have used TAP for the past multiple years.

Data from schools using the TAP evaluation system show a close correlation between higher scores and high teacher-retention rates. Most professionals who receive high performance within an evaluation want to stay and continue enjoying their jobs. But TAP data suggest that even if the scores are far below the identified proficiency mark, if teachers are provided specific professional development opportunities to grow their performance, retention rates may be similar to those among teachers who are receiving overall above proficient marks (Daley, 2010; Scott, 2013). This indicates that identifying best practices of professional development will help ensure high-quality education systems.

Most teacher training programs in the United States provide initial training for their teachers and then leave their continuing education expectations broad; but some other countries provide significant continual professional development required for all teachers. For example, China provides new teachers extensive mentoring once they complete a teacher education

program including sharing of information, mutual lesson observations, collaborative lesson preparation, and discussion in the office (Lee, 2007). Having systems able to identify priorities of effective teaching will help direct teacher professional development. Additionally, knowing what provides students with most effective growth will in turn provide for higher success for teachers. For example, evidence shows homework is not as critical to student success, whereas monitoring student progress and strong engagement from teachers promote the highest growth (Meng & Munoz, 2016).

Many states have begun the implementation of RTT requirements working towards an effective teacher evaluation system. In March of 2013, the Commonwealth of Virginia passed Senate Bill 1223 which began the requirement for local districts to implement the Virginia Department of Education guidelines for performance standards on teacher evaluations. The guidelines required 40% of an evaluation to be tied to student academic progress. Leading up to the adoption of federal legislation regarding teacher evaluations, research suggested current teacher evaluation practices did not provide administrators and teachers with enough information to improve the quality of instruction enough to increase student achievement. Value-added modeling has been identified as a useful tool to provide improved instructional practices and support significant professional development and guidance. According to the Measures of Effective Teaching project (2013), funded by the Bill & Melinda Gates Foundation, students who performed high on state assessments in math and English linked more effective instruction to the teachers involved, and a rating system which included teacher classroom observation, student achievement, and student surveys provided more stable teacher rankings from year to year.

Educational policy and implementation often follows the same tract: pass or enact policy,

and then identify a way to successfully accomplish the tasks being required. In the RTT and Virginia's Senate Bill 1223 examples, there was no specific instrument ready to utilize or best practices to initially implement a new teacher evaluation system, but rather the theory was that a new evaluation tool would allow for more accountability and ensure additional student success. Unfortunately, since there was no framework, many teachers felt they were being set up for failure. Because of the lack of professional development provided to both administrators and teachers for the changes and how to best implement board-directed policy, and low rankings for the professional development that was provided, the perception of the new system was not favorable. However, the desire to improve the quality of instruction to increase student achievement as being an important purpose of teacher evaluations was evident within research (Morgan, 2018).

Education accountability policies continue to be highly controversial topics whether talking to parents, teachers, administrators, or policy makers.

> Try to think of an education policy that 1) has been shown, in dozens of studies across multiple decades, to positively affect student outcomes; 2) has the overwhelming support of parents and voters; 3) reinforces many other policies and facilitates quality research; and 4) has been used widely at the district, state, and national levels for decades or more (Polikoff,, 2017, n.p.).

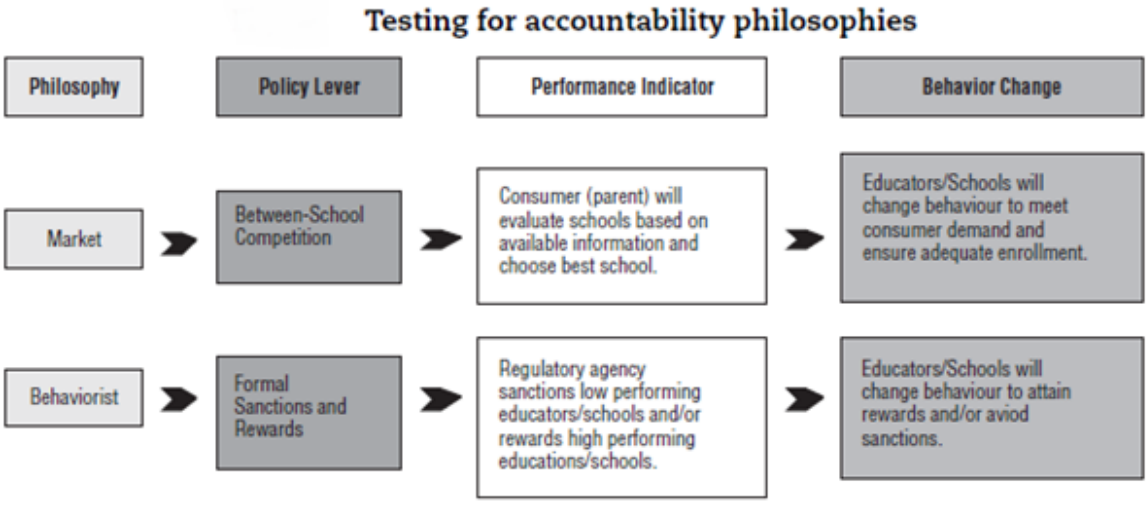
The continued implementation and weight of accountability measures within the school system increase the demand for standardized curriculum (Scott, 2005). With those standards comes the promotion of teaching to the test, which ultimately becomes an unintended consequence for teachers in order to be identified as *successful* in standardized testing results. While the phrase "teaching to the test" usually results in a negative connotation, if policy and

legislation is working to measure common student achievement based on identified standards, this notion of teaching to the test should be well identified and best practices also identified (Scott, 2005).

School accountability has been a controversial topic in national policy since the 1990s (before that, at local and state levels). Students of individual districts and states have shown substantial growth school wide when using test-based accountability (Polikoff, 2017). With the increased amount of influence placed on test scores being the only way to measure quality education, stakeholders continue to see an extensive use of student data in the development and adoption of accountability policies (Booher-Jennings, 2005; Hanushek & Rayond, 2004). It has been shown that testing for accountability systems has been successful in improving educator behavior, and the behaviorist philosophy of testing shows to be the most effective, as illustrated by Figure 2 (Booher-Jennings, 2005; Smith, 2016).

Figure 2

Testing for Accountability Philosophies



Note. Source: Booher-Jennings, 2005; Smith, 2016

Although there may be less evidence to show closing achievement gaps, considerable evidence shows the ability of testing to increase student achievement. Within any educational setting, a theory that all students should and will be able to perform equally is not viable. Being able to benchmark student performance and help target areas and ways to improve their performance are keys to any student success. One widely accepted way to do this has been through testing. “Education Next's 2016 poll reported at least two-thirds support for annual testing among both Republicans and Democrats” (Polikoff, 2017, n.p.). In the past, education practice may have been to have a formative assessment, with the teacher giving a pretest the first day of class to better understand what specific students needed to learn. In large-scale education systems, if only a few students show deficiencies in a standard, it becomes hard to justify spending significant time on those areas.

Student Input and Feedback in Teacher Evaluations

Postsecondary education administrators utilize market-based accountability because they know their clientele can attend a competitor institution. With this comes motivation for taking student feedback seriously. Postsecondary personnel solicit feedback from students at the end of each course on a multitude of factors including the level of performance from their instructor and ranking from their perspective as to the overall perception and experience within the class. This feedback is used when making personnel decisions, reviewing instructional practices and strategies, and measuring student satisfaction with an institution. Although value-added components of teacher evaluations have not been explicitly defined by the United States Department of Education, some states have provided direction on the level of value placed on a teacher’s evaluation. The value-added components that have been identified in secondary education are only in relationship to student achievement growth and are not tied to any type of

student or parent feedback on the quality of instruction. Unions representing teachers vehemently oppose the use of student satisfaction because of the potential lack of consistency (Chang, 2015). But the ability for students to complete satisfaction surveys holds the potential to influence school and student performance, which in turn can influence education outcomes. Similar to the necessity for for-profit organizations to inquire from customers the level of satisfaction to improve their operations and business model, stakeholders having the ability to provide feedback on their interactions within the educational system would provide continual improvement in multiple facets.

Because some states did not have standardized tests, or students had a teacher who did not teach a course that was measured by a state assessment, the Department of Education provided states the ability to use an alternative measurement tool to define student achievement through pretests and end-of-course tests (Scott, 2013). Additionally, the Department of Education required the states receiving RTT funds to ensure they were building a *strong* statewide system with the capacity to sustain its reforms, with reviews to validate the capacity, and with stakeholder input in implementing their plans. In addition to including student performance data within a state's teacher and principal evaluations, state review reports had to include data from students providing perceptions about school and classroom characteristics from, for example, a school climate survey.

A teacher's professional development plays a key role in the necessity of an administrator to provide remediation and training to students who are not performing at the top end of scales (Stumbo & McWalters, 2010). These efforts go beyond the teacher's performance in the classroom and work to ensure best practices are shared and developed. They also focus on the administrator's ability to perform accurate evaluations and observations using teacher evaluation

frameworks adopted by the State Department of Education (Scott & U.S. Accountability Office, 2013). Providing professional development opportunities to teachers for areas needing improvement could end up being the administrator's number one priority to ensure their school is meeting identified student growth targets (U.S. Department of Education, 2009).

Some of the internal stakeholders of educational systems worry about allowing students to provide feedback and evaluation of their instruction (Reid, 2017). There is need for additional data points in teacher and administrator evaluations, and identifying the items that should be used continues to create questions. With continued effort and research, the ability to identify valid data points would be helpful in utilizing student surveys in personnel decisions (Reid, 2017).

The Impact of Parental Involvement in Education

Strides have been made over the past 40 years in American's youth with relationship to progressing through and completing secondary school. High school dropout rates are at an all-time low, while college enrollment and high school completion are at an all-time high (Benner et al., 2016). Although low socioeconomic status continues to be linked to decreased performance for high school education, one of the best and most promising ways to increase performance is through parental involvement, or parents' active participation. These involvements have been linked to stronger academic outcomes for youth (Jaynes, 2007; Hill & Tyson, 2009; Zhan & Sherraden, 2011). The correlation between a parent's involvement in their child's education and the outcome of their students varies by both type of involvement and socioeconomic status. A parent's involvement in their child's education is a multifaceted paradigm that involves parents' involvement at both home and school (Benner et al., 2016).

Over the years as states have implemented additional accountability within the school

system, there have continued to be questions from parents towards those systems, and parents have become less likely to engage in their child's education. Federal policies such as NCLB and RTT require states to develop statewide content standards so every student and parent knows what a child enrolled in a course should expect to learn and be able to do by the completion of the course. This has resulted in standardized tests to measure achievement of those expectations. Although there has been a significant increase in the value placed on test results by the state and U.S. Departments of Education, many of these assessments remain in pilot form. Additionally, within academic content there is, in fact, still no single set of standards for all courses statewide. Due to these issues, it is difficult to obtain accurate or uniform measures of student success and performance by utilizing statewide assessments.

It remains critical for parents and guardians to stay engaged from a student growth standpoint, and there seems to be some frustration from teachers when it comes to parental involvement. There are often complaints from educators about a lack of involvement from parents in their students' education and learning. Research shows there is important success when parents are more directly involved in the school system, building a better school-community relationship. Student learning shows measurable gains in achievement proportional to the related amount of parental involvement (Baker et al., 2016).

Engagement from parents varies significantly between the secondary and elementary years. When parents shift their focus and follow the developmentally appropriate support and engagement with their child, it changes from more of the babysitting routines to helping a child progress towards being a productive citizen. Engagement from parents in their students' educational endeavors shows positive effects on academic and social/emotional success (Jensen & Minke, 2016). While parent engagement is a complex, multifaceted topic, there are several

ways that parents may engage in student learning that provide for significant growth ability for their children's educational pursuits. Often, parent engagement is viewed as being more significant during elementary years, but it remains critical during secondary years, even though the level needs to change to match their student's developmental stages.

Parental engagement may also be affected by government policies. Public policies can strongly influence citizens' political attitudes towards public affairs. When an individual receives resources from a government program, they often become more engaged in the political side of the program to ensure those services continue to be provided to them (Mettler and Soss, 2004). This research articulates that parents who identify a student with a high utilization of a system may contribute to a higher engagement level than a parent who feels their student attends school simply because that is the expectation. With the shift in and increased responsibility of student learning placed on the teachers and administrators, a side effect becomes the removal of responsibility from parents.

Industry's Role in Accountability of a School System

Working to identify a system that measures student achievement and preparedness is becoming more and more difficult as various means of accountability are suggested. As is always the case, "the public has the right to expect that its resources are being used responsibly and that the public institutions are accountable for caretaking the public trust" (Supovitz, 2009, p.215). "An essential function of school systems is to prepare students to lead productive lives as contributing members of society. Implicit is an expectation that high school graduates master content knowledge and skills that enable their transition into college and careers" (Malin & Hackmann, 2017, p.606).

Education continues to be viewed in the public's eyes as an investment where

constituents expect to see efficiency, effectiveness, and a strong return on the people's investment. In order to engage external stakeholders in the accountability process of secondary educational systems, education advocates must understand and identify who the key players are within these stakeholders. For this research, the focus was on those who are tied to workforce development and engaged in the success of an economy through the employment of reliable and ready workers.

Industry represents a wide spectrum of stakeholders. For purposes of this research, three major industry sectors have been identified: the Department of Labor, business owners and managers, and higher education.

Department of Labor

The Department of Labor provides employers and companies with broad assistance in ensuring that a local workforce is trained and educated to meet the needs of the economy. Federal and state agencies provide training and education regarding employment processes and renewal and retraining of skills.

Business Owners/Managers

Most affected by successful college and career readiness efforts are business owners and managers. This group of individuals often is the hiring *team* that evaluates the professional and technical skills of potential employees and makes hiring decision based on those findings. This group of stakeholders shares the results of both successful and ineffective secondary school systems in relationship to college and career readiness efforts.

Higher Education

Although not often viewed as *industry*, the higher education industry values receiving students from secondary school systems who are adequately prepared to be successful in their

pursuit of further education and training. Equally, this group relies on industry to provide guidance and direction for program development.

Industry in the Accountability Mix

Those associated with career readiness agree there are three specific aspects that go into being career ready. These include academic skills, employability skills, and technical skills. Often the terms "career ready" and "college ready" become used interchangeably (Association for Career & Technical Education [ACTE], 2018). The challenge with having the terms interchanged is that one does not necessarily equal the other.

Industry and industry association groups, such as the Society for Human Resource Management (SHRM) provide the criticality of what is needed for secondary students to be *ready*. These organizations provide a better understanding to those educating the future workforce of the skills and traits necessary (BiDenedetto, 2016). The ACTE partners with SHRM and other industry partners to better equip educators with high quality resources that connect industry to education. "To truly be career-ready, students also need to be able to apply academics in context, and some academic skills need more attention and development" (ACTE, 2018). The work that school and parents do to assist the student in their preparation is enhanced by support from the industry and community efforts that provide experiential learning for important civic engagement (BiDenedetto, 2016).

To create a successful educational system, stakeholders must create high schools that foster ongoing improvement in learning and achievement and that demand a clear understanding of the skills and competencies needed for graduates to be prepared and successful. The ultimate goal of all industry working towards preparing students for their next step is to ensure that when they leave the system, they are prepared to succeed and prosper in life (High Schools Must

Integrate Framework for 21st Century Learning to Produce Effective Citizens in a Global Economy; Partnership for 21st Century Skills Releases National Report on High School Reform, 2006). Ensuring our educational systems are viewed through a lens where the business community is the consumer of public education only validates and contextualizes the criticality of ensuring that graduating students possess the skills for postsecondary education and the workforce (Kaufman, 2015).

It remains known that not all students will go on to postsecondary education (whether a 4- or 2-year program). Even if they do, the end goal will be for employment into some field. This underscores the importance of bringing industry to the table for the discussion and direction of an educational system. While there are great needs for the partnerships and collaborations between education and business, there are challenges when trying to get the two to understand each other and the roles and expectations placed upon them. Often, industry stakeholders do not grasp the nuances which education places on teaching (Kaufman, 2015). Understanding and identifying the changes in industry and the need and expectations stakeholders have for their future workforce become of most importance. Without engagement from industry, educational expectations can be off course and miss their target.

Partnerships often found in traditional vocational courses and current CTE programs naturally provide for educational improvement because "increased student achievement occurs when the entire school community cooperates and takes action towards rigorous standards" (Engeln, 2003, p. 38). Because of the identified increased achievement, encouraging these partnerships outside of just CTE programs and courses, and identifying the commonalities and best practices for those operations, remain critical to 21st century skill development and prepare soon-to-be graduating high school seniors (Engeln, 2003).

Conclusion

Accountability of K-12 school systems has changed immensely over the past decades as schools have evolved and been influenced by decision makers. While the United States Department of Education has begun the implementation of accountability to system effectiveness, their focus has been on the teachers (Croft et al., 2016). Career Technical Education already recognizes the necessity of engaging industry in the oversight and guidance of career technical programs and courses, as required by Federal Carl D. Perkins V legislation.

Historically, high school students were placed into either a vocational or "general" track within their secondary education pursuits based on their early studies (Bishop, 1988). Students who were successful in their learning within the vocational track experienced higher employment rates and engagement in the labor market along with a higher monthly pay when compared to their peers who completed the general track. Whether pay and employment rates are a true measure of college and career readiness of a student who completes secondary education remains to be defined; however, could industry provide another measurement in the system's ability to prepare students to be college and career ready? In order to ensure that students possess the necessary personal qualities and people skills, professional knowledge and skills, and technology knowledge and skills, those with the content expertise and experience hiring employees will know how to best shape and mold the accountability tool used to measure a system's effectiveness of efforts toward college and career readiness.

Chapter III

Design and Methodology

Introduction

Ensuring students exit a secondary educational experience prepared for the next chapter of their lives through effective college and career readiness requires substantial engagement from a multitude of stakeholders. Identifying the role of industry for accountability within a secondary education system and their efforts for college and career readiness remains critical to ensuring success for a student's future. This study investigated the role industry plays within these efforts and how the students exiting their training believed the system prepared them. Chapter 3 is organized into the following sections: purpose of the research, research questions, anticipated outcomes, research design and rationale, participants, research setting, data collection procedures, analytical methods, role of the researcher, and limitations.

Purpose of the Research

The literature provided background on the history and evolution for the term *accountability* for secondary school systems and identified a gap in the research on industry's role within the accountability of school systems. This gap provided the need for research and focus on industry's role in student college and career readiness preparedness within secondary school systems. Currently, accountability does not address any input or feedback from the stakeholders of graduates, industry, and postsecondary institutions.

Today's educational leaders and policy makers continue to identify ways to hold education systems more accountable. However, today's accountability rests solely on the backs of teachers and student achievement growth (Morgan, 2018; Reid, 2017; Scott, 2013). The United States' educational system is expected to produce students competent and prepared for

the next stage of their life (Malin & Hackmann, 2017). Yet, most often students don't know what they plan to do until they graduate from high school. Making sure a student is prepared for college or career at graduation is too late, so the focus should be on ensuring students are college *and* career ready. The purpose of this study was to identify the role of industry in ensuring secondary school systems' accountability for college and career readiness.

Research Questions

To garner the level of perceived versus actual preparedness and identify what students believe industry's role is within college and career readiness, the following research questions were answered:

1. What do students believe is industry's role in accountability of an educational system's college and career readiness efforts?
2. How does industry's involvement in the educational system's college and career readiness efforts impact a student's level of preparation for being college and career ready?
3. How do students feel the educational system has prepared them to be college and career ready?

Anticipated Outcomes

The research outlined within the literature review indicates that in order to have a successful system in regards to accountability, multiple stakeholders and measurement tools should be used. By collecting feedback from students and learning from their success based on traditional industry involvement within a Career and Technical Education (CTE) program of study, the researcher anticipated that students would identify that direct engagement with representatives from industry provides the most impactful experience.

As a student progresses through their CTE journey, they are provided an increased level of opportunity to learn directly from practitioners in postsecondary institutions and industry because of work-based learning, job shadows, technical competency credit, and other relevant program-related activities. The researcher anticipated that a student who enrolls and engages in a CTE capstone course would score significantly better on a recognized skills test—the Workplace Readiness Assessment (WRA)—than their peers who are not intentionally exposed to industry. Furthermore, the potential for high scores outside of those specific to the technical skill area they are acquiring in the CTE program may also be higher because of the applied learning setting in the capstone course.

In Idaho where this research was conducted, much effort has been made over the past decade to ensure students go on to further education after high school, and the focus of college and career readiness efforts have primarily revolved around (or focused on) postsecondary readiness. Given this, it was the researcher's prediction that recent high school graduates would identify that their high school focused on college readiness efforts over career readiness efforts.

Overall, the researcher anticipated to see from a survey and from WRA results that those students who are more likely to be connected to industry are equally prepared for both college and career readiness, and they are able to demonstrate a stronger level of career preparedness than their counterparts who did not have that direct connection to industry.

Research Design and Rationale

Identifying whether to use qualitative or quantitative methods was an important decision the researcher had to make. Included within this research is a mix of qualitative and quantitative methods. This approach allowed for more diverse results by receiving qualitative input from recent graduates through a survey and reviewing and analyzing quantitative data from historical

assessment scores of recent graduates (both CTE concentrator and non-CTE concentrator students).

Qualitative Research

Qualitative research was collected from recent graduates who answered questions within a survey to identify their perceptions and beliefs regarding the preparedness they received from their years in high school. Recent graduates (graduation cohorts from 2017, 2018, and 2019) were solicited to complete the survey. This group of external stakeholders' responses provided context in the definition of what the participants believed industry's role is. Additionally, the data allowed the researcher to identify the areas that students felt secondary school systems should focus on in their college and career readiness efforts. Utilizing a qualitative approach provided the researcher with in-depth responses found in the form of open-ended questions.

Quantitative Research

In the spring of 2018, all seniors within a local school district took the Workplace Readiness Assessment (WRA) developed by the Career and Technical Education Consortium of States (CTECS). This assessment measured three areas focused on college and career readiness: personal qualities and people skills, technology knowledge and skills, and professional knowledge and skills. The same assessment was given in the spring of this cohort's freshman year of high school as a pretest, and was followed up four years later in the spring of the cohort's senior year.

Utilizing a correlational data method of analyzing the results of student achievement on the CTECT WRA assessment, the researcher was able to compare students who had been CTE capstone students against the other high school seniors who had not. It provided the ability to

compare themes and areas between students who were taking courses requiring engagement with industry compared to those who were taking only general academic coursework.

Participants

The participants of this study were recent high school graduates. Each of these individuals played a significant role in helping paint a clearer picture of how and where industry could be engaged in the efforts of secondary school systems to prepare students to be college and career ready. To better understand the value each played, it is important to define the groups of individuals from which the researcher obtained participation.

Recent High School Graduates

For the survey data, recent high school graduates were defined as students who graduated from high school within the past 3 years (2017, 2018, or 2019). For the quantitative WRA data, recent graduates were from the 2018 graduating cohort.

Postsecondary and Non-postsecondary Students

For the survey, the researcher believed it was important to solicit participation from graduates who were both in the workplace and attending college, as well as from individuals doing just one or the other. This would provide for comparisons broken out by recent graduates who were simultaneously taking postsecondary training and working, those just working, or those only enrolled in postsecondary training. Similarly, those who were both taking courses and engaged in the workforce could provide insight into the differences in the skills and abilities needed in both cases.

Participant Profile

Workplace Readiness Assessment Participants

Participants were from the graduating cohort class of 2018 from a school district having multiple high schools in Idaho. Students took a pretest assessment while in the spring of their freshman year of high school (April 2015) and a posttest during the spring of their senior year of high school (April 2018). Students took the pretest during a required freshman course and posttest during a required senior course. A total of 606 students participated in the pretests and posttests, including 393 graduates who were not enrolled in a CTE capstone course and 213 graduates who were enrolled in a CTE capstone course.

Survey Instrument Participants

Students were contacted via text messaging, e-mail, and social media platforms requesting their participation in the survey. Students must have graduated within the last three school years (2017, 2018, or 2019). A total of 24 surveys were completed; however, after analyzing data and reviewing for complete responses, five surveys were identified as needing to be removed. Table 1 provides an overview of the participant composition of the recent graduates who completed the survey.

Table 1

Participant Demographics

	Frequency	Percent (%)
Gradation year		
2017	6	31.58%
2018	6	31.58%
2019	7	36.84%
CTE Program Completer		
Yes	12	63.15%
No	7	36.84%
Graduation Class Size		
Less than 25	1	5.26%
25-50	1	5.26%
51-75	2	10.53%
More than 76	15	78.95%
Current Educational Pursuits		
4-year	10	52.63%
2-year technical/community college	8	42.10%
1-year or less certificated program	1	5.26%
School / Work Schedule		
Full-time college student	5	26.32%
Full-time college student and working part- or full-time	10	52.63%
Part-time college student and working part- or full-time	3	15.79%
Working full-time	1	5.26%
If attending college, what best describes your educational pursuits?		
Technical program	8	42.10%
Academic program	9	47.37%
Undecided	2	10.53%
During your years in high school, how many times did you engage with industry?		
Less than 1	0	0
1 to 5	5	26.32%
6 to 10	4	21.05%
More than 11	8	42.11%

	Frequency	Percent (%)
I did not engage with industry	2	10.53%
How many times did you engage with a postsecondary institution (college or university)?		
Less than 1	0	0
1 to 5	8	42.11%
6 to 10	9	47.37%
More than 11	0	0
I did not engage with postsecondary	2	10.53%
If you did engage with Industry, what did you engagement look like?		
Internship / Job Shadow	14	32.56%
Guest Speaker	8	18.60%
Industry Tour	10	23.56%
Other	9	20.93%
No Engagement	2	4.65%

Note. n=19

Research Setting

The survey was administered using Qualtrics to allow individuals the flexibility to take the survey at their own location and on their own schedule. A pilot instrument was developed and validated by an expert panel. The pilot was administered to five students who had graduated within the past 2 years and five students who were current high school seniors. These completed surveys were analyzed, and the input provided was used to produce the final survey.

The WRA assessment was administered by personnel in a local Idaho district. All graduating students in the 2018 cohort were required to complete it.

The data collected from the survey and from the WRA came from recent graduates within the State of Idaho.

Data Collection Procedures

Approval from the Institutional Research Board was granted from Northwest Nazarene University on June 17, 2019, for protocol #5042019 (see Appendix A). Data collection was completed via an online survey (see Appendix B) with informed consent (see Appendix C) given prior to the start of any survey. No names or information granting the ability to the researcher to identify a specific respondent was collected by the survey with the exception of those who wished to be contacted in the event future input was needed.

The collection of data from the WRA was done through request from a local school district and the state division of career technical education. This assessment was administered to the 2018 graduation cohort in spring of 2018. Because the assessment was paid for by the state education agency and administered through the local district, both entities agreed to provide the data.

Data Collection Instruments

Workplace Readiness Assessment (WRA)

The CTECS, a non-profit organization established in 1973, drives much of the theoretical framework of this research and analysis. With the guidance and direction of industry, CTECS produced the Workplace Readiness Skills standards to identify and measure students' professional skill development. These skills are measured through 21 standards mapped to workplace readiness, which include necessary characteristics desired from industry. The skills, while mapped to 21 standards, are broken down into three component areas: a) personal qualities and people skills, b) professional knowledge and skills, and c) technology knowledge and skills

(ACTE, 2018). Results from the WRA were used in the quantitative method component to this study.

Survey Instrument

The researcher developed a survey (Appendix B) that included questions to solicit feedback from recent graduates as to their perceived level of preparedness for college and career along with their feelings about their high school's efforts towards ensuring college and career readiness. With the exception of one question, participants answered questions using a Likert scale. In addition to the survey, a follow-up e-mail was sent to further clarify two participants' answers. Results from the survey instrument were used for the qualitative method component of this study.

Participants were asked to provide their contact information if they were willing to receive follow-up questioning. Shortly after the survey closed, those who provided the contact information were asked three follow-up questions. Two individuals responded; those responses are included within the discussion of each of the specific research questions in Chapter 4

Analytical Methods

Qualitative data were analyzed using a combination of inductive and deductive approaches. Creswell (2013) emphasizes coding as a critical step in data analysis. This provides for the researcher to begin chunking responses into categories, which helps with statistical analysis (Creswell, 2013). Additionally, utilizing connecting strategies, such as narrative analysis, assisted in the aggregation of data. Developing a visual chart also assisted in the categorization of data (Creswell, 2013).

The researcher used a variety of quantitative data analysis methods, beginning with a descriptive analysis. This allowed the researcher to identify and summarize the data with patterns. In addition, correlational analysis helped the researcher identify the differences between students' results and their backgrounds in relationship to CTE concentrators and non-CTE concentrators.

Role of the Researcher

College and career readiness is something the researcher believes is one of the most important roles and expectations of secondary school systems. This belief comes from experience working with local industry, which has revealed that the goal, at any level of education, is to ensure progress towards a job and future career at the end of that milestone. These jobs are often entry-level positions, even after attaining a 4-year degree; however, even then the system is working to prepare someone for a job. Although many of the current generation of graduates expect to begin their years in the workforce in a management position, professionals in education understand how often an individual graduating from, for example, a teacher or education preparation program instantly becomes a principal.

While the topic is very important to the researcher, there has been extreme caution placed into the framework development to ensure a minimization of bias. Providing for trial questionnaires and strong input and guidance from the research committee chair and members are a few ways the researcher has worked to limit potential bias.

Limitations

No empirical study is without limitations (Marshall & Rossman, 2015). The process of reviewing, categorizing, and coding qualitative research data in ways that ensure consistency, accuracy, and confidentiality consumes considerable time. Having the ability to utilize only a

small sample of the entire population of educational stakeholders provides the challenge that research findings may not be representative of the entire stakeholder group. Furthermore, limitations may exist in the reader's understanding and the ability to evaluate how the research findings may be generalized to a different context (Creswell, 2015; Marshall & Rossman, 2015).

One identified limitation to the current study was the challenge of getting individuals to complete the survey. Once the survey was published and shared (and shared by others), there was still no guarantee on how many participants would engage. Because participants were not within a specific course or enrolled at a specific institution, there was no ability of the researcher to identify a captive audience to engage in the research.

Chapter IV

Results

Introduction

Providing high school students with a high quality and effective education offers a significant springboard to future success. However, identifying a valid way to evaluate the efficiency and effectiveness of a comprehensive secondary school remains undefined (Hun et al., 2016; Ried, 2017; Zhan & Sherraden, 2011). As articulated by the College and Career Readiness and Success Center, "Systems have developed tools in an attempt to measure a system, however, measurement tools do not include non-academic skills, which are critical to include in College and Career Readiness definitions, models, and frameworks" (2014, p.160). Mathematic and reading scores are most often utilized as primary measurements of knowledge attainment without explicit tools to measure college and career success (Malin & Heckman, 2017). Since "students no longer define themselves nor sort themselves into singular categories: those going to college, those not going to college, those going to work," secondary educational systems must ensure students are equally prepared for both college and work. Understanding where and how industry provides value or plays a role in this accountability is a dire need (Demarest & Gehrt, 2018, p.23).

The first goal of this study was to identify whether any correlation existed between how well students perceived they were prepared for college and career readiness and their involvement within courses or programs which provided natural engagement with industry. The second goal was to understand recent graduates' feelings about how their local secondary school system prepared them to be college and career ready.

At the conclusion of the development of both the theoretical framework and conceptual framework, the researcher decided to utilize a mixed methods approach. To garner the level of perceived preparedness and identify what students believe industry's role is in college and career readiness efforts, the following research questions were answered:

1. What do students believe is industry's role in accountability of an educational system's college and career readiness efforts?
2. How does industry's involvement in the educational system's college and career readiness efforts impact a student's level of preparation for being college and career ready?
3. How do students feel the educational system has prepared them to be college and career ready?

Chapter 3 outlined the methods to be used for data collection, which included the following:

- use of 2015 and 2018 ex post facto assessment results from the Workplace Readiness Assessment (WRA) developed by the Career and Technical Education Consortium of States (CTECS), and
- completion of a researcher-developed survey by graduates from the 2017, 2018, or 2019 graduating cohorts

Chapter 4 includes the results from these data collection methods. This chapter is organized by research question. Included within the results of each research question is both the qualitative and quantitative data to provide a more comprehensive understanding of the findings. The researcher analyzed the data utilizing the theoretical framework outlined in Chapter 2. Results are identified and presented from this point of view.

Results for Research Question 1

Research Question 1 was: What do students believe is industry's role in accountability of an educational system's college and career readiness efforts?

Economic growth and prosperity are dependent on the quality of educational systems in preparing student for their futures. Work done by the American Youth Policy Forum strives to ensure college and career readiness is being measured and the measurement is an accurate representation of the vitality to be ready for the next step (Lewis, 2010). Often, college and career readiness is measured with the same achievement indicators for high school, which are college admission exam scores and grade point average. However, the indicators for college and career readiness do not align with the same skills that first-year students enrolled in college need to be successful (Lombardi, Freeman, & Rifenbark, 2018).

The first step toward better understanding the role industry plays in successful college and career readiness was to understand from recent graduates how they believe industry's engagement in their high school experience could help better prepare them for their future. This formed the basis for Question 1 of the study.

Contained within the survey participants completed was Question 21 which asked students: In what ways do you believe industry should/could participate in secondary school systems' efforts on college and career readiness? Utilizing the responses from participants, the researcher used codes to identify themes. Table 2 shows the top four common inductive codes which related to participants' identification of what industry should be doing to engage in the preparation of college and career readiness.

Table 2

Common Inductive Codes

Codes	Number of Responses
Workshops / Presentations by industry	8
Internships	7
Industry Tours / Career success tours	3
Oversight / Advisory board comprising industry professionals	3

In addition to the survey questions, participants were given the opportunity to provide clarification via e-mail. Participants who did so provided context with a focus on two specific areas of need: increased guidance from industry, and the opportunity for students to tour facilities to learn about the careers and opportunities within industry organizations.

Responding to another part of the survey (Question 20), participants performed a similar criticality process as industry does when identifying which components within the WRA are of most importance in the pursuit of college and career readiness. Participants were asked to rank each of the 21 components using a Likert scale of lowest to highest importance: (1) not important; (2) slightly important; (3) moderately importantly; (4) very important; and (5) extremely important. Table 3 provides participant responses broken down into the CTECS categories of personal qualities and people skills, technology knowledge and skills, and professional knowledge and skills.

The researcher compiled the results and grouped them into the three CTECS categories to provide scores for each of the three areas. Those results are captured in Table 3 where the researcher calculated the relative importance percentages of each category.

Table 3

Participant Survey Responses to Q20

Standard	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Personal Qualities and People Skills					
Work Ethic: Employee comes to work every day on time, is willing to take direction, and is motivated to accomplish the task at hand	1			6	12
Integrity: abides by workplace policies and laws and demonstrates honesty and reliability			2	11	6
Teamwork: contributes to the success of the team, assists others, and requests help when needed			4	11	4
Diversity awareness: works well with all customers and coworkers			4	11	4
Conflict resolution: negotiates diplomatic solutions to interpersonal and workplace issues		1	1	15	2
Creativity and resourcefulness: contributes new ideas and works with initiative			6	10	3
Average of Personal Qualities and People Skills	**0.88%**	**0.88%**	**14.91%**	**56.14%**	**27.419%**
Professional Knowledge and Skills					
Speaking and Listening: Follows directions and communicates effectively with customers and fellow employees			3	11	5
Reading and Writing: Reads and interprets workplace documents and writes clearly		2	7	7	3

Standard	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Critical Thinking and Problem Solving: Analyzes and resolves problems that arise in completing assigned tasks			3	8	8
Health and Safety: Follows safety guidelines and manages personal health		1	7	7	4
Organizations, Systems, And Climates: Identifies big picture issues and his or her role in fulfilling the mission of the workplace			7	10	2
Lifelong Learning: Continually acquires new industry-related information and improves professional skills		1	4	10	4
Job Acquisition and Advancement: Prepares to apply for a job and to seek promotion		2	7	9	1
Time, Task, And Resource Management: Organizes and implements a productive plan of work			4	13	2
Mathematics: Uses mathematical reasoning to accomplish tasks		5	8	6	
Customer Service: Identifies and addresses the needs of all customers, providing helpful, courteous, and knowledgeable service		2	5	9	3
Average of Professional Knowledge and Skills	**0.00%**	**6.84%**	**28.95%**	**47.37%**	**16.84%**
Technology Knowledge and Skills					
Job-Specific Technologies: Selects and safely uses technological resources to accomplish work responsibilities in a productive manner			3	14	2

Standard	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Information Technology: Uses computers, file management techniques, and software/programs effectively		1	6	8	4
Internet Use and Security: Uses the Internet appropriately for work		2	5	10	2
Telecommunications: Selects and uses appropriate devices, services, and applications		3	6	7	3
Average of Technology Knowledge and Skills	**0.00%**	**7.89%**	**26.23%**	**51.32%**	**14.47%**

Results for Research Question 2

Research Question 2 was: How does industry's involvement in the educational system's college and career readiness efforts impact a student's level of preparation for being college and career ready?

To answer this question, the researcher analyzed spring 2015 and spring 2018 ex post facto CTECS WRA test scores from the participating school district. These scores included the pretest results completed during the participants' freshman year of high school, and the posttest results of the same assessment given 4 years later in the spring of the participants' senior year of high school. The pretest and posttest scores of CTE capstone students were compared against the same set of scores representative of non-CTE capstone students.

The pretest and posttest scores were analyzed using IBM SPSS. Utilizing independent *t* tests designed to determine if a statistically significant difference exists between the mean of two unrelated groups, the researcher drew conclusions regarding how CTE capstone students and

non-CTE capstone students in the participating school district performed on the CTECT WRA (Field, 2013; Frey, 2016). When analyzing the results from the independent *t* tests, the researcher reviewed the mean, standard deviations, *p* values, and effect size (Field, 2013; Frey, 2016). The following was used to determine the size of the effect:

- A small effect is from 0 to .3.
- A moderate effect is from .3 to .5
- A large effect is above .5 (Field, 2013).

Growth Between Pretest and Posttest Scores of All Students

The growth between the pretest and posttest scores of CTE capstone students (*n*=213) were compared to the growth of non-CTE Capstone students (*n*=393) from the participating school district. The quantitative results indicated that there was no statistically significant difference (*p*=.792) between the two populations in regards to the mean growth rate from the pretest and posttest scores. Equal variance was assumed as reflected by Levene's Test for Quality of Variance (*p*=.166). The means revealed that both groups of students demonstrated similar growth when comparing pretest and posttest scores from the CTECS WRA. Table 4 shows the results of the independent *t* test that compared the growth between the pretest and posttest scores of CTE capstone students and non-CTE capstone students.

Table 4

Growth Between Pretest and Posttest Scores on the CTECS WRA

	CTE Capstone Students *n=213*		**non-CTE Capstone Students *n=393***				
	M	*SD*	*M*	*SD*	*t*	*p*	Cohen's *d*
	20.16	10.50	19.92	11.02	.264	.792	.02

Pretest Score Comparison

In spring 2015, the graduating 2018 cohort class from the participating school district completed the pre-assessment of the CTECS WRA. The pretest scores of CTE capstone students (*n*=213) were compared to the pretest scores of non-CTE capstone students (*n*=393). The results from the independent samples *t* test indicated that there was a statistically significant difference (*p*=.029) between the pretest scores of the CTE capstone students (*M*=67.35) and the pretest scores of the non-CTE capstone students (M=64.81). Equal variance was not assumed as reflected by Levene's Test for Quality of Variance (*p*=.017). The means revealed that CTE capstone students scored higher on the WRA pretest than did their non-CTE capstone counterparts. Table 5 shows the results of the independent *t* test.

Table 5

Pretest Scores of CTE Capstone Students Compared to Non-CTE Capstone Students

	CTE Capstone Students *n=213*		**non-CTE Capstone Students *n=393***				
	M	*SD*	*M*	*SD*	*t*	*p*	Cohen's *d*
	67.35	13.17	64.81	14.46	2.186	.029	.18

Posttest Score Comparison

The graduating 2018 cohort class from the participating school district completed the postassessment of the CTECS WRA in the Spring 2018. The posttest scores of CTE capstone students (*n*=213) were compared to the posttest scores of non-CTE capstone students (*n*=393). The quantitative results indicated that there was a statistically significant difference (*p*=.008) between the posttest scores of the CTE capstone students (*M*=87.30) and the posttest scores of the non-CTE capstone students (*M*=84.73). Equal variance was not assumed as reflected by Levene's Test for Quality of Variance (*p*=.004). The means revealed that CTE capstone students scored higher on the WRA posttest than did their non-CTE capstone counterparts. Table 6 shows the results of the independent *t* test that compared the posttest scores of CTE capstone students and non-CTE capstone students.

Table 6

Posttest Scores of CTE Capstone Students Compared to Non-CTE Capstone Students

	CTE Capstone Students *n=213*		**non-CTE Capstone Students *n=393***				
	M	*SD*	*M*	*SD*	*T*	*p*	Cohen's *d*
	87.30	10.76	84.73	12.14	2.68	.008	.22

Results for Research Question 3

Research Question 3 was: How do students feel the educational system has prepared them to be college and career ready?

Individuals and organizations associated with career readiness agree there are three specific aspects which go into being career ready. These include academic skills, employability

skills, and technical skills. Often the terms “career ready” and “college ready” become used interchangeably (ACTE, 2018). The challenge with having the terms interchanged is that one does not necessarily equal the other. One of the key aspects of understanding the role industry played in the preparation of secondary students toward college and career readiness was allowing the students themselves to identify how well they felt their school provided them with the readiness.

To answer Research Question 3, the researcher used data from both the survey’s quantitative and qualitative questions. Participants were asked four specific questions to help the researcher understand their perspective on the secondary school system’s accomplishment of preparing students to be college and career ready. Table 7 provides participant responses to three specific questions (Questions13, 14, and 16) using a Likert scale of 1-5.

While students were able to use any combination of numbers between the two areas, the sum of the numbers had to equal 100%. Thirty-eight percent of participants identified that college preparation efforts should consume more than 50% of college and career readiness efforts, while another 38% indicated career preparation efforts should; however, 22% identified the time should be split directly in half (50% career and 50% college). Overall, the number of participants who selected that 50% (or more) of time should be spent on efforts to ensure college preparation was equal to the number of participants who identified that 50% (or more) of time should be allocated to career readiness efforts. This indicates that participants of the survey believe there should be equal efforts of college and career readiness.

Table 7

Participant Survey Responses to Q13, Q14, Q16

Q13 To what degree do you feel your high school years prepared you to be college ready?		
Very much agree	3	15.79%
Slightly agree	0	0%
Agree	7	36.84%
Slightly disagree	1	5.26%
Very much disagree	4	21.05%
Neither agree or disagree	4	21.05%
Q14 To what degree do you feel your high school years prepared you to be career ready?		
Very much agree	1	5.26%
Slightly agree	0	0%
Agree	6	31.58%
Slightly disagree	4	21.05%
Very much disagree	5	26.32%
Neither agree or disagree	3	15.79%
Q16 Which of the following do you believe is most accurate for your situation?		
My high school put even efforts into preparing me to be college and career ready.	5	26.32%
My high school put more effort into preparing me for a job/career.	1	5.26%
My high school put more effort into preparing me for college.	13	68.42%

Table 8 provides response to Question 15, which asked participants to identify the amount of time they believed secondary school should spend towards college or career readiness.

Table 8

Participant Survey Responses to Q15

Q15 What percentage of time do you feel should be allocated for preparation of college and career readiness in secondary schools? (*n*=18)	College (%)	Career (%)
Participant 1	60	40
Participant 2	50	50
Participant 3	70	30
Participant 4	60	40
Participant 5	60	40
Participant 6	60	40
Participant 7	25	75
Participant 8	40	60
Participant 9	40	60
Participant 10	25	75
Participant 11	40	60
Participant 12	60	40
Participant 13	70	30
Participant 14	40	60
Participant 15	50	50
Participant 16	50	50
Participant 17	50	50
Participant 18	40	60

Additional qualitative data were provided by two participants who responded to a follow-up e-mail. One participant commented that their experience prepared them by helping to develop time organization, self-motivation, the ability to have and take care of responsibilities, self-discipline, and knowledge of what to expect in college. The second participant provided a response that was framed by their experience within their local Career Technical Student Organization. This involvement made them extremely prepared to be college and career ready. The experience gained in the technical organization and career technical education courses focused on premiere leadership, personal growth, and career success, and because of their experience, they were able to learn more about the potential career opportunities in and outside

of the classroom. The combined efforts provided experiences for this individual to be more prepared for college, and eventually, a career.

Other Findings

During the development of the survey instrument, there were three questions added to provide the researcher with additional valuable information, which would be used towards identifying further research opportunities. The questions have been identified within this section.

The additional questions provided some additional information as to the feelings of recent graduates about the important components to being hired into a career/job. These survey questions were specifically related to the skills, experiences, and education an individual hoping to enter a job should possess. Table 9 provides the information garnered from Questions 17, 18, and 19.

Participants' responses to these questions provided additional information from a recent high school graduate's perspective as to what experiences and credentials they believe are important to enter or hold a job. These results indicated the majority of respondents felt communication was the most important soft (professional) skill necessary for successful hiring. Most notable within the responses to these questions were the respondents' feelings on the need for experience to be hired. Participants overwhelmingly (78.95%) believed experience is extremely important to being hired. Future research could include a comparison to industry responses to identify whose perspectives represent actual demand.

Table 9

Participant Survey Responses to Q17, Q18, Q19

	Frequency	Percent (%)
Q17 What do you consider to be the MOST hirable soft (professional) skill?		
Ability to communicate effectively	12	63.16%
Ability to get along with others	1	5.26%
Ability to lead others	2	10.53%
Ability to show up on time	3	15.79%
Ability to be self-motivated and responsible	1	5.26%
Q18 How important do you believe a college education is to getting hired for a job?		
Slightly important	5	26.32%
Varies depending on the position	8	42.11%
Very important	6	31.58%
Q19 How important do you believe experience is in the getting hired?		
Extremely and very important	15	78.95%
Slightly important	3	15.79%
Varies depending on the position	1	5.26%

Conclusion

This chapter provided the summary of the qualitative and quantitative data collected to better understand a student's perception of industry's role within the secondary school system's college and career readiness efforts. Additionally, data compared the preparedness level of high school students who completed a CTE program versus those who did not. The independent *t* tests provided evidence that while there was not a statistically significant difference between the pretest-to-posttest growth of the two groups, there were statistically significance differences between the pretest scores and between the posttest scores of each group. Quantitative data were collected from students who graduated within the past 3 school years, and frequency rates were used for the Likert scale questions. Qualitative data were inductively coded to identify the top

four themes participants identified as specific ways they believe industry should be involved in secondary schools' efforts of college and career readiness.

Data from Chapter 4 will be discussed and expanded upon in Chapter 5 to identify how this research can be used to continue identifying industry's role in secondary school accountability for college and career readiness. The results of this research, in combination with similar studies being completed by additional education stakeholder groups, will continue to provide secondary systems with a better understanding of where and how industry should be involved in college and career readiness efforts.

Chapter V

Discussion

Introduction

College and career readiness efforts continue to grow through secondary and postsecondary educational institutions. The ACT organization, based on results from 1.5 million high school students who took their assessment (used to predict college success) in 2010, shared that only "24 percent met all four college readiness benchmarks and only 28% met one of the four college readiness benchmarks" (Creech & Close, 2013, pp.314-315). There are difficulties in identifying how to measure the career readiness side of college and career readiness. In fact, "often the measurement tools do not include non-academic skills, which are critical to include in College and Career Readiness definitions, models, and frameworks" (College and Career Readiness and Success Center, 2014, p.160). If stakeholders are to expect an educational system that truly prepares a student to be college and career ready, utilizing multiple factors of evaluating that system is critical (Fujino, 2013).

The purpose of this study was to provide guidance to secondary systems on ways to engage industry and identify how industry should be involved in the evaluation of system effectiveness specific to college and career readiness efforts. When evaluating systems are effective and rigorous, initial evidence shows a positive relationship between teacher performance and student achievement (Kimball et al., 2004). As indicated by Danielson (2013):

> Educators, researchers, and policymakers concur that the traditional view of learning, focused on knowledge and procedures of low cognitive challenge and regurgitation of superficial understanding, does not meet the demands of the present and future. Competitive industries in the 21st Century will be those whose workers can solve

complex problems and design more efficient techniques to accomplish work (pp.14-15).

Today's employers seek candidates with more globalized skill sets (Jacobson et al., 2009). The Career and Technical Education Consortium of States (CTECS), under the guidance and direction of industry, produces the Workplace Readiness Skills standards to articulate the skills that industry requires for students to be prepared for college and career. Increasing the challenge of employment is the fact that employees do not stay at the jobs and because of this, there is a desire from industry for high importance to be placed on critical thinking (a component of the Workplace Readiness Skills standards) (Kuzmina & Carnoy, 2016).

Identifying how to best evaluate the effectiveness of a school system's college and career readiness efforts should include a multitude of data points, feedback, and demonstrated student achievement (U.S. Department of Education, 2009). Tools and evaluation criteria have been used to measure college readiness (for example, ACT and SAT exams) which define success as "completing entry-level courses with a level of understanding and proficiency that makes it possible for the students to be eligible to take the next course in the sequence of the next-level course in a subject area" (Conley, 2007, p.5). However, the indicators for college and career readiness do not align with the same skills that first-year students enrolled in college need to be successful (Lombardi et al., 2018). Decision makers have identified that historical practices for evaluating systems may not be enough to ensure student success and thus have encouraged the utilization of student achievement data as a component of a teacher's evaluation. This practice has provided heightened stress for administrators and teachers to ensure the tools are valid and reliable (Stumbo & McWalters, 2012; Washington, 2011; Young, et al., 2015). It does not, however, take into account an entire system, but rather isolated student success. Using a mixed methods approach, the researcher endeavored to fill in some of the current evaluation and

accountability gaps in secondary school college and career readiness preparation by answering the research questions articulated in the discussion sections of this chapter.

Researcher Connection to the Study

The researcher holds a close tie to the topic, which fueled the desire to complete the research. Currently serving as the State Administrator for the Idaho Division of Career Technical Education, the researcher oversees secondary, postsecondary, and adult career technical education (CTE). One of the most significant challenges noted by industry partners is the lack of preparedness of students who enter the workforce. The researcher intends to use the results of this study to better connect local school districts and postsecondary institutions to industry throughout the state.

Discussion for Research Question 1

The first research question asked: What do students believe is industry's role in accountability of an educational system's college and career readiness efforts. To help provide the answer, participants were prompted to respond to an open-ended question asking for ways industry should engage in college and career readiness efforts within the secondary school setting, and Table 2 shows the coded responses. Industry provision of workshops was the top response, followed by internships, tours, and advisory boards. The responses indicated that students had a strong desire to learn more about the specific industry or job before making a trip to the site of a company or organization. This is important to note as it could lead to a generational challenge on the part of industry personnel of deciding what they are going to spend more time on. More time would be consumed by providing an industry tour than by having someone go to the school and give a presentation or workshop, but a tour is inevitably a more in-depth industry experience. The benefits of providing students with opportunities to learn from

many individuals and experiences to make a more informed decision of a potential career field to pursue could outweigh the time savings of offering fewer industry tours.

It is also important to note that students indicated a desire to have industry engaged on a programmatic level of giving direction to the teacher or staff member on what is most necessary for students to learn during their high school years. A critical stage of a student's pursuit of career readiness includes exploring their interests. These activities should assist in the development of a student's knowledge of self and the work they intend to pursue (Phillips & Blustein, 1994).

According to the Idaho Division of Career Technical Education's *2019 in Review*, 48% of Idaho graduates went onto college compared to 64% of CTE concentrators (a student who completes a specific number of sequenced courses). Additionally, 96% of CTE concentrators graduated from high school. Identifying the direct correlation between student's engagement with industry during their high school years and desired next steps of their life could provide Idaho educators with the ability to see significant growth in the rates of both statewide graduation and continued education.

Discussion for Research Question 2

The second research question asked: How does industry's involvement in the educational system's college and career readiness efforts impact a student's level of preparation for being college and career ready? This question was answered using ex post facto results of a pretest and posttest students in the graduation cohort of 2018 took as freshmen (pre) and seniors (post). The results of 606 students where broken down into those who were career technical education concentrators (CTE capstone students) and those who were not concentrators (non-CTE capstone students).

The results (see Tables 4, 5, and 6) indicated that although there was not a statistically significant difference between the pretest-to-posttest growth of the two groups, there were significant differences between the pretest scores and between the posttest scores of each group.

The statistical significances between the two groups sparks additional questions about what experiences students had which created the differences. As mentioned in the future research section, new research could be done on similar testing efforts to identify 1) whether at certain grade levels, students are more likely to have a solidified college or career plan and 2) whether timing industry involvement to better address those grade levels would be beneficial. While digging deeper is out of the scope of this research, it could provide valuable insight to the holistic topic of college and career readiness efforts in secondary school systems. Research continues to inform and share concerns about the relationships between education and employability within the workforce (Perera et al., 2017).

In the most recent Federal Perkins reauthorization, formally the Strengthening Career and Technical Education for the 21st Century Act, President Donald Trump provided initiatives to ensure that programs being offered with CTE in high schools are truly warranted in the local area. To ensure this is occurring, three requirements are identified within the legislation: 1) states and districts must complete a needs assessment which demonstrates how CTE programs are aligned to current in-demand industry and occupations; 2) states must consult with industry and business representatives in developing annual plans; and 3) competitive grants can be awarded to programs with innovative approaches and alignment of program skills with workforce demands. However, these requirements are only for those schools and states that receive Federal Perkins funding. Although these engagements with industry are of great value and are required for receiving Federal funds for CTE programs, incorporating these engagements and collaborations

in non-CTE programs as well could provide significant assistance in ensuring the students leaving all secondary programs are college and career ready.

Discussion for Research Question 3

The final research question asked: How do students feel the educational system has prepared them to be college and career ready? Students provided answers to this by participating in a survey, and they provided responses in both qualitative and quantitate formats. Quantitative responses were in the form of a five-point Likert scale rating which asked participants to rank the level of efforts the secondary school put into providing college and career readiness. Additionally, participants were asked follow-up questions. These open-ended questions provided additional qualitative data on student perceptions.

Thirty-eight percent identified that college preparation efforts should consume more than 50% of college and career readiness efforts, while another 38% indicated career preparation efforts should, however, 22% identified the time should be split directly in half (50% career and 50% college). When participants were asked to indicate their level of agreement/disagreement that high school had prepared them for college and career, 52.6% agreed that their high school had prepared them for college, whereas only 36.84% agreed the same for career.

The Association of Career & Technical Education (ACTE) is in partnership with the Society for Human Resource Management and other industry partners to better equip educators with high quality resources to connect industry to education. “To truly be career-ready, students also need to be able to apply academics in context, and some academic skills need more attention and development” (ACTE, 2018, p.1). The work that school and parents do to assist the student in their preparation is enhanced by support from the industry and community efforts that provide experiential learning for important civic engagement (BiDenedetto, 2016, p.32).

The results from participants indicated that although students felt equal efforts should be spent on college and career readiness efforts, they also felt the system did a better job preparing them for college than career. Given that 63% of the participants were CTE program completers, the argument could be made that those who were more likely to engage with industry through participation in CTE would identify the need for increased efforts on career readiness efforts.

Ensuring our educational systems are viewed through a lens where the business community is the consumer of public education only validates and contextualizes the criticality of ensuring that graduating students possess the skills for postsecondary education and the workforce (Kaufman, 2015). Partnerships often found in traditional vocational courses and current CTE programs are beneficial because "increased student achievement occurs when the entire school community cooperates and takes action towards rigorous standards" (Engeln, 2003, p.38). This benefit indicates a need for these partnerships outside of just CTE programs and courses, and identifying the commonalities and best practices for those operations remains critical to 21st century skill development and prepares soon-to-be graduating high school seniors.

Theoretical Framework

The robust research done by the Career and Technical Education Consortium of States (CTECS) and its industry critical work on the Workplace Readiness Skills provided a theme and framework for three large scopes of importance needed to review and identify industry's role in ensuring college and career readiness in secondary students. Identifying an appropriate framework for the research was critical. The relationship between a student's experiences in high school and the development of personal qualities and people skills, professional knowledge and skills, and technology knowledge were among the three areas on which the research was focused. Figure 1 shows a graphical representation of the framework.

The results of this study and the research indicate the students who were exposed to industry scored higher on assessments used to measure college and career readiness (WRA), thus providing evidence that industry plays a vital role in successful college and career readiness efforts for secondary students. Additionally, 100% of survey participants who were part of a CTE program during high school indicated they engaged with industry at least once during their high school experience, compared to 71% of the students who were not in a CTE program. Research continues to inform and share concerns about the relationship between education and employability within the workforce (Perera et al., 2017).

Recommendations for Further Research

After analyzing the results of this study and identifying some anomalies which may be more defined with further research, the researcher finds additional research would be beneficial for continued identification on industry's role in secondary school system accountability of college and career readiness. The first recommendation for future research is to provide a survey to industry professionals that is similar to the one issued to recent graduates. This survey would allow industry partners to share perceptions on how they feel industry should be involved in the accountability efforts of secondary schools' work towards college and career readiness. A similar survey could be provided for parents, teachers, etc. to continue providing more data into helping fully define industry's role in such a critical component to a successful future.

The second recommendation for future research would be to take the pretest and posttest scores of the 2018 graduate cohort used in this study and break down the results beyond an overall score into those areas identified within the theoretical framework (personal qualities and people skills, professional knowledge and skills, and technology knowledge). Then additional

independent *t* tests could determine whether there are any statistically significant differences between those participants who completed a CTE pathway versus those who did not. The analysis could provide insight into which areas students were better or more prepared for. Results could also be analyzed to identify student opinions on the role industry should play in those individual accountability areas. Additionally, a survey could be expanded to identify student, industry, parents, etc. perceptions on which of the three areas should be of more focus with the career readiness.

One challenge Idaho currently faces is identifying how to increase the rate of students who complete high school and continue into additional educational pursuits. Providing students the ability to identify when in their K-12 education they realized their post high school plans would provide significant opportunity for improvement within college and career readiness efforts. This research could help improve the timeline that school systems use to implement and introduce a more comprehensive college and career readiness program. Future students could complete a preassessment and postassessment during the grade level the majority of past students identified as being when they first realized their potential post high school plans, and those assessments could be compared with the ones done during their graduating year. These results would provide significant feedback to secondary and postsecondary systems regarding when to most effectively engage students in learning about college and career.

Implications for Professional Practice

Currently, the researcher serves as the state administrator for the Idaho Division of Career Technical Education. This agency is housed within the State Board of Education, the agency responsible for all educational policy for Idaho. In collaboration with the Idaho State Department of Education, the researcher plans to identify ways to integrate the successfully identified

industry specific efforts of college and career readiness from this study into the existing efforts of college readiness.

Additionally, the Idaho Association of Commerce and Industry has received a grant from the U.S. Chamber Alliance to implement a Talent Pipeline Management program across the state of Idaho to better connect industry and education for meeting workforce needs by sector rather than by individual businesses. These efforts are part of a broader scope of work being accomplished within Idaho in partnership with the Idaho Workforce Development Council (of which the researcher is a member) to better understand workforce needs and implement projects to meet identified needs. The results provided from this study will help provide immediate direction for the Workforce Development Council and partnering agencies to better understand the implication secondary efforts could have on workforce needs.

The information provided from participants and the data results from the Workplace Readiness Assessment are both valuable pieces of information to present to those partnering in these efforts. While the research provides direction to industry on how to better engage with high school students and what those individuals find to be the most valuable interactions in their pursuits of further education or career choice, it also provides guidance to secondary school systems. Therefore, the researcher also intends to share the results of this study with local school district superintendents through regional superintendent meetings. The researcher attends each region meeting annually and would be able to provide an overview of how current career technical education programs naturally engage within industry and how recent graduates feel those engagements and efforts have helped prepare them for their future. Additionally, this information could provide increased direction for local teachers regarding how and where recent graduates feel their interactions with industry and postsecondary educational institutions

prepared them to make a more educated decision on their next steps beyond high school.

Finally, in preparation for the launch of Idaho's Next Step website, the researcher feels information could be shared with parents and students to provide ideas on how to better understand and learn about the opportunities beyond high school. With the research collected within this study, the Next Step team could provide first-person narratives of how and where recent graduates feel their experiences and involvement within both college and career readiness efforts have paid the highest return on investment.

Conclusion

Identifying the role industry plays in secondary school efforts toward college and career readiness is a task for which little research is available. This study identified the traditional and historical ways secondary school systems have been measured for accountability. Those efforts have included teacher evaluations, standardized tests, and parent/guardian input; however, they have not included an avenue for industry to be engaged in the accountability of the system's ability to prepare students for college and career readiness. Although vocational programs provide a more seamless pathway to the labor market with the skills and traits needed for success, some programs offered within secondary education do not have direct ties to industry (Raffe, 2003).

Participants of this study identified where and how they believe industry could be most valuable in their pursuits to identifying career and college pathways beyond high school. Additionally, results from the Workplace Readiness Assessment identified that students who were CTE concentrators had a higher score than their peers who were not CTE concentrators. These results could be in part because of the natural engagement they have with industry given their enrollment in CTE courses throughout their high school experience.

Utilizing these results and future research, local school districts and state school systems could provide some direction on where and how industry should be involved in the accountability matrix of college and career readiness efforts.

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Appendix A

IRB Approval

From: Northwest Nazarene University
To: Clay Long
Subject: RE: [Northwest Nazarene University] 5042019 - INDUSTRY'S ROLE IN SECONDARY SCHOOL ACCOUNTABILITY
Dear Clay,

The IRB has reviewed your protocol: 5042019 - INDUSTRY'S ROLE IN SECONDARY SCHOOL ACCOUNTABILITY. You received "Full Approval". Congratulations, you may begin your research. If you have any questions, let me know.

Northwest Nazarene University
Bethani Studebaker
IRB Member
623 S University Blvd
Nampa, ID 83686

Appendix B

Student Survey

1. You are invited to participate in this questionnaire designed to gain a better understanding of the industry's role in secondary school accountability. This online survey should take about 10 minutes to complete. For this research project, you will be asked to answer a set of demographic questions as well as a series of questions related to what you believe the value industry plays in ensuring secondary school system accountability. Participation is voluntary, and responses will be kept confidential. Any identifying information will be withheld and pseudonyms will be used for schools and school districts. Due to the make-up of Idaho's population, there is a small chance that the combined answers to these questions may make an individual personal identifiable. The researchers will make every effort to protect your confidentiality. We appreciate your involvement in helping us investigate how to help industry better understand how to engage in our local education system and meet the needs of the students in our state. There are risks and benefits in everything we do. The risks to the participants include a loss of time or a sense of frustration or discomfort. Your time is valuable, and you may elect to end your participation at any time. If you have any questions or concerns about the study, please contact the principal investigator, Clay Long, via email at clong@nnu.edu, via telephone at 208-596-5034 or the research supervisor, Dr. Joshua Jensen, via email at joshuajensen@nnu.edu. If you have any questions regarding your rights as a research subject, contact the NNU Institutional Review Board at HHRC@nnu.edu.
   Your response to the following indicates either your informed consent to participate or your choice not to participate:
   a) I affirm I am at least 18 years of age, and agree to participate in the survey
   b) I do not wish to participate in the survey

2. What best describes you?
   a) Full-time college student
   b) Full-time college student and working part- or full-time
   c) Part-time college student
   d) Part-time college student and working part- or full-time
   e) Working part-time
   f) Working full-time
   g) Not employed or attending school
   h) Other

3. What year did you graduate high school?
   a) 2017
   b) 2018
   c) 2019

4. About how many students were in your graduating class?

a) Less than 25
b) 26-50
c) 51-75
d) 76 or more

5. Did you complete a Career Technical Education program in high school?
   a) Yes
   b) No
   c) Unsure

6. How many college credits did you finish high school with?

7. If attending school, what best describes your current educational pursuits?
   a) 1-year or less certificated program
   b) 2-year technical/community college
   c) 4-year institution

8. If attending college, what best describes your educational pursuits?
   a) Technical program
   b) Academic program
   c) Undecided
   d) I'm not sure which one I belong

9. During your years in high school, how many times did you engage with industry?
   a) Less than 1
   b) 1-5
   c) 6-10
   d) 11 or more

10. If you did engage with industry during high school, what was your type of engagement?
    a) Internships / Job Shadows
    b) Guest Speaker
    c) Industry Tours
    d) We do not currently engage
    e) Other

11. If you engaged with industry during high school, were you offered paid employment from the same company during or shortly after completing high school?
    a) Yes
    b) No
    c) I did not engage with industry

12. How many times did you engage with a postsecondary (college or university) or their representative during high school?
    a) Less than 1
    b) 1-5

c) 6-10
d) More than 11

13. To what degree do you feel your high school years prepared you to be college ready?
    a) Very Much Agree
    b) Agree
    c) Neither Agree Nor Disagree
    d) Slightly Disagree
    e) Very Much Disagree

14. To what degree do you feel your high school years prepared you to be career ready?
    a) Very Much Agree
    b) Agree
    c) Neither Agree Nor Disagree
    d) Slightly Disagree
    e) Very Much Disagree

15. What percentage of time do you feel high schools should use to prepare students for college and for career? NOTE: TOTAL must equal 100.
    College: _____
    Career: _____
    Total: _____

16. Which of the following do you believe is most accurate?
    a) My high school put more effort into preparing me for college.
    b) My high school put more effort into preparing me for a job/career.
    c) My high school put even efforts into preparing me to be college and career ready.

17. What do you consider to be the MOST hirable soft (professional) skill?
    a) Ability to communicate effectively
    b) Ability to lead others
    c) Ability to show-up on time
    d) Ability to get along with others
    e) Ability to handle large projects
    f) Other:

18. How important do you believe college education is to getting hired for a job?
    a) Extremely Important
    b) Important
    c) Not Important
    d) Varies Depending on Position

19. How Important do you believe experience is in getting hired?
    a) Extremely Important
    b) Important
    c) Not Important

d) Varies Depending on Position

20. Please rank the following characteristics for importance on getting hired:
    (Likert scales 1-5)
    a) Personal qualities and People Skills
        a) Work Ethic (employee comes to work every day on time, is willing to take direction, and is motivated to accomplish the task at hand)
        b) Integrity (abides by workplace policies and laws and demonstrates honesty and reliability)
        c) Teamwork (contributes to the success of the team, assists, others, and request help when needed)
        d) Diversity awareness (works well with all customers and coworkers)
        e) Conflict resolution (negotiates diplomatic solutions to interpersonal and workplace issues)
        f) Creativity and resourcefulness (contributes new ideas and works with initiative)
    b) Professional Knowledge and Skills
        a) Speaking and Listening: Follows directions and communicates effectively with customers and fellow employees
        b) Reading and Writing: Reads and interprets workplace documents and writes clearly
        c) Critical Thinking and Problem Solving: Analyzes and resolves problems that arise in completing assigned tasks
        d) Health and Safety: Follows safety guidelines and manages personal health
        e) Organizations, Systems, And Climates: Identifies big picture issues and his or her role in fulfilling the mission of the workplace
        f) Lifelong Learning: Continually acquires new industry-related information and improves professional skills
        g) Job Acquisition and Advancement: Prepares to apply for a job and to seek promotion
        h) Time, Task, And Resource Management: Organizes and implements a productive plan of work
        i) Mathematics: Uses mathematical reasoning to accomplish tasks
        j) Customer Service: Identifies and addresses the needs of all customers, providing helpful, courteous, and knowledgeable service
    c) Technology Knowledge and Skills
        a) Job-Specific Technologies: Selects and safely uses technological resources to accomplish work responsibilities in a productive manner
        b) Information Technology: Uses computers, file management techniques, and software/programs effectively
        c) Internet Use and Security: Uses the Internet appropriately for work
        d) Telecommunications: Selects and uses appropriate devices, services, and applications

21. In what ways do you believe industry should/could participate in secondary school systems' efforts on college and career readiness?

22. If follow-up interviews are needed are you willing to participate? If so, please provide the following:
    Name
    E-mail address

Appendix C

Informed Consent

You are invited to participate in this questionnaire designed to gain a better understanding of the industry's role in secondary school accountability. This online survey should take about 10 minutes to complete. For this research project, you will be asked to answer a set of demographic questions as well as a series of questions related to what you believe the value industry plays in ensuring secondary school system accountability. Participation is voluntary, and responses will be kept confidential. Any identifying information will be withheld and pseudonyms will be used for schools and school districts. Due to the make-up of Idaho's population, there is a small chance that the combined answers to these questions may make an individual person identifiable. The researchers will make every effort to protect your confidentiality. We appreciate your involvement in helping us investigate how to help industry better understand how to engage in our local education system and meet the needs of the students in our state.

There are risks and benefits in everything we do. The risks to the participants include a loss of time or a sense of frustration or discomfort. Your time is valuable, and you may elect to end your participation at any time.

If you have any questions or concerns about the study, please contact the principal investigator, Clay Long, via email at clong@nnu.edu, via telephone at 208-596-5034 or the research supervisor, Dr. Joshua Jensen, via email at joshuajensen@nnu.edu. If you have any questions regarding your rights as a research subject, contact the NNU Institutional Review Board at HHRC@nnu.edu.

Your response to the following indicates either your informed consent to participate or your choice not to participate:

- ○ I affirm I am at least 18 years of age, and agree to participate in the survey
- ○ I do not wish to participate in the survey