FOSTERING CAREER READINESS AMONG SECONDARY STUDENTS: TEACHERS' PERCEPTIONS AND INSTRUCTIONAL INTENTIONS

A Dissertation
Submitted to the Graduate Faculty
of the
North Dakota State University
of Agriculture and Applied Science

By

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In Partial Fulfillment of the Requirements
for the Degree of
DOCTOR OF PHILOSOPHY

Major Program:
Education
Option:
Adult and Community Education

July 2020

Fargo, North Dakota

North Dakota State University
Graduate School

Title

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The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

DOCTOR OF PHILOSOPHY

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ABSTRACT

The purpose of this study was to examine the relationship between teachers' perceptions of career readiness as an outcome of secondary schools and their intentions to teach employability skills in their classrooms. Additionally, the study sought to explore the impact of selected teacher demographics on teachers' perceptions of career readiness. The target population was secondary school teachers in North Dakota. Total study participants included 1,209 (*N*) teachers from a census sample of North Dakota teachers. Respondents completed a questionnaire which included two instruments intended to assess teachers' perceptions of career readiness and their instructional intentions related to employability skills, as well as selected demographic questions.

From the findings of the study, it can be concluded that there is an association between teachers' demographic characteristics and their perceptions of career readiness. Specifically, teachers who taught Career and Technical Education (CTE) and special education courses placed a higher level of importance on the development of career readiness than teachers who taught core academic and elective/other courses. Additionally, perceptions of career readiness were significantly more positive among teachers who had willingly engaged in more professional development related to the instruction of employability skills compared to those teachers who attended fewer workshops or who were required to attend workshops. Teachers who worked in school districts that required the assessment of employability skills had significantly more positive perceptions of career readiness than teachers who taught in schools that required fewer or no skills to be assessed.

According to the findings, teachers' intentions to teach employability skills can be predicted by their perceptions of career readiness. Consequently, increasing teachers' positive

perceptions of career readiness should increase their intentions to teach employability skills in their classrooms, thus fostering the development of career readiness among their students. Based upon the evidence collected through this study, school leaders and policy makers may be able to positively impact teachers' perceptions of career readiness through engagement in meaningful professional development, implementation of effective policies regarding the assessment of employability skills, and utilization of consistent and clear communication regarding the purpose of career readiness development and its connection to employability skills.

ACKNOWLEDGEMENTS

Many people deserve acknowledgement for their contributions to my education and the completion of this dissertation. First, I am grateful for the community of scholars that make up the Education Doctoral Programs. My colleagues in the program openly shared their unique perspectives and experiences, which contributed to my growth as a learner, teacher, and scholar. The faculty, including Claudette, Nate, Brent, Erika, Chris, and Laura have supported and empowered me on my journey to becoming a scholar. I am grateful for the constant encouragement, candid feedback, and unwavering support. In particular, I am thankful to have been a part of a scholarly community that embraces authenticity and vulnerability.

If it was not for my advisor, Dr. Adam Marx, I may never have pursued my doctorate. It was because of the opportunity he presented to me and his encouragement that I am where I am today. I am thankful for the genuine experiences you allowed me to partake in during my time as a graduate student at NDSU. I am grateful for the hours of time you spent reading my work, our countless conversations about everything from Ag Education to college football, and for your perceptive mentorship; you always seemed to know exactly the right thing to say to me when I needed encouragement, confidence, or guidance. I cannot express how thankful I am to have been your advisee.

Thank you to Dr. Nate Wood for volunteering to join my committee when I found myself short a member. You have always shown genuine interest in my development as a scholar and I am grateful for your mentorship and guidance. In particular, the courses I took from you impacted me to my core; my perspectives shifted so significantly that I am a different person today than I was three years ago. Thank you for always fostering a sense of community in your courses and the doctoral programs, as well as reigniting my sense of wonder.

I am incredibly grateful for Dr. Amy Smith's contribution to my doctoral committee. I value your commitment to the Agricultural Education profession and to my development as a teacher educator. Thank you for taking precious time from your schedule to serve on my committee and supporting me through the final months of my doctoral education.

Dr. Rob Maddock served as a member of my committee as a representative from the graduate school. First, I am thankful for your service on my committee. I realize time is a precious commodity for faculty members. However, I am also thankful for your advice, support (as a graduate student and as a high school teacher), and friendship.

I also want to acknowledge Dr. Claudette Peterson, who served as my co-advisor during the first two years of the program. Claudette helped me to establish myself within the Education Doctoral Program. She was the first person to call me a "scholar," and even though it took me a long time to believe her, I knew she genuinely believed it from the very beginning. Your support of me never wavered during your time at NDSU and I am thankful for your mentorship.

DEDICATION

A well-known African proverb proclaims “it takes a village to raise a child.” I would argue, it takes a village to get a Ph.D. too. To my village, I owe this degree to you.

To my husband, Patrick, thank you for supporting and encouraging me throughout this journey. To put it simply, I could not have done this without you. You empower me to be the best version of myself. The sacrifices you have made for my education and goals have not gone unnoticed.

To Lincoln, being your mom brings me unending joy. You are my motivation to learn more, do better, and make the world a better place. I love you more than I will ever be able to put into words.

To my parents, thank you for your unending love and support, which have always appeared in the form of meals, childcare, and chores when I couldn’t keep my head above water. You have always supported my dreams and goals, even when they were crazy. Thank you for continuing to foster my sense of wonder, always engaging in thoughtful conversations, and helping me become the person I am today.

To my sisters, Lindsey and Mairin, thank you for being the best cheerleaders! You inspire me every day and I am beyond grateful for our sistership.

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LIST OF ABBREVIATIONS

CTE	Career and Technical Education
ACTE	Association of Career and Technical Education
NACE	National Association of Colleges and Employers
CCR	College and Career Ready (Standards)
ANOVA	Analysis of Variance
EFA	Exploratory Factor Analysis
PCRI	Perceptions of Career Readiness Instrument
IIQ	Instructional Intentions Questionnaire
FSD	Focus on Skill Development
FCR	Focus on Career Readiness
CR>A	Valuing Career Readiness Skills over Academic Skills
CRB	Career Readiness Broadly
CRBX	Career Readiness Broadly without the term “career”
CRI	Career Readiness Individually
CRIX	Career Readiness Individually without “career”
IRTES	Factor 1: Importance and Responsibility to Teach Employability Skills
IRTCR	Factor 3: Importance and Responsibility for Teaching Career Readiness

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CHAPTER 1. INTRODUCTION

Historical Foundation of Vocational Education

Today, education is compulsory for all children, whereas historically, an education was afforded only to the wealthy in the colonial days of the United States (Elias & Merriam, 2004; Phipps, Osborne, Dyer, & Ball, 2008). The purpose of education until the late 1800s was to promote intellectualism among upperclassmen who would become the future leaders of churches, government, and business (Elias & Merriam, 2004; Westmeyer, 1997). Even though compulsory public schools would not be mandated until the 1900s, there was still a need to train and educate workers for skilled professions, which eventually led to the development of vocational and career-focused education.

As vocational education began to grow in importance across the colonial United States in the form of apprenticeships, lyceums, mechanic's institutes, and manual training programs (Gordon, 2014; Kliebard, 1999; Stubblefield & Keane, 1994), education was made more accessible to a broader range of individuals and populace. As public secondary education reached a more diverse student population in the United States, it became essential to bring into question the purpose of education when considering changes to school curriculum. Some agreed with maintaining the traditional curriculum, driven by a liberal arts philosophy, which intended to foster content discipline and intellectualism through engagement in academic subjects, for the purpose of preparing students for college admission (Kliebard, 2004). Others, including John Dewey, supported a shift in the purpose of education to a more progressive philosophy. Dewey, a progressive educational philosopher in the late 1800s and early 1900s, believed in education for the purpose of advancing the ideals of American democracy. Dewey purported that education was a process and not something to be achieved, rather, education should be built upon the

individual student's needs and interests (Elias & Merriam, 2004; Kliebard, 1999). The purpose of education, in Dewey's view, was more significant than simply training for a job or preparing for college, it was the process of engaging in experiences for the sake of learning (Elias & Merriam, 2004). In contrast to Dewey's philosophy, David Snedden and Charles Prosser were more pragmatic and focused on social and educational efficiency (Kliebard, 1999). Snedden and Prosser viewed the purpose of education as preparation for adulthood, including the acquisition of job-focused skills (Kliebard, 1999).

Ultimately, the Industrial Revolution shifted the American way of life, and public opinion swung in favor of Snedden and Prosser's views of education out of societal necessity and the vocational education movement began to gain substantive traction (Kliebard, 1999). At its basis, the purpose of the vocational education movement was to help individuals develop the skills necessary to be successful in jobs, as dictated by the dominant industries of the time (Gordon, 2014). Throughout the early part of the 20th century, vocational education became an important part of the secondary school curriculum at many schools and helped initiate the Smith-Hughes Act in 1917. The Act formalized vocational education in public schools and provided federal funds to support the growth and advancement of vocational education (Kliebard, 2004; Phipps et. al., 2008; Stubblefield & Keane, 1994). Though vocational education has evolved since its inception, the purpose of modern-day vocational training, known contemporarily as Career and Technical Education (CTE), is still focused on preparing students for future careers through the instruction of skills readying completers for those future careers (Advance Career and Technical Education [CTE], 2019a). However, in most school districts, CTE courses are considered elective courses. Therefore, only a portion of students receive training and preparation for their

future careers. This leads one to question if it is still appropriate, and equitable, to separate career training and academic instruction?

Making the Case for Career Readiness

As stated previously, historically, the path towards career or vocational readiness and the path towards college readiness were distinctly different. Students did not pursue both paths; they were advised to choose one or the other. Career readiness was attributed to job training and vocational education, which was considered very different from than the academic curriculum meant to prepare students for college (Conley & McGaughy, 2012). However, after the release of the Secretary's Commission on Achieving Necessary Skills (SCANS) report in 1990 (Kane, Berryman, Goslin, & Metzger, 1990), the conversation surrounding career readiness changed. The SCANS report focused on the skill development needs of the current and future workforce, which would help workers be successful in the 21st century (Kane et al., 1990). This was to be achieved by re-envisioning the purpose of schools and restructuring workplaces to accomplish that skill development (Kane et al., 1990).

Since the SCANS report illuminated the need for career readiness skills, a number of initiatives have been established with the intention of supporting the development of employability skills in public schools for all students. Those broad initiatives have ranged from the development of the Common Core College and Career Readiness standards to the inclusion of career readiness goals in 49 state Every Student Succeeds Act plans in 2017 (Advance CTE, 2017; US Department of Education, n.d.a; English, Cushing, Therriault, & Rasmussen, 2017; Webster, 2015). Though there is minimal evidence these initiatives have been successful in improving students' overall skill development upon graduation, they do indicate a political and cultural commitment to the development of employability skills as being an important, if not

essential, part of a public-school education. The commitment to the development of employability skills is well-intended and important for the career readiness movement, however, the various initiatives intended to foster the development of employability skills have lacked consistency overtime as they have morphed and adapted to the current political climate or the educational buzzword.

A contributing factor to the capricious target of policy related to the development of employability skills may be the lack of a clear definition of what it means to be career ready as currently, a universal definition of career readiness does not exist in the vernacular. Therefore, the range of definitions from state to state are incredibly broad (Mishkind, 2014), and independent organizations ranging from ACT, Inc. to the Association of Career and Technical Education (ACTE) have their own definitions of what it means to be career ready (ACT, Inc., 2018; ACTE, 2010). Without a clear and ubiquitous definition of what it means to be career ready upon high school graduation, the development of initiatives and policies becomes ever more convoluted and ambiguous.

Most definitions of career readiness include the need for a set of skills which help individuals achieve success in their jobs in addition to the technical and/or academic skill requirements of their job. These skills have many names including employability skills (ACTE, 2010), soft skills (Lippman, Ryberg, Carney, & Moore, 2015), 21st Century Skills (Partnership for 21st Century Learning, 2019b), transferrable skills, professional skills, and non-academic skills. Though employers still value employees who possess the necessary technical skills, a greater emphasis is being placed on competency in soft skill or employability skill areas (Casner-Lotto & Barrington, 2006; Hart Research Associates, 2015; National Association of Colleges and Employers [NACE], 2019). According to a wide range of authors and organizations, the top

skills desired by employers are teamwork, communication skills, reliability, flexibility, ethical decision making, critical thinking and problem-solving, integrity and character, professionalism and work ethic, interpersonal skills, and responsibility (Bunshaft, Boyington, Curtis-Fisk, Edwards, Gerstein, & Jacobson, 2015; Casner-Lotto & Barrington, 2006; Corder & Irlbeck, 2018; Easterly, Warner, Myers, Lamm, & Telg, 2017; Hart Research Associates, 2015; Landrum, Hettich, & Wilner, 2010; McNamara, 2009; NACE, 2019; Robles, 2012). To further complicate the situation, the objective assessment of career readiness has been incredibly difficult to achieve (Balestreri, Sambolt, Duhon, Smerdon, & Harris, 2014; Koppich, Humphrey, Venezia, Nodine, & Jaeger, 2017). Comprehensive instruments that can be used to assess career readiness have been developed, but they lack the exposure and repeated implementation necessary to be considered a truly useful and valid instrument (Lombardi, Seburn, & Conley, 2011). The lack of available assessment options has implications for all of the career readiness initiatives across the country. Even though 49 states have adopted plans to increase career readiness, none of those states have any plans in place which connect career readiness, academic standards, and assessments together (Advance CTE, 2017). Without appropriate assessment options, there is no way to know if schools and states are successfully implementing programs which lead to the development of improved career readiness in secondary school graduates.

Without clear evidence to confirm the development of career readiness skills among graduates from secondary schools, the data available comes from surveys of employers which indicates a "skills gap" may exist between the needs of employers and the actual employability skills graduates possess (Bunshaft et al, 2015; Casner-Lotto & Barrington, 2006; McNamara, 2009; NACE, 2018). This perceived gap has further justified the implementation of educational policy across the country, including the adoption of College and Career Readiness (CCR)

standards (US Department of Education, n.d.a), the inclusion of new provisions in the most recent reauthorization of the Elementary and Secondary School Act which require all students to be prepared for success in college and careers (US Department of Education, n.d.b), and the development of federal grant programs such as Race to the Top, which provided funds to schools which focused on employability skill development (Webster, 2015). It is not wrong to allow employer perceptions to drive educational policy, however, it is important to remain critical of those perceptions until valid and reliable assessments are developed to measure student development of employability skills. Until evidence exists regarding what students are actually capable of doing when they graduate and what teachers are doing to foster the skill development, the only evidence available regarding the acquisition of these skills are the perceptions of employers and the anecdotal evidence of secondary school employees.

The Role of Schools in Fostering Career Readiness

Though there is evidence that individuals can develop employability skills through a wide range of experiences and contexts (Lundry, Ramsey, Edwards, & Robinson, 2015; Rosch, Simonsen, & Velez, 2015; Townsend & Carter, 1983), it is important to ensure that all students are given the opportunity to develop employability skills. Due to the expansiveness of public secondary schools, the integration of employability skill development into the public-school curriculum may be the most logical way to equitably reach youth in the United States.

Even though the federal government has supported the integration of career readiness development into secondary schools, the environment of each individual school must be supportive of the development of career readiness skills in order for there to be a positive impact on student outcomes (Aldridge & Fraser, 2016). Specifically, factors such as school demographics, school policies, administrative attitudes and support, and access to teacher

professional development and training all impact the school climate and ultimately, how instruction takes place in the classroom (Aldridge & Fraser, 2016; Wang & Degol, 2016).

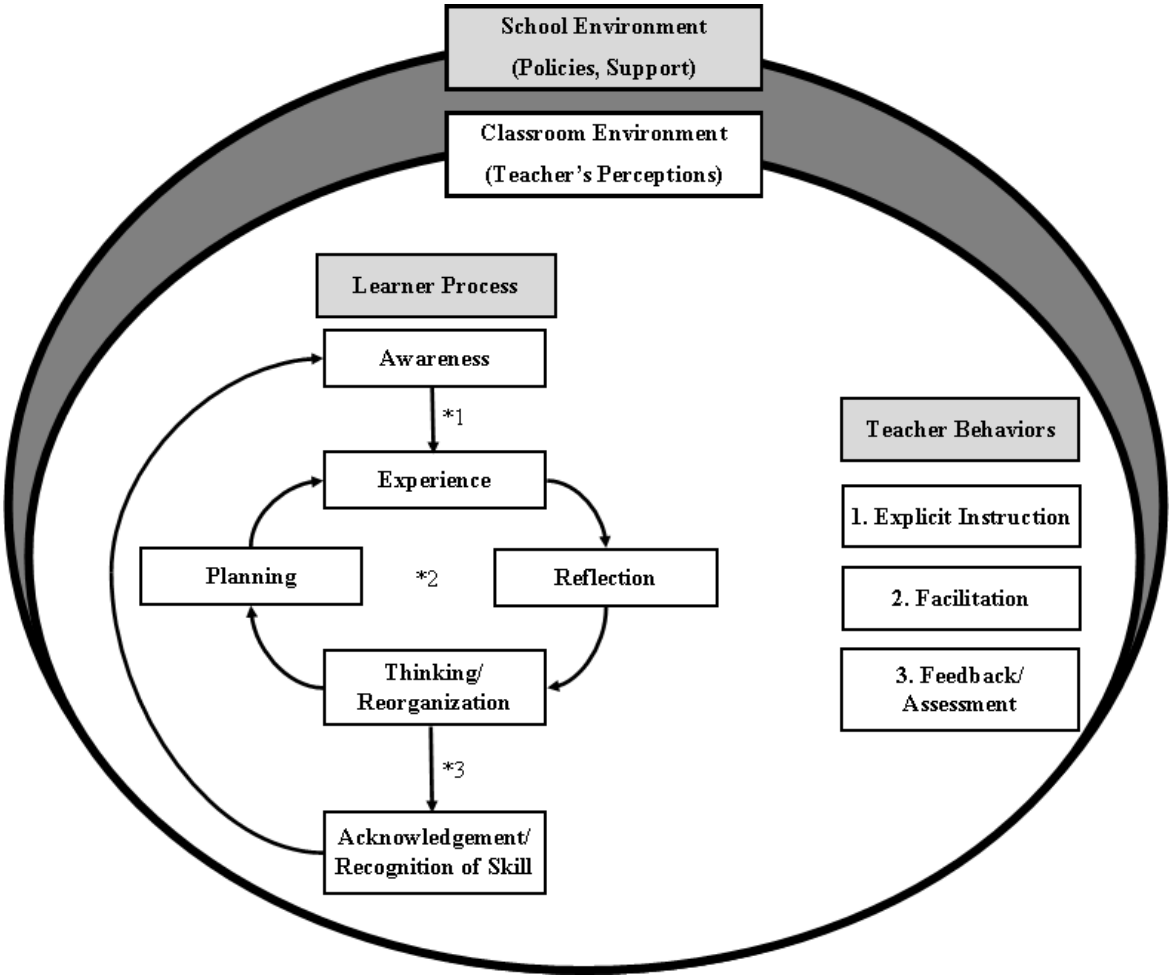
At the classroom level, teachers play a notable role in the instruction of employability skills (Jayram & Engmann, 2014). How teachers perceive the school environment, such as policies in place or expectations placed upon them, will impact their own classroom environment (Spillane, Reiser, & Reimer, 2002). Beyond outside mandates and expectations, a teacher's classroom environment is further shaped by their personal educational philosophy and their self-efficacy related to their ability to teach (Hattie, 2003). A number of factors impact the instructional decisions teacher's make in the classroom including academic standards, perceptions of what they believe to be important, and ability to teach to the content (Deemer, 2004). Thus, in order for a teacher to decide to integrate employability skill instruction into their classroom, they must believe in the importance of and know how to teach those skills.

Conceptual Framework

Figure 1.1 is a representation of the conceptual framework which was developed to guide this study using information processing theory (Atkinson & Schifrin, 1968), experiential learning theory (Kolb, 1984), and personal experience of the researcher. The diagram shows the skill development process a learner must go through to develop a new skill. That process is impacted by teacher's behaviors, specifically explicit instruction, facilitation, and feedback and assessment. The figure acknowledges learning takes place in a classroom environment that is impacted by individual teacher's perceptions. Further, the classroom environment exists within the greater school environment, which is impacted by policies, administration, and professional development.

Figure 1.1

Learner Skill Development Model



Note. This model shows the steps a learner would go through to develop a new skill. Teacher behaviors are identified with an *. The model includes a single example of when teacher behaviors could take place within the learner process. However, it is important to note that the location of a teachers' behaviors can take place at many locations throughout the model. The act of learning and teaching is nested within the classroom environment, which is impacted by teachers' perceptions. Additionally, the classroom environment is nested within the larger school environment, which is impacted by policies and support in the form of leadership and professional development training.

Before learning can take place through the outlined learner process, the learner must attend to what is to be learned (Craik & Lockhart, 1972). Henceforth, the first step in the acquisition of a skill must be a learner's awareness of the skill to be learned. Since employability

skills are often taught by embedding them within lessons which include content-specific learning goals, it is necessary to draw students' attention to the specific employability skill development, in addition to the desired content skill, in order for learning to take place.

Explicit skill instruction is most effective in the development of employability skills according to prior studies (DeHaan, 2009; Kriflik & Mullan, 2007; Riebe, Roepen, Santarelli, & Marchioro, 2010). Therefore, learners must be given the tools to use a skill, either through formal or informal instruction. Formally, a teacher may teach a student how to use nonverbal communication skills or how to develop their creativity. Informally, a learner may read a book about teamwork or get public speaking ideas from watching someone else give a speech. As noted in Figure 1.1, instruction can theoretically take place at multiple places within the skill development process. However, a key component of this model is that explicit skill instruction must take place at some point during the learning process.

In order for learning to be stored in long-term memory, which is what ultimately makes the learning useable in the future, the new information must be meaningful to the learner and they must have had the opportunity to connect their new learning to prior knowledge through the process of elaboration (Lutz & Huitt, 2003). Learners can elaborate when they have the opportunity to think and act at higher levels of engagement (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). It is posited that learners who engage in a learning exercise which allows them to practice the employability skill in a purposeful manner will develop that skill more effectively than their peers who receive instruction in a less explicit and purposeful way. This position is guided by Kolb's Experiential Learning theory, which involves a four-cycle process of learning including a concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 1984). Within the context of a classroom learning activity,

students would be engaged in practice during the concrete experience. The inclusion of purposeful focus on employability skill development would require a learner to participate in reflection and deeper thinking. Often, this stage requires teacher facilitation to draw learners' attention to the specific skill development. As learners recognize the development of employability skills, they engage in analysis and assessment, a higher-order thinking practice, which leads to long-term memory storage of the new information about that skill. At this point, learners acknowledge and recognize their current level of skill development. If they recognize a gap in their abilities and a need for growth, they may be motivated to seek more instruction, either formally or informally, to further develop that skill. Even if a learner is confident in their abilities and perceives a high-level of ability, they may still be motivated to further develop their skills and seek more experiences which allow them to continue to develop that skill.

The entire skill development model is nested within the school environment and classroom environment, indicating that before any skill development can take place, the environment must be conducive to the instruction. School policies, available professional development, and administrative support are all factors which impact school climate (Aldridge & Fraser, 2016, Wang & Degol, 2016). The environment of the school has the potential to impact a teacher's perceptions of skill development and their instructional intentions. At the same time, the classroom environment, which is greatly influenced by the teacher's perceptions, beliefs, and instructional priorities, may also impact a teacher's instructional intentions (Deemer, 2004).

Statement of the Problem

It has long been the goal of educational institutions to develop "well-rounded" individuals. Today, "well-rounded" manifests as "college and career ready." However, accepted definitions of college and career readiness are inconsistent and varied (Balestreri et al., 2014;

Mishkind, 2014). Even so, current federal, state, and local educational policies mandate the inclusion of college and career readiness initiatives at the K-12 level (Advance CTE, 2017; US Department of Education, n.d.a; US Department of Education, n.d.b). Virtually every state in the nation has some form of policy in place which is meant to foster college and career readiness in their high school graduates (Advance CTE, 2017). Unfortunately, even though these policies are in place, there is no clear indication that students are leaving high school with a well-rounded set of transferable skills which will help them achieve college and career success due to a lack of valid and reliable assessments.

Employers overwhelmingly agree that entry-level employees (with and without post-secondary training) lack the necessary and desired skills to be successful in many careers (Bunshaft et al, 2015; Casner-Lotto & Barrington, 2006; McNamara, 2009; National Association of Colleges and Employers [NACE], 2018). Almost half of employers in the United States (46 percent) report being unable to find employees with the skills and experience they need (Manpower Group, 2018). It is concerning that policy dictates a focus on career readiness at the secondary level, and yet employers overwhelmingly agree that the development of the skills necessary for career success has not been achieved. Clearly, something is creating this perceived skill gap. Why are students not able to transfer the skills they are supposedly being taught to their work contexts?

Teachers play a critical role in the translation of policy into student outcomes as they are the proponent for learning in the typical classroom (Jayram & Engmann, 2014). Because teachers control what content is covered and how it is covered, they are ultimately responsible for the type of learning that takes place in the classroom. In the case of soft skills and employability skills, teachers agree these skills are relevant and important (Mitchell, Skinner, &

White, 2010; Singh, Thambusamy, & Ramly, 2014). However, finding the time to teach them is challenging in an environment so heavily focused on the acquisition of academic standards (Laroux & Lafleur, 1992). Further, the instruction and assessment of employability skills is extremely difficult (Balestreri et al., 2014; Koppich et al., 2017). Additionally, teachers' understandings and perceptions of policies are impacted by a number of factors and ultimately drive their actions in the classroom (Spillane et al., 2002). Could teachers' perceptions of students' career readiness as a K-12 educational outcome impact how they come to make decisions related to the instruction of employability skills in their classrooms?

Purpose of the Study

The purpose of this study was to examine how teachers' perceptions of career readiness impact their intentions related to the instruction of employability skills in the secondary classroom. Further, the study sought to explore how selected teachers' demographic characteristics impact their perceptions of career readiness. Finally, the study sought to validate two instruments: The Career Readiness Perceptions Instrument and the Instructional Intentions Questionnaire. To guide these purposes, the following research objectives were developed:

Research Objectives

1. Validate an instrument to measure teachers' perceptions of career readiness and teachers' instructional intentions related to employability skills.
2. Describe teachers' perceptions of career readiness as a student educational outcome of K-12 schools.
3. Describe the impact of selected teacher characteristics (years of teaching experience, content area taught, method of earning licensure, policies in place at the school, and professional development opportunities) on their perceptions of career readiness.

4. Determine the relationship between teachers' perceptions of career readiness and intention to teach employability skills in the classroom.

Significance of the Study

There is a nationwide push for the preparation of college and career ready students by secondary schools. However, there are numerous definitions of what it means to be college and career ready. Therefore, a more conclusive and holistic definition of career readiness is needed. Though there are strong arguments for defining college and career readiness collectively, there is justification to define career readiness independently due to nuances in the definitions. By defining them as one, the unique characteristics of career readiness seem to be overshadowed and lost. Because definitions drive policy, and ultimately classroom instruction, a clear and focused definition of career readiness would be the first step toward more consistent implementation of career readiness initiatives nationwide. Further, broad and vague definitions make policy development and instructional planning challenging because interpretation becomes subjective, rather than objective.

It is necessary to understand how teachers perceive career readiness because their perceptions may vary depending on prior beliefs, school culture, and teacher identity (Beauchamp & Thomas, 2009; Spillane et al., 2002). Additionally, teachers' perceptions have the potential to impact their instruction in the classroom (Deemer, 2004). For example, if career readiness is not viewed as being an important part of their teaching, implementing career readiness initiatives will be more difficult because it requires teachers to change their current instructional understanding and adopt a new perspective (Spillane et al., 2002). Therefore, it is important to understand teachers' perceptions because understanding their beliefs is necessary for effective career readiness initiative implementation (Spillane et al., 2002).

Understanding how demographic characteristics of teachers impacts their perceptions of career readiness sheds light on a part of the career readiness picture that has not be investigated in the past. Though demographics of teachers cannot be changed, understanding which groups of teachers have higher or lower perceptions of career readiness could help administrators target assistance and support more specifically. Additionally, there are implications for teacher education programs depending on how early career teachers perceive career readiness. Finally, through the collection of demographic information, information can be compiled related to school environment and professional development engagement. If school policies and access to professional development impact perceptions of career readiness, school districts could make impactful changes which may improve the overall perceptions of career readiness in their schools.

Additionally, because empirical evidence indicates the most effective way to foster the development of employability skills is through explicit instruction and embedding the skill practice in a useful context (DeHaan, 2009; Kriflik & Mullan, 2007; Riebe et al., 2010), it is worth exploring the instructional intentions of secondary teachers related to the instruction of employability skills. Though intentions do not indicate whether or not something is actually happening in the classroom, intentions are a necessary step prior to instruction. Without intention, it can be assumed action is not occurring. Once intentions are known, it can be determined if teachers' perceptions of career readiness have any impact on their instructional intentions. If teachers' perceptions of career readiness are determined to be barriers to teaching employability skills, appropriate professional development can be developed to support the fostering of career readiness among high school students.

Definitions

Career Readiness: As an outcome of secondary schools, students should be proficient in their transferrable skill development which will allow them to be successful in a wide range of careers and contexts.

Classroom Environment: The specific environment of an individual classroom due to the perceptions of the teacher, including their perceptions related to their self-efficacy, perceptions of career readiness, and their perceptions of the school environment.

College and Career Readiness: A set of transferrable skills and academic abilities students must have when they graduate from high school in order to successfully pursue post-secondary education or enter the work-force.

Explicit Instruction: Drawing direct attention to the skill to be learned and providing instruction related to that skill, rather than simply allowing learning to organically emerge.

Facilitation: The process a teacher engages in during student-centered learning which involves the teacher guiding students through the processes of reflection, higher-order thinking, and reconceptualization, especially in situations where students may not engage in those process on their own.

Feedback/Assessment: When a teacher offers an assessment of a student's level of transferrable skill development and provides feedback which will allow the student to grow and continue to develop that skill.

School Environment: The climate of a school which is impacted by school demographics (such as size, rural/urban, diversity of students, etc.), policies in place, administration and administrative support, and available professional development.

Teacher Self-Efficacy: A teacher's belief in their ability to teach a specific topic or content area.

Transferrable skills: Skills which are beneficial in a wide range of contexts. Also referred to as soft skills, 21st Century Skills, employability skills, and non-academic skills. Examples include communication, teamwork, problem solving, and creativity.

Assumptions

The following assumptions guided this study:

1. The teachers participating in this study were all middle and high school classroom teachers in North Dakota.
2. The researcher assumed participants were familiar with the language used in the instrument.
3. It was assumed the participants had classroom contact with middle and high school students and have some level of autonomy when making instructional decisions in their classrooms.
4. The selected sample is representative of the total population identified in this study.
5. The participants honestly and objectively reflected upon their perceptions of career readiness.
6. The participants honestly and objectively reflected upon their intention to teach employability skills.
7. The participants honestly reported personal demographic information.
8. The participants accurately read and considered the instructions for completing the instrument.

Limitations of the Study

The researcher identified the following limitations:

1. The survey was only administered to teachers in North Dakota

2. The sample is not a random sample, so it will lack generalizability beyond the subject group.
3. This data was collected during the COVID-19 pandemic and thus some teachers' perceptions may have been impacted by the virtual teaching environment in which they were teaching at the time.
4. The survey will be conducted at one point in time and non-respondents will not be followed up with, which increases bias opportunity.
5. Some teachers may have limited exposure to the terminology used in the survey due to the connection to career readiness.
6. Survey research may limit the depth and richness of the results, which could be achieved through qualitative methods.
7. The survey was only administered to teachers in North Dakota.
8. It is unlikely all practicing classroom teachers in the spring of 2020 were reached via email due to the list of email addresses used being compiled in the fall of 2019 and based upon the fact that some invitations to participate were undeliverable.
9. Principal Axis Factoring was utilized for the exploratory factor analysis, which limits the generalizability of the instrument beyond the current population.
10. Confounding variables were not controlled for in this study. Therefore, causal relationships between demographic variables and perceptions of career readiness could not be measured.

CHAPTER 2. REVIEW OF LITERATURE

Introduction

Currently, there is a global shortage of qualified employees reported by businesses and organizations of all sizes (Manpower, 2018). Worldwide, 45% of employers have expressed their struggle filling open positions due to a lack of candidates who possess the necessary skills to be successful (Manpower, 2018). Beyond the need for essential technical and employability skills, the level of training and education required of employees continues to increase. By 2020, it is projected that 65% of all jobs in the United States will require some postsecondary education and training, which is a significant jump from the 28% of jobs that required education beyond a high school diploma in 1973 (Carnevale, Smith, & Strohl, 2013). Additionally, available contemporary jobs continue to evolve, making career preparation a moving target. According to Yang (2013), half of the jobs 2013 did not exist 25 years prior.

Ensuring future workers develop the skills necessary to attain a career which earns them a middle-class income not only benefits the worker, but it also benefits society. However, securing a job which leads to a middle-class income typically requires postsecondary training or education (Achieve, Inc., 2012). Middle-class incomes were achieved by 45% of individuals who reported having some college and also by 45% of people who had an associate's degree, many of whom were employed in middle skills jobs (Achieve, Inc., 2012). Conversely, of the people who only earned minimum wage in their jobs, more than 85% did not have a postsecondary degree (Achieve, Inc., 2012). In recent years there has been growth in job openings in the middle skills sector, with 45% of all job openings being attributed to the middle skills level (Holzer & Lerman, 2009). Through middle skills jobs, there is potential for many Americans to achieve a comfortable middle-class income and lifestyle, which benefits the entire country. Consequently,

it is fair to suggest it would be in the best interest of the country if public secondary schools contributed to the training and preparation of students for their future careers whether they enter those careers immediately upon graduation or after attending some form of postsecondary education.

As evidenced by the adoption and implementation of College and Career Readiness (CCR) standards virtually nationwide, it is clearly the intention of secondary education in the United States to prepare students to be college and career ready upon graduation (US Department of Education, n.d.a). Yet, even though CCR standards are on the books, as of 2017, no states have plans to directly measure the career readiness of their graduates (Advance CTE, 2017). The lack of assessment plans could be due to the challenges associated with the assessment of career readiness. Simply put, the assessment of career readiness skills, such as the latent traits of personality characteristics and employability skills are extremely difficult (Balestreri et al., 2014; Koppich et al., 2017). Adding to the difficulty of assessment is the inconsistency of accepted definitions of college and career readiness, which vary from state to state and organization to organization (Balestreri et al., 2014; Mishkind, 2014). Without a clear definition of what career readiness entails, assessment of career readiness becomes ambiguous, if not impossible. Thus, there is virtually no way for schools to account for career readiness skill development. In a world driven by accountability in education, it is fair to wonder if the lack of assessment indicates a lack of commitment to the instruction of career readiness skills or if the lack of assessment is ultimately due to a lack of understanding regarding how to carry out an assessment plan?

Though career readiness is not being assessed at the secondary level, employers overwhelmingly agree that entry-level employees lack the necessary and desired skills to be successful in many careers (Bunshaft et al, 2015; Casner-Lotto & Barrington, 2006; McNamara,

2009; NACE, 2018). Almost half of employers in the United States (46%) report being unable to find employees with the skills and experience they need (Manpower Group, 2018).

This skill gap may be a result of career readiness being defined so broadly; perhaps schools are aiming for the wrong target. On an institutional level, there is much disagreement regarding what students must truly be able to do in order to be career ready. Some argue that academic ability is equivalent to career readiness (ACT, Inc., 2018; American Diploma Project [ADP], 2004; Steedle, Radunzel, & Mattern, 2017). Others believe career readiness is broader than academic skills and includes a wide range of other skills including technical, life-long learning, and employability skills (ACTE, 2019; Balestreri et al., 2014; Conley, 2012). In a statewide analysis of states' definitions of college and career readiness, Mishkind (2014) condensed the 37 state definitions into the following sub-categories: (a) academic knowledge; (b) critical thinking and problem solving; (c) social and emotional learning, collaboration, and communication; (d) grit/resilience/perseverance; (e) citizenship and/or community involvement; and (f) other standards such as lifelong learning and technology efficacy.

The argument to include the need for employability skills within the definition of career readiness, versus simply defining career readiness purely as academic ability, is well-supported by empirical evidence (Bunshaft, et al., 2015; Casner-Lotto & Barrington, 2006; Corder & Irlbeck, 2018; Easterly et al., 2017; Hart Research Associates, 2015; Landrum et al., 2010; McNamara, 2009; NACE, 2019; Robles, 2012). In those studies and reports, employers identified communication, teamwork, flexibility, reliability, ethical decision making, critical thinking and problem-solving, integrity and character, professionalism and work ethic, interpersonal skills, and responsibility as being the most desired skills of incoming employees (Bunshaft, et al., 2015; Casner-Lotto & Barrington, 2006; Corder & Irlbeck, 2018; Easterly et al.,

2017; Hart Research Associates, 2015; Landrum, Hettich et al., 2010; McNamara, 2009; NACE, 2019; Robles, 2012).

If employability skills are the missing piece of the career readiness puzzle, it can be argued that secondary schools should play a role in the instruction and fostering of those skills. It is plausible the gap in employability skills among high school graduates may be impacted by the instructional decisions made by their teachers. Teachers play an instrumental role in the transformation of educational policy and curriculum expectations into student outcomes (Spillane et al., 2002). Teachers' attitudes and perceptions toward employability skills determine whether or not those skills will be fostered and developed within the school system (Laroux & Lafleur, 1992). Therefore, teachers play a critical role in the instruction of employability skills (Jayram & Engmann, 2014; Laroux & Lafleur, 1992). Empirical evidence tends to support the use of direct instruction as the most effective strategy for the development of employability skills among students (Conley, 2007; Conley, 2010; DeHann, 2009; Kriflik & Mullan, 2007; Mason, Williams, & Cranmer, 2009; Riebe et al., 2010). Yet, a skill gap still exists. Thus, it should be examined whether or not this gap in instruction is due to a lack of buy-in and commitment from teachers, a lack of understanding regarding how to best foster the development of these skills, or if something else is causing the skill development to not transfer from the classroom to the workplace.

In order for educators to prepare students to be career ready upon graduation, there must first be an agreed upon definition of what it means to be career ready in the 21st century. Secondly, the unified definition must be used to develop standards and policies which must be accepted by educators in order for those skills to be explicitly taught to their students. Finally,

the development of those skills must be measured and assessed to determine if instructional methods are effective in fostering this skill development in students.

The American educational system has not always been concerned with vocational education or the preparation of career ready individuals. Hence, the following literature review begins with an overview of the historical context of vocational education and career training in the United States and the events that have led to today's discussion focused on career readiness. The next section of the review evaluates the various definitions of career readiness and discusses the implications of defining it independently of college readiness versus in conjunction with college readiness. How career readiness is being implemented in American secondary schools and the challenges associated with the instruction and assessment of career readiness are also included. A case for developing more career ready students is made and supported by empirical research and reports from various stakeholder organizations. Finally, discussion centers around the role teachers play in the instruction of employability skills for the purpose of promoting and fostering career readiness in their students. A conceptual model, which summarizes key ideas from the literature review and relevant theories, is presented at the conclusion of the literature review.

History of Education in the United States

The philosophical underpinnings of education in the United States have continually changed and evolved over time. Liberal education is the oldest philosophy of education (Elias & Merriam, 2004). Focused on "rigorous intellectual training" which included grammar, history, literature, logic, and philosophy (Elias & Merriam, 2004, p. 18), a liberal philosophy of education was the initial foundation upon which the American system of education was built (Westmeyer, 1997). The purpose of education from a liberal educational perspective was to

develop a broad understanding of the world and to increase one's intellect (Elias & Merriam, 2004). Today, K-12 education is compulsory and efforts are made to ensure equal access for all (Urban & Wagoner, 2014). This was not always the case. Prior to the 1800s, only wealthy individuals had the funds to attain an education and the curriculum emphasized a liberal philosophy which engaged the students in courses such as rhetoric, grammar, philosophy, literature, and history (Elias & Merriam, 2004; Phipps et al., 2008). The purpose of education at that point in American history was considered by some to be elitist as the goal was to prepare religious leaders and upper-class men who would become leaders of government and business (Elias & Merriam, 2004; Westmeyer, 1997). Over time, those who espoused a progressive philosophy of education emerged and began to advocate for vocational training in schools and greater access to education for all students (Elias & Merriam, 2004). The struggle between a liberal philosophy of education and progressive philosophy of education, which has evolved into the struggle between secondary education for the purpose of a well-rounded education (college preparation) versus for the purpose of career preparation, has perpetuated throughout history.

As public elementary and secondary schools became established, the education of children in colonial America maintained a liberal philosophy and was focused on the Four R's: religion, reading, 'riting, and 'rithmitic (Good & Teller, 1973). Early schools differed greatly from the strictly regulated schools of today. Attendance was sporadic, a set curriculum was not established, and teachers were largely untrained (Good & Teller, 1973). School attendance was optional and did not become compulsory in all 48 states until 1918. Consequently, many students, especially lower-class students who needed to work in order to support their families, did not attend public school, and thus lacked a basic education (Urban & Wagoner, 2014).

The Emergence of Vocational Education

Though a liberal arts philosophy guided all levels of formal education in the developing United States, apprenticeships were critical in the development of craftsmen and workers in colonial times and dominated vocational training well into the industrial revolution (Gordon, 2014). Focused on the training and development of workers, apprenticeships can be described as the very first form of vocational education in the United States, and perhaps the most important form of education during the colonization and settlement of the United States (Gordon, 2014). Apprenticeships were used to train a wide array of workers, ranging from physicians to goldsmiths (Stubblefield & Keane, 1994). Because free, compulsory education did not emerge in America until much later, apprenticeships were virtually the only way poor citizens could receive an education in colonial times (Gordon, 2014). The demand for apprenticeships declined rapidly after the industrial revolution because apprenticeships could not produce workers at a fast-enough or cost-efficient rate to meet demand and the industrial revolution centralized industries and reduced the value placed on honing a specific skill (Gordon, 2014; Kliebard, 1999).

As apprenticeships decreased in number throughout the 1800s, other vocational training opportunities began to develop to meet the needs of the working class. Specialized secondary schools such as the Farm and Trade School, which was founded in Boston in 1814, were developed to meet the needs of workers and orphans by offering them academic and vocational training (Gordon, 2014). Perhaps the most significant movement in the expansion of vocational education, especially in secondary schools, was the integration of manual training into public schools (Kliebard, 1999). It was manual training that paved the way for the integration of vocational training in high schools (Gordon, 2014). Prior to the inclusion of manual training programs, high school curriculum had been almost exclusively focused on preparing students for

college (Gordon, 2014). The manual training movement, which began in 1868 with the opening of the Worcester Polytechnic Institute at Worcester, Massachusetts, helped prepare secondary students for jobs in lieu of an apprenticeship (Gordon, 2014). Manual training, which was also known as shop work, combined theory and practice in laboratories which allowed students the opportunity to practice their skills using tools and machinery, as well as solve problems in an applied manner (Gordon, 2014). John Runkle, the President of the Massachusetts Institute of Technology, was a vocal proponent of the manual training movement and the positive impact the training had on students (Gordon, 2014; Kliebard, 1999). Though Runkle's students possessed a strong understanding of the theories and principles of engineering, they lacked the manual skills required by industry, such as the operation of tools and machines (Gordon, 2014). Recognizing the successful outcomes of students who engaged in applied education in a laboratory setting, Runkle saw manual training as an opportunity to fill a gap in instruction, and thus advocated for the integration of manual training in public schools for the benefit of all students (Gordon, 2014).

Calvin M. Woodward, a professor at Washington University in St. Louis, was also a vocal advocate for the addition of manual training to the secondary school curriculum. In Woodward's words, traditional education was like a two-legged stool that needed the addition of manual training to make it stable (Kliebard, 1999). Woodward's argument for including manual training in secondary schools went beyond the acquisition of work skills and included "moral regeneration and pedagogical reform" as key advantages students would gain by participating in manual training (Kliebard, 1999, p. 8). Through Runkle and Woodward's advocacy efforts, manual training grew across the United States, enrolling more than 50,000 students by 1913 (Kliebard, 1999).

Public support for vocational training grew in the late 1800s, after the Civil War, for a number of reasons (Gordon, 2014; Kliebard, 1999). First, the industrial revolution was changing the way Americans worked (Gordon, 2014; Kliebard, 1999). Assembly lines and factories reduced or eliminated the need for craftsman and artisans. However, factories were still in need of capable workers; workers who could perform manual skills. Business and industry supported the expansion of vocational training as a way to prepare a future workforce. Secondly, in the south, the demand for vocational training grew during the Reconstruction era due to the large number of free African Americans who could benefit from job training (Gordon, 2014; Kliebard, 1999). Booker T. Washington was instrumental in the expansion of vocational education, often in the form of manual training, for African Americans in the south (Gordon, 2014; Kliebard, 1999). The establishment of Tuskegee Institute by Washington promoted the economic advantages of manual training for African Americans (Kliebard, 1999). Additionally, it became apparent after the passage of the Morrill Act of 1862, which established a public college (commonly referred to as Land Grant Colleges/Universities) in each state focused on liberal arts and practical arts such as mechanics and agriculture, that barriers to attending college existed for a number of American youth (Phipps et al., 2008; Westmeyer, 1997). Primarily, many rural youths lacked a high school education because they did not see a value in taking general education college-preparatory courses (Phipps et al., 2008). Thus, if youth perceived vocational courses as being more relevant to them and their futures, it was believed the addition of those courses to the curriculum could potentially encourage more youths to complete a high school education and be eligible to attend a land-grant college (Phipps et al., 2008). Finally, as the United States suffered a number of economic depressions in the late 1800s, parents who were concerned about their children's futures, advocated for the expansion of vocational training in

public schools to prepare their children for future employment and jobs (Kliebard, 1999). It was for those reasons vocational education expanded across the United States and was adopted by several public secondary schools (Gordon, 2014; Kliebard, 1999; Phipps et al., 2008).

Though manual training was heavily adopted by secondary schools and advocates touted the development of skills and the instruction of science in an applied context, there is little empirical evidence to support the direct benefits students received from manual training (Kliebard, 1999). Nonetheless, through vocational education, a shift in educational philosophy emerged and grew in importance in the late 1800s, which ultimately impacted American education from that point forward (Kliebard, 1999).

Emerging Philosophies of Education

As stated earlier, a liberal educational philosophy guided the inception and growth of American schools. However, as public education reached more people after the Civil War, conflicting philosophies began to emerge. Through the growing pains associated with urbanization and industrialization, a progressive and pragmatic philosophy of education began to compete with the traditional liberal educational philosophy primarily regarding the overall purpose and goal of education (Elias & Merriam, 2005). A key component of progressive thought was a focus on the specific needs and interests of the individual student (Elias & Merriam, 2005). This was particularly important as more diverse students began to enter schools who did not connect with the traditional general education courses (Kliebard, 1999). Advocates of vocational education felt the formalization of vocational education would lead to the instruction of more courses which matched the needs and interests of a greater number of students, making education more relevant and beneficial for them (Elias & Merriam, 2005; Kliebard, 1999). On the contrary, the philosophy of those who favored a general education

believed every student should study the same core academic subjects to reduce ignorance and promote intellectualism (Kliebard, 1999).

Even among those who espoused a progressive philosophy of education, there was a lack of consensus regarding how schools should function in the late 19th and early 20th centuries. Though it seems most progressives agreed vocational education should be included in schools, their reasons to support its inclusion were varied. For some, such as David Snedden, Charles Prosser, and Booker T. Washington, the purpose of education was to prepare students for future jobs, which is why they supported the integration of vocational education into schools (Elias & Merriam, 2005; Gordon, 2014; Kliebard, 1999). For others, like John Dewey, a prominent American philosopher who was pivotal in the advancement and adoption of a progressive educational philosophy, vocational education offered an opportunity for experience-based, individualized instruction (Kliebard, 1999). However, Dewey expressed great concern regarding the possibility of vocational education taking away from the democratic purpose of education and thus reducing schooling solely to the preparation for future jobs (Kliebard, 1999). Dewey, along with W.E.B. DuBois and Calvin Woodward, did not want vocational education to take away from a broad academic education (Kliebard, 1999). At the heart of this debate was the preeminent question: what is the purpose of formal education?

As vocational education was implemented into American schools, a primary concern was raised regarding whether vocational education would take place alongside a general education or if it would replace a general education (Kliebard, 1999). Some individuals expressed concern regarding the duplication of the European model of vocational education where students were split into separate general and vocational education schools. Though opinions regarding how vocational education should be implemented into American secondary schools were quite broad,

a majority preferred vocational education be taught alongside a general education. Dewey, DuBois, and Woodward believed that ensuring all students received a rigorous general education would level the playing field and reduce classism, such as where working-class children would be predestined to end up in working-class jobs (Kliebard, 1999). Woodward articulated that belief by exclaiming, "Every boy is a natural candidate for the office of president, and no one shall dare to place any bounds to his aspirations and social possibilities," (Kliebard, 1999, p. 9). Snedden and Prosser shared the opposing opinion and were in favor of a dual system of education where vocational and general education were separated similar to the European model (Kliebard, 1999). Though some specialized vocational schools and programs emerged, most vocational education programs were implemented into public secondary schools to enhance and support the overall general education curriculum (Kliebard, 1999).

The most extreme view of vocational education is termed vocationalism. Kliebard (1999) best describes vocationalism by contrasting it to vocational education. Not only does vocationalism, like vocational education, involve the instruction of job skills, but vocationalism distinctly allows the overall goals of a curriculum to be driven and influenced by business and industry (Kliebard, 1999). Typically, the purpose of vocational education was to enhance a curriculum and take place alongside a general education. Vocationalism, on the other hand, "subsumes general education," and is a complete "transformation of the curriculum," (Kliebard, 1999, p. 120). When aligned with an ideology of social efficiency (which began to emerge from the industrialization of the United States), vocationalism led to a growing belief that the sole purpose of education was to get ready for adulthood (Kleibard, 1999). Snedden, who truly embodied the philosophies of vocationalism and social efficiency, believed that the purpose of "education is to make men efficient," (Kliebard, 1999, p, 122). Prosser, who went on to draft

parts of the Smith-Hughes Act to establish federal funding for public vocational education, was a student of Snedden's and thus was greatly influenced by his mentor's philosophies regarding vocational education. Through the passage of the Smith-Hughes Act, the influence of Snedden and Prosser's philosophies are still recognizable today.

The Evolution of Work in America

As work at the turn of the 20th century transitioned from artisan craftsmanship to industrial production and assembly-line manufacturing, the skills required of workers shifted to reflect that change (Stubblefield & Keane, 1994). Decision-making, autonomy, and knowledge were transferred from the worker to management and the demand for skilled labor decreased (Kliebard, 1999; Stubblefield & Keane, 1994). During this transition, it was pivotal that the need for the possession of advanced skills transferred from the average worker to management positions. The industrial revolution and invention of assembly line work virtually eliminated the need for workers to think for themselves and solve problems (Kliebard, 1999). Thus, for much of the 1800s and early 1900s, a vast majority of workers in the United States did not need advanced training or specialized skills in order to maintain a job and live a comfortable life.

However, the workplace has continued to change since the industrial revolution. The types of skills required of employees have evolved and expanded since the turn of the 20th century (Kliebard, 1999). Even though workers required an increase in technical skills post-industrial revolution, the need for postsecondary education in the mid-1900s was relatively limited. In 1970, a high school education was adequate to achieve a middle-class salary, as evidenced by the fact that 60% of workers with only a high school education were able to achieve that goal (Carnevale, Smith, & Strohl, 2010). Additionally, only 28% of jobs required a postsecondary education in 1973 (Achieve, 2012). Since then, however, the likelihood of

achieving a middle-class salary with a high school education has only decreased (Carnevale et al., 2010). The need for postsecondary education and more advanced skill development has steadily increased throughout the 1900s. It was estimated that by 2018, 65% of jobs would require postsecondary training of some type (Carnevale et al., 2013).

Similarly, the types of skills workers are expected to possess in the 21st century are much different than workers of the past due to many reasons, including: (a) globalization, which has created competition for manufacturing; (b) computerization, which has increased the demand for college educated individuals; and (c) automation, which has reduced the need for manual laborers, clerical workers, and similar employees (Autor, Dorn, & Hanson, 2015). Instead, today's employees must possess critical thinking, problem solving, teamwork, communication, and other necessary soft skills in order to be successful (Casner-Lotto & Barrington, 2006; Hart Research Associates, 2015; NACE, 2019).

Establishment and Growth of Formal Vocational Education

Vocational education, such as vocational agricultural education, school-based industrial training, and home economics, became formalized with the passage of the Smith-Hughes Act in 1917 though many schools had been offering training many years prior to receiving federal support (Kliebard, 2004; Stubblefield & Keane, 1994). The Smith-Hughes Act was meant to promote the further development and advancement of vocational education at the secondary level (Phipps et al., 2008). The act allocated funds to participating states to support public secondary schools which prepared students for employment through vocational education (Phipps et al., 2008).

Over time, the passage of other vocational education acts, such as the George Barden Act (Vocational Education Act of 1946) and the Vocational Education Act of 1963, expanded

vocational education and made it more flexible (Phipps et al., 2008). For example, after the passage of the Vocational Education Act of 1963, funds were made available to programs that benefitted adults in need of vocational training (Phipps et al., 2008). Further expansion of vocational education occurred in the 1960s to allow for training and retraining of workers to address the large number of unskilled employees and high unemployment rates (Phipps et al., 2008). Additional changes were made to federal legislation to ensure equal access for all students, particularly special needs students, and to prevent discrimination based upon race, sex, and other factors in vocational education (Phipps et al., 2008).

In 1984, Congress passed Public Law 98-524 which became known as the Carl D. Perkins Vocational Education Act of 1984, a pivotal law which reemphasized the importance of vocational education to the nation's future (Phipps et al., 2008). The act sought to expand and improve vocational education, ensure equal access to vocational programs, address training in emerging career areas, improve the employability of individuals living in impoverished areas, help states offer more career counseling and support services, and strengthen research of vocational education (Phipps et al., 2008). Additionally, funds were allocated to improve the integration of academic subjects, such as science and math, into vocational education courses in an applied context (Phipps et al., 2008). The passage of the Perkins Act also officially connected vocational student organizations to each program as a way to provide students with additional experiences, especially those beyond the classroom, through which they could prepare for the workplace and their future careers (Phipps et al., 2008).

Though vocational education has evolved over the years, the purpose of modern-day vocational training, known contemporarily as Career and Technical Education (CTE), is still focused on preparing students for future careers through the instruction of academic and

technical skills necessary for those careers (Advance CTE, 2019b). Today, CTE is organized into 16 Career Clusters which include (a) agriculture, food, and natural resources; (b) architecture and construction; (c) arts, AV technology, and communications; (d) business management and administration; (e) education and training; (f) finance; (g) government and public administration; (h) health science; (i) hospitality and tourism; (j) human services; (k) information technology; (l) law, public safety, corrections, and security; (m) manufacturing; (n) marketing (o) science, technology, engineering, and mathematics; and (p) transportation, distribution, and logistics (Advance CTE, 2019b). Career Clusters allow for the organization of curriculum and the creation of pathways students can use to help guide their education towards the development of necessary skills and knowledge for specific careers (Advance CTE, 2019b). Using the frameworks established through the Career Clusters, students develop a plan of study which guides their coursework and experiences (Advance CTE, 2019b). All of this is done to make certain high quality CTE is upheld to rigorous program standards which ensures students who complete the program are career ready (Advance CTE, 2019b). This begs the question: what does it mean to be career ready?

The Emergence of College and Career Readiness

As evidenced by the previous section, college and career readiness were distinct throughout much of the history of American education. Career readiness was attributed to job training and vocational education, which was considered different than the academic curriculum meant to prepare students for college (Conley & McGaughy, 2012). The tide shifted with the release of the Secretary's Commission on Achieving Necessary Skills (SCANS) report in 1990 (Kane et al., 1990). The SCANS report pushed for a "restructuring of schools and workplaces" to ensure both the current and future workforce learned the skills necessary to be successful in the

coming century (Kane et al., 1990, p. 2-3). Efforts to achieve the goals set forth in the SCANS report have ranged over the years. Through the Race to the Top grant program in 2010, the federal government initially began encouraging the adoption of College and Career Readiness (CCR) standards to foster necessary skill development in secondary students (Webster, 2015). Still today, the United States Department of Education (n.d.a) continues to support the state-wide adoption of CCR standards in an effort to better prepare students academically for colleges and careers. This has evidently been successful since 49 states included at least one strategy to expand career readiness in their Every Student Succeeds Act (ESSA) plan as recently as 2017 (Advance CTE, 2017). Through ESSA, some federal funding is tied to states supporting a "well-rounded education", which includes college and career readiness components (English et al., 2017, p. 8). Preparing students to be college and career ready is not a new idea; however, the idea that *all* students should possess the skills and abilities necessary to pursue education beyond high school is a revolutionary concept that challenges the philosophies upon which public education in the United States was founded (Conley, 2010).

The push to prepare all students to pursue post-secondary education is in part due to the shortage of qualified employees virtually every industry is being faced with right now (Manpower Group, 2018). Through a survey administered to 39,195 employers in 43 countries and territories, Manpower Group (2018) found 45% of employers reported a talent shortage, or an inability to find suitable employees to fill open positions. A lack of applicants was the most common reason to blame for the shortage (29%) but applicants' lack of hard skills and/or employability skills was a close second reason for the shortage (27%) (Manpower Group, 2018).

To amend this shortage of qualified employees, Cushing et al., (2019) argued state leaders should establish a school-to-work pipeline which includes virtually all facets of education

including K-12 education, career and technical education (CTE) programs, two- and four-year postsecondary institutions, technical training programs, and other vocational training programs that teach students the academic, technical, and employability skills necessary for their careers. In a qualitative study conducted by Koppich et al. (2017), participants overwhelmingly agreed that collaboration between K-12 schools and postsecondary education was critical in the preparation of young people for college and career success. Additionally, policymakers in the United States are seemingly beginning to understand the need for streamlined, interdisciplinary collaboration between departments and programs in order to maximize resources and achieve results as evidenced by the passage or revision of several key federal laws related to education (Cushing et al., 2019). Working across groups and aligning programs is more efficient and can accomplish more with fewer resources. For example, Perkins V, which is responsible for federal support for CTE, now promotes the integration of rigorous academic coursework into CTE courses (Cushing et al., 2019). Additionally, the Every Student Succeeds Act (ESSA) calls for a well-rounded education, which includes college and career readiness (Cushing et al., 2019). This allows for K-12 schools to align their college and career readiness goals with their overall curriculum (Cushing et al., 2019).

Defining College and Career Readiness

Unfortunately, a universal definition of what it means to be college and/or career ready does not currently exist. The College and Career Readiness and Success Center (CCRS) at American Institutes for Research conducted an analysis of the 37 statewide definitions of college and career readiness (Mishkind, 2014). First, it was discovered that the range of definitions regarding what college and career readiness ultimately means varied greatly from state to state (Mishkind, 2014). At the conclusion of the review, six practical sub-definitions were identified

These sub-definitions were identified because they were recognized as being theoretically concrete enough to teach and assess (Mishkind, 2014). The six actionable sub-definitions of college and career readiness were (a) academic knowledge such as mathematics, English, and other core subjects; (b) critical thinking and/or problem solving; (c) social and emotional learning, collaboration, and/or communication; (d) grit/resilience/perseverance; (e) citizenship and/or community involvement; and (f) other additional activities such as knowledge of technology, a commitment to lifelong learning, etc. (Mishkind, 2014).

Though CCRS (Mishkind, 2014) was able to synthesize states' definitions of college and career readiness into a series of sub-definitions, other experts and organizations have defined college and career readiness differently. According to Conley (2012), a college and career ready student is able to successfully complete introductory coursework in a degree program or entry-level training in a career pathway without requiring remedial coursework. ACT, the organization which administers a common standardized test in the United States, claims that college and career readiness can be determined based upon a standardized measure of reading, writing, English Language Arts, math, and science ability (ACT, Inc., 2018). On the contrary, Conley (2012) cautions against the use of a single academic "cut score" (such as the ACT) to measure college and career readiness due to the wide range of potential student goals and possible pathways they may take in order to achieve those goals.

Not only is it important to define college and career readiness, but it is also worth examining whether college readiness and career readiness are distinct from one another. By definition, a majority of states consider college readiness and career readiness to be analogous (Mishkind, 2014). There are numerous arguments for combining the definitions into one. Primarily, it is readily agreed upon that most people currently entering the workforce will need

some level of postsecondary training, education, or certification in order to be successful in their career (Achieve, 2012; Cushing et al., 2019; Steedle et al., 2017). In fact, 63% of available jobs between 2010 and 2018 required some amount of postsecondary training or education (Carnevale et al., 2010). Recently, there has been an important shift in the demand for middle skills jobs, such as plumbers, healthcare technicians, legal assistants, and police officers, which make up about half of the jobs in the United States (Achieve, 2012). Historically, middle skills jobs required very little postsecondary training, but now those jobs require an increasing amount of postsecondary training or education, which is leading to a talent shortage (Achieve, 2012; Manpower Group, 2018). Some form of training after high school is now common in order to secure a middle skills job (Achieve, 2012). An increasing number of middle skills jobs in the United States benefits the economy because middle skills jobs typically offer middle-class salaries and contribute to a reduction in unemployment (Achieve, 2012). In fact, at the time of the publication of the report by Carnevale et al. (2013), employees who had some form of postsecondary education earned about 74% more than workers with a high school diploma or less. The current talent shortage among middle skills jobs is anticipated to persist (Achieve, 2012). Thus, it is imperative that high schools prepare students to be college ready so they can seek the necessary postsecondary education in order to pursue their future careers, but especially middle-skills careers.

In order to be successful in all postsecondary education and training, students must be academically capable, which justifies some of the focus on academic achievement as a measure of college and career readiness. Empirical data exists that connects rigorous high school curriculum, grade point average (GPA), ACT score, and other measures of academic ability to postsecondary success and successful careers (ACT, Inc., 2013; American Diploma Project,

2004). Students who meet the ACT College Readiness Benchmarks are more likely to earn a college GPA greater than 3.0 and complete a college degree (ACT, Inc., 2013; Steedle et al, 2017). Additionally, according to Bowen, Kurzweil, and Tobin (2005) a lack of exposure to "rigorous academic courses" during high school can be a significant barrier to postsecondary completion (as cited in Steedle et al, 2017, p. 4). Thus, since virtually all students will need some form of postsecondary education in order to pursue their future career, then "college", or at least some form of postsecondary training, must come before a career. Hence, there is justification to define college and career readiness as one.

However, even though college and career readiness can be defined as one, it is still important to consider the subtle differences between the two; there are important distinctions between what it means to be college ready and what it means to be career ready. First, different jobs require different levels of academic rigor (Conley & McGaughy, 2012). The types of academic ability required for a middle skills job may be quite different than the types of academic capability required for a bachelor's degree program, and thus academic expectations of secondary students should reflect that difference (Conley & McGaughy, 2012). In a series of semi-structured interviews with 27 state and county education leaders in California, Koppich et al. (2017) noted most of the interviewees agreed college and career readiness share much overlap and should not be separated into separate constructs. However, those same participants felt career readiness should be prioritized more in schools, rather than being treated as second-best to college preparation (Koppich et al., 2017). Conley (2012), a leading expert on college and career readiness, agreed college and career readiness share many of the same skills and abilities but stressed the need to also recognize they are not entirely the same thing.

In fact, even though academic ability is necessary to be successful in postsecondary education, there is much more to college and career readiness than academic achievement. Conley (2012) identified four keys to college and career readiness including (a) cognitive strategies including problem solving, communication, and conducting research; (b) content knowledge which includes technical knowledge and skills; (c) learning skills and techniques which includes components of being a self-directed learner like persistence, goal setting, time management, and study skills; and (d) transition knowledge and skills such as being able to navigate the transition from high school to adulthood which includes knowing what questions to ask of whom when necessary, such as how to apply for financial aid or what classes one should take in preparation for a certain degree. This definition of college and career readiness is more thorough and comprehensive as it takes into consideration more than just academic achievement; it holistically acknowledges what it requires for students to be successful in college and their careers.

The Association for Career and Technical Education (ACTE, 2010) recognized the unique characteristics of career readiness, and thus defined it independently from college readiness. According to ACTE, career readiness involves the intersection of three types of skills (a) core academic skills, (b) employability skills, and (c) technical, job-specific skills. Confirming what others have said regarding the importance of academic skills, ACTE agreed that employees must be able to apply academic content in the context of their work in order to be successful (ACTE, 2010). Examples include being able to read a technical manual or write memos. Most of the written content employees interact with at their jobs will be nonfiction in nature and students need the opportunity to practice the academic skills necessary to understand technical, nonfiction works (ACTE, 2010). Repeatedly, employers highlight a need for written

communication skills and a lack of those skills from beginning employees (Bunshaft et al., 2015; Casner-Lotto & Barrington, 2006; Easterly et al., 2017; Hart Research Associates, 2015; NACE, 2018; NACE, 2019; Robles, 2012). Further, workplace deficiencies in applied, real-life math concepts are often noted by employers (ACTE, 2010). ACTE (2010) acknowledges the importance of academic skills, but they take it step further by going beyond what other organizations have advocated for by insisting that context matters and the application of academic skills in job settings is what students truly need to be able to do in order to be career ready. Thus, academic skills cannot be overlooked in career and technical education because students need the opportunity to practice academic content in an applied sense.

Gaining notable attention in the 21st century are employability skills. These skills are often the most sought after by employers due to their critical importance in the contemporary workplaces (ACTE, 2010). Though employers still value employees who possess necessary technical skills, a greater emphasis is being placed on soft skills or employability skills (Casner-Lotto & Barrington, 2006; Hart Research Associates, 2015; NACE, 2019). The various definitions of employability skills are broad and diverse. However, Bunshaft et al. (2015) synthesized the various definitions of employability skills into the following statements: (1) skills necessary to succeed in and advance through a career or job, (2) skills which are broad and easily transferred to a wide range of contexts, and (3) skills which are able to be classified as: "(a) basic academic skills, (b) personal qualities, and (c) higher-order thinking skills," (p. 9). The specific employability skills desired by employers and business executives are outlined in Table 2.1.

Table 2.1

Employability Skills Sought by Business and Industry

Skill	Citations
Teamwork	Bunshaft, et al., 2015; Casner-Lotto & Barrington, 2006; Hart Research Associates, 2015; McNamara, 2009; NACE, 2019; Robles, 2012
Communication (written and oral communication)	Bunshaft et al., 2015; Casner-Lotto & Barrington, 2006; Corder & Irlbeck, 2018; Easterly et al., 2017; Hart Research Associates, 2015; NACE, 2019; Robles, 2012
Reliability	Bunshaft et al., 2015
Flexibility	Bunshaft et al., 2015; Robles, 2012
Ethical Decision Making	Hart Research Associates, 2015; McNamara, 2009
Critical Thinking and Problem Solving	Casner-Lotto & Barrington, 2006; Easterly et al., 2017; Hart Research Associates, 2015; McNamara, 2009; NACE, 2019
Integrity and Character	Corder & Irlbeck, 2018; Robles, 2012
Professionalism and Work Ethic	Casner-Lotto & Barrington, 2006; McNamara, 2009; NACE, 2019; Robles, 2012
Interpersonal Skills	McNamara, 2009; Robles, 2012
Responsibility	Landrum, Hettich, & Wilner, 2010; Robles, 2012

Technical skills have historically been the most important skills developed through CTE and vocational training. The development of technical skills is addressed through the various Career Clusters and pathways which provide educators with a comprehensive list of the types of skills students should be exposed to and capable of performing at the conclusion of their secondary education (ACTE, 2010). In the absence of CTE, on-the-job training often fills this gap for most employers. Even when students enter a career with a set of skills, many still go through employer training to ensure consistency in performance. Technical skills are also often

incorporated into postsecondary education and coursework in the preparation of future employers (ACTE, 2010).

College and Career Readiness Implementation in the United States

There are many methods states and schools have utilized to help students achieve career readiness upon graduation from high school. One argument or philosophy is the insistence that students should be held to consistent standards and expectations in order to ensure that all students are "choice ready" when they graduate from high school (Advance CTE, 2017). Within the context of the American system of education, most students begin selecting their courses in the ninth grade, or around 14 to 15 years of age (Conley, 2010). Since some coursework is required or necessary to pursue future opportunities, such as admission to a highly competitive university or the pursuit of some bachelor's degrees, there are some people who believe students at that age should not be expected to make such pivotal decisions for themselves (Conley, 2010). Instead, they believe that requiring rigorous coursework and reducing the choices students need to make helps prepare them to be *choice ready* when they reach the end of their high school careers (Conley, 2010). Anecdotally, a student is not hurt by taking chemistry or algebra if they never use it in life. Alternatively, if they chose to not to take those courses, they may regret it later if they are unable to pursue a future career as a nurse, engineer, or similar career because they lack the prerequisite courses. Hence, it is argued all students should be required to take courses such as chemistry and algebra in order to be choice ready upon graduation.

Rather than require all students to take the same or very similar courses, students should be allowed to use their time in high school to explore their interests through more elective courses and even out of school experiences to build their college and career readiness (Balestreri et al., 2014). The College and Career Readiness and Success Organizer, developed by the

College and Career Readiness and Success Center, supports this claim by saying schools should support students by "facilitating college and career planning and scaffolding learning experiences according to *individual learning needs*," (Balestreri et al., 2014, p. 10). The College and Career Readiness and Success Organizer maintains that all students should engage in "rigorous curriculum, instruction, and assessment" regardless of their goals after high school, however, unique to the organizer is the belief that there should be multiple pathways to achieve those goals (Balestreri et al., 2014, p. 10). Consistently, the organizer focuses on individual needs and goals (Balestreri et al, 2014), unlike most standards which seemingly emphasize consistency and uniformity. Instead of committing to the idea of choice ready as a standard academic curriculum, Balestreri et al. (2014) states that student pathways should be flexible to account for the potential, and most likely inevitable, changes in postsecondary goals students may make throughout their secondary educations.

The Employability Skills Framework, another important framework which may be used to support career readiness implementation, was developed in response to the numerous definitions of employability skills and frameworks for workplace training by the United States Department of Education (2019) in an effort to unify efforts related to the instruction and assessment of employability skills. The Employability Skills Framework includes critical thinking, interpersonal skills, systems thinking, communication skills, information use, resource management, applied academic skills, and personal qualities such as flexibility and professionalism as the skills necessary for individuals to be college and career ready (US Department of Education, 2019). The intention of this framework is to support institutions in the integration of employability skill development into programs, instruction, and desired outcomes.

Because the collective focus on college and career readiness is relatively new in the entire span of public education, implementation is quite sporadic and varied across the country. Forty-five states have chosen to adopt the Common Core College and Career Readiness (CCR) standards (US Department of Education, n.d.a). Interestingly, the CCR standards only include content related to language, reading, writing, speaking, and listening (Common Core State Standards Initiative, 2019). Based upon the previously discussed definitions of college and career readiness, the standards set forth by the Common Core State Standards Initiative, which are overwhelmingly supported by states across the country, are incredibly narrow in focus as they completely disregard many of the facets of college and career readiness outside of academic content.

To compound the problem, even though 49 states have adopted plans to increase career readiness, no states currently have any plans in place which connect career readiness, academic standards, and assessments together (Advance CTE, 2017). This raises concern because without appropriate assessment, there is no way to know if schools and states are successfully implementing programs which lead to the development of improved career readiness in secondary school graduates.

Assessing Career Readiness

Assessment is necessary in order to determine if efforts to increase career readiness in students are working. However, assessing career readiness, especially aspects such as personality and employability skills, has proven to be elusive (Balestreri et al., 2014; Koppich et al., 2017). Validated and reliable assessments exist for individual components of career readiness, such as creativity (Plucker & Makel, 2010) or critical thinking (Stein & Haynes, 2011), however, the utilization of multiple individual assessments to develop a composite career readiness score

seems infeasible. Comprehensive assessments have been developed and tested, but they lack the exposure and use necessary to be considered a truly useful and valid instrument (Lombardi, Seburn, & Conley, 2011). Ultimately, significantly more research and testing are needed to develop valid and reliable assessments for the constructs related to career readiness (Balestreri et al., 2014; Koppich et al., 2017).

Even though ACT, Inc. (2018) believed career readiness can be determined through one's ACT score, ACT, Inc. acknowledged that a more focused measure of career readiness was needed and thus developed WorkKeys as an assessment tool specifically for the assessment of career readiness (LeFebvre, 2016). WorkKeys measures reading for information, applied mathematics, locating information, applied technology, listening for understanding, teamwork, business writing, fit, performance, talent, and workplace observation (LeFebvre, 2016). Through the WorkKeys test, students can earn a National Career Readiness Certificate (NCRC) based upon their test score (LeFebvre, 2016). The purpose of these certificates is to articulate student achievement related to transferrable and critical career readiness skills to potential employers in a standardized way (LeFebvre, 2016). Though more holistic than the ACT, the WorkKeys test still misses many of the factors identified by the previously described more holistic definitions of career readiness.

When teachers were asked through an interview about assessing career readiness, many were doubtful that a valid, reliable, and effective instrument could be developed (Koppich et al., 2017). Unfortunately, pinning down an effective way to measure career readiness is extremely complicated (Koppich et al., 2017). In many cases, the proposed methods of assessment outside of a standardized test include performance-based assessments and portfolios of student work, which are often left for teachers to assess subjectively (Koppich et al., 2017). The primary issue

lies with the fact that assessing knowledge, skills, and workplace dispositions is highly subjective (Koppich et al., 2017). Conducting individualized assessments and providing feedback is possible, but consistency is difficult. Further, sharing outcomes with stakeholders outside one's school, such as employers or post-secondary institutions, can be extremely difficult to articulate due to the broad range of possibilities for assessment and scoring (Koppich, 2017).

Balestreri et al. (2014) outlined a series of appropriate outcomes and measures in the College and Career Readiness and Success Organizer. The outcomes and measures are designated into three groups: (a) on-track indicators for readiness, (b) measures of postsecondary readiness, and (c) measures of postsecondary success (Balestreri et al., 2014). For secondary students, the on-track indicators for readiness are the most important to acknowledge. Included in the list of on-track indicators for career readiness were measurements such as attendance, course performance, course completion, performance on summative assessments, and postsecondary aspirations (Balestreri et al., 2014). More subjective measurements included behavior and conduct, social and emotional learning benchmarks, and postsecondary aspirations (Balestreri et al., 2014). These outcomes and measures are important for secondary schools to be aware of and to consider implementing into their school curriculum for the purpose of assessing career readiness among their students.

Though formal assessments are necessary and beneficial, employers continue to share that graduates are entering the workforce unprepared and lacking the necessary skills to be successful. Current data highlights a "skills gap" between the needs of employers and the actual employability skills graduates possess (Bunshaft et al, 2015; Casner-Lotto & Barrington, 2006; McNamara, 2009; NACE, 2018). Through a survey administered to 431 employers across the country, Casner-Lotto & Barrington (2006) determined that high school graduates were deficient

in all of the top ten skills desired by employers. More broadly, over 40% of high school graduates were deficient in their job-preparedness according to employers (Casner-Lotto & Barrington, 2006). Conversely, even with more educational experience, employers only considered 10.3% of two-year college graduates and 23.9% of four-year college graduates as excellent in their overall job preparation (Casner-Lotto & Barrington, 2006). Specifically, the greatest areas of deficiency across all education levels were written communication, leadership, professionalism and work ethic, and lifelong learning and self-direction (Casner-Lotto & Barrington, 2006). When comparing employer perceptions to college graduate perceptions, the apparent skill gap becomes even more clear as graduates' perceptions outscore employer perceptions by more than 20% in five key competency areas including professionalism and work ethic (46.9%), oral and written communications (37.8%), critical thinking and problem solving (24.1%), leadership (37.5%), and career management (23.6%) (NACE, 2018). Similarly, Hodge and Lear (2011) found that US students and faculty had significantly different perceptions of necessary employability skills related to management, time and personal management, critical thinking and problem solving, communication skills, and leadership.

Teaching Career Readiness

Though there are outside factors such as mandated assessment of academic standards and administrative control which impact the instructional decisions teachers make, teachers are ultimately responsible for the type of learning that takes place in their classroom. Even if they are unable to control what content is mandated, they usually have some control over how content is covered in their classrooms. In fact, how teachers interpret and understand educational policies impacts the implementation of those policies in a school system (Spillane et al., 2002). Setting educational policy does not guarantee successful fulfilment of that policy as teachers play an

instrumental role in transformation of policy and curriculum expectations into student outcomes (Spillane et al., 2002).

Specifically, when it comes to the instruction of employability skills, teachers play a critical role in their instruction (Jayram & Engmann, 2014). In a paper which reported on the Results for Development Institute (R4D) study, Jayram and Engmann (2014) shared that in South and Southeast Asia a gap was identified between the planned and intended curriculum, which included the development of skills such as teamwork and communication, and what was actually being taught and learned in the classroom. Even when the instruction of employability skills was planned and intended, student outcomes were not necessarily positive. The study identified the following barriers which prevented the effective transfer of employability skills from teacher to student including: (a) teachers not being trained on how to teach skills outside of their direct content specialty (i.e. employability skills vs. academic content skills); (b) a heavy focus on standardized assessment of content standards which limited time to dedicate to other topics; and (c) unclear expectations regarding how teachers should be integrating employability skill development into the current curriculum (Jayram & Engmann, 2014).

Literature does not support the idea that the gap is due to a lack of teacher belief in the value of employability skills. According to Singh, Thambusamy, and Ramly (2014), instructors placed the same value on specific employability skills as employers. In another study involving a survey of secondary business education teachers, Mitchell, Skinner, and White (2010) found that teachers perceived all of the identified 11 soft skills in the study as being very important in the workplace. Instead, evidence points towards a lack of consensus regarding best practices, a lack of training, not knowing which skills to teach, and a lack of time to dedicate towards the

instruction of skills which are not the core content (Laroux & Lafleur, 1992; Wentling, 1987). Nonetheless, research in the area of teachers' perceptions of employability skills is very limited.

Teaching employability skills is tricky due to the numerous ways these skills can be taught. Chada (2015) defined three ways employability skills can be taught, including: (a) embedding, which takes place when the desired skill is used in order to accomplish a learning outcome, but is not taught explicitly (indirect instruction); (b) bolting-on takes place when the skill is the main focus of the instruction and is taught independently of other academic content; and (c) integrating, which happens when the employability skill is explicitly taught within the context of academic content and opportunities to use and practice the skill in meaningful ways are provided (direct instruction). In focus group interviews by Laroux and Lafleur (1992) teachers shared that direct instruction of employability skills felt like extra work, whereas indirect instruction, where the skills were integrated into a lesson informally, felt more achievable to them. Unfortunately, even though it requires extra work, empirical evidence seems to point towards direct instruction being the most effective way to foster the development of employability skills. Conley (2007, 2010) established that employability skill development happens when students are aware of those skills and are cognitively engaged and aware of the skill development as it occurs. Kriflik and Mullan (2007) found that explicitly teaching an employability skill (teamwork) led to greater student learning outcomes as related to the development of those skills. Through a similar approach, Riebe et al. (2010) found that providing a very direct and purposeful approach to the implementation of teamwork instruction in the classroom led to greater learning outcomes for the students.

This phenomenon is not unique to the instruction of teamwork skills. According to DeHaan (2009), direct instruction of creativity and problem solving is necessary for the

development and growth of those skills. DeHann (2009) found that students needed to be taught how to be creative and think critically. Further, they needed to be given opportunities to explicitly practice and develop those skills in order for growth to occur (DeHann, 2009). Yet, direct instruction and providing the opportunity to practice and develop skills takes additional time, energy, and focus away from other instructional tasks.

A study by Mason et al. (2009) sought to establish a relationship between classroom instructional practices and improved graduate employability at the higher education level in the United Kingdom. After interviewing 70 academic and career staff at eight universities, the researchers determined most participants embedded employability skills into their curriculum (Mason et al., 2009). Instructors in the study shared the following common examples of instructional practices used to embed employability skills into the curriculum including placing a greater emphasis on public speaking, integrating more group work, and assigning final-year independent projects (Mason et al., 2009). When compared to employability outcomes of university graduates, Mason et al. (2009) found the practice of embedding employability skills into the curriculum had no impact on the future employability status of the students.

Though prior evidence indicates instructional practices, such as explicit instruction, may have an impact on the development of employability skills among students, Hodge and Lear (2017) disagree and instead identified three factors which they believe lead to a lack of career preparation among graduates including "not listening to professors and advisors, lack of participation in class exercises, and an inability to transfer meaning from their experiences into choices that will impact their future," (p. 29). The evidence is contradictory and thus there is simply a lack of understanding regarding how to best foster the development of employability skills among students.

To add another piece to the puzzle, a teacher's attitudes and perceptions also play a pivotal role in whether or not employability skills will be fostered and developed within the school setting (Laroux & Lafleur, 1992). When teachers were enthusiastic about the willingness to try new methods of instruction, students were more likely to engage in the development of employability skills (Laroux & Lafleur, 1992). On the other hand, among teachers who had a negative perception of the integration of employability skills or were exasperated with the growing expectation of teachers being asked to be "more than teachers," the development of employability skills was hindered for students in their classrooms (Laroux & Lafleur, 1992, p. 194).

Though there are many factors related to the instruction of employability skills which impact student outcomes, evidence exists to support the assertion that teachers have the ability to affect the development of employability skills among their students.

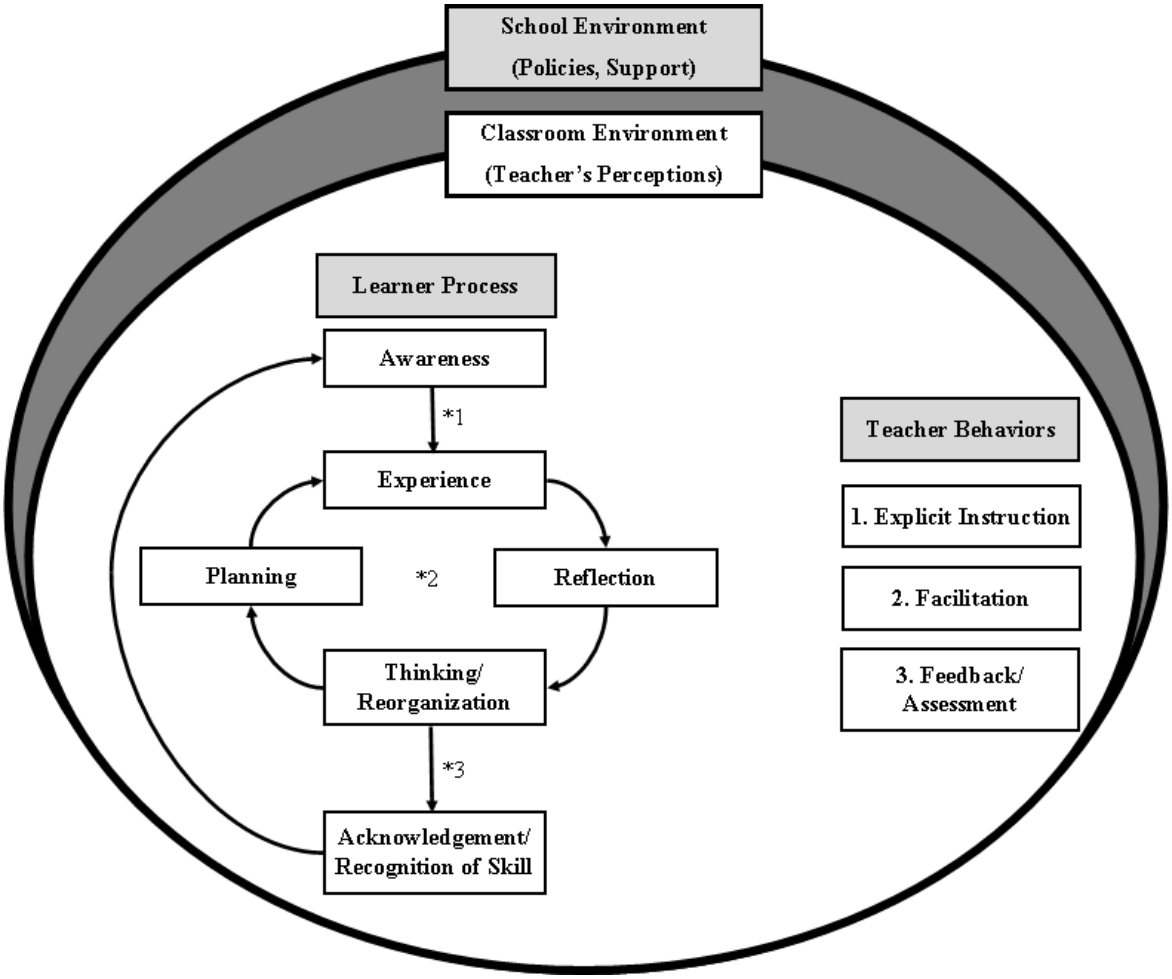
Conceptual Framework

Figure 1.1 is a representation of the conceptual framework which was developed to guide this study using information processing theory (Atkinson & Schifrin, 1968), experiential learning theory (Kolb, 1984), and personal experience of the researcher.

Before learning can take place, the learner must attend to what is to be learned (Craik & Lockhart, 1972). Henceforth, the first step in the acquisition of a skill must be a learner's awareness of the skill to be learned. Since employability skills are often taught by embedding them within lessons which include content-specific learning goals, it is necessary to draw students' attention to the specific employability skill development, in addition to the desired content skill, in order for learning to take place.

Figure 2.1

Learner Skill Development Model



Note. This model shows the steps a learner would go through to develop a new skill. Teacher behaviors are identified with an *. The model includes a single example of when teacher behaviors could take place within the learner process. However, it is important to note that the location of a teachers' behaviors can take place at many locations throughout the model. The act of learning and teaching is nested within the classroom environment, which is impacted by teachers' perceptions. Additionally, the classroom environment is nested within the larger school environment, which is impacted by policies and support in the form of leadership and professional development training.

Explicit skill instruction is most effective in the development of employability skills according to prior studies (DeHaan, 2009; Kriflik & Mullan, 2007; Riebe et al., 2010). Therefore, learners must be given the tools to use a skill, either through formal or informal

instruction. Formally, a teacher may teach a student how to use nonverbal communication skills or how to develop their creativity. Informally, a learner may read a book about teamwork or get public speaking ideas from watching someone else give a speech. As noted in Figure 1.1, instruction can theoretically take place at multiple places within skill development process. However, a key component of this model is that explicit skill instruction must take place at some point during the learning process.

In order for learning to be stored in long-term memory, which is what ultimately makes the learning useable in the future, the new information must be meaningful to the learner and they must have had the opportunity to connect their new learning to prior knowledge through the process of elaboration (Lutz & Huitt, 2003). Learners can elaborate when they have the opportunity to think and act at higher levels of engagement (Bloom et al., 1956). I posit that learners who engage in a learning exercise which allows them to practice the employability skill in a purposeful manner will develop that skill more effectively than their peers who receive instruction in a less explicit and purposeful way. This position is guided by Kolb's Experiential Learning theory (1984), which involves a four-cycle process of learning including a concrete experience, reflective observation, abstract conceptualization, and active experimentation. Within the context of a classroom learning activity, students would be engaged in practice during the concrete experience. The inclusion of purposeful focus on employability skill development would require a learner to participate in reflection and deeper thinking. Often, this stage requires teacher facilitation to draw learners' attention to the specific skill development. As learners recognize the development of employability skills, they engage in analysis and assessment, a higher-order thinking practice, which leads to long-term memory storage of the new information about that skill. At this point, learners acknowledge and recognize their current level of skill

development. If they recognize a gap in their abilities and a need for growth, they may be motivated to seek more instruction, either formally or informally, to further develop that skill. Even if a learner is confident in their abilities and perceives a high-level of ability, they may still be motivated to further develop their skills and seek more experiences which allow them to continue to develop that skill.

The entire skill development model is nested within the school environment and classroom environment, indicating that before any skill development can take place, the environment must be conducive to the instruction. School policies, available professional development, and administrative support are all factors which impact school climate (Aldridge & Fraser, 2016, Wang & Degol, 2016). Other factors which impact the school environment include school size (Cotton, 1996) and socioeconomic status of the school (Perry, 2012). The environment of the school has the potential to impact a teacher's perceptions of skill development and their instructional intentions (Aldridge & Fraser, 2016; Wang & Degol, 2016). At the same time, the classroom environment, which is greatly influenced by the teacher's perceptions, beliefs, and instructional priorities, may also impact a teacher's instructional intentions (Deemer, 2004). The perceptions which ultimately define a teacher's classroom environment may be impacted by their years of experience and age (Hammerness, Darling-Hammond, Bransford, Berliner, Cochran-Smith, McDonald, & Zeichner, 2005), primary content area taught (ACTE, 2020), and method of licensure (Mackelvie & Varrato, 2017).

Should a teacher choose to integrate the instruction of employability skills into their classroom, it is important to understand the role the teacher plays in the development of employability skills. The teacher behaviors of explicit instruction (DeHaan, 2009; Hattie, 2003;

Kriflik & Mullan, 2007; Riebe et al., 2010), facilitation (Hattie, 2003) and feedback and assessment (Hattie, 2003) are critical to the effectiveness of the skill development model.

Summary

Employers agree that entry-level employees lack the skills necessary to be successful in their careers. The primary gap exists in the area of employability skills. This has led to a talent shortage in many industries and employers complain about not being able to find enough suitable employees to fill open positions. Hypothetically, if an entire generation of young people are deficient in employability skill development, and thus unprepared for the workforce, this will have serious implications for several industries, as well as all Americans due to the impact on unemployment and other economic factors.

In response to this problem, the call has been for secondary schools to address the labor gap by addressing college and career readiness as part of its curriculum. However, the lack of a concise definition of what it means to be career ready has led to varied and sporadic implementation across the country. Without empirical evidence, there is no clear "best practice" when it comes to instruction related to career readiness. Additionally, assessment of career readiness is extremely challenging and has posed problems for those concerned with accountability.

Ultimately, a disconnect is occurring. As evidenced by the adoption and integration of career readiness standards nationwide, secondary schools assert they are teaching and attempting to foster career readiness. However, students continue to graduate lacking the skills needed to be considered career ready.

The purpose of this research is to examine the phenomenon that is currently occurring; secondary schools say they are teaching career readiness, but outcomes indicate that instruction

is not happening effectively. It is plausible that teachers' perceptions regarding the importance of career readiness and/or their understanding of policy may be impacting the instructional decisions they make in their classrooms. Specifically, a common and accurate definition of what career readiness is must be developed first. Then, the definition can be used to set benchmarks which may be used by teachers as they develop instruction related to career readiness. Finally, assessment strategies must be explored.

CHAPTER 3. METHODOLOGY

Purpose of the Study

The purpose of this study was to examine how teachers' perceptions of career readiness impact their intentions related to the instruction of employability skills in the secondary classroom. Further, the study sought to explore how selected teachers' demographic characteristics impact their perceptions of career readiness. Finally, the study sought to validate two instruments: The Career Readiness Perceptions Instrument and the Instructional Intentions Questionnaire. To guide these purposes, the following research objectives were developed:

Research Objectives

1. Validate an instrument to measure teachers' perceptions of career readiness and teachers' instructional intentions related to employability skills.
2. Describe teachers' perceptions of career readiness as a student educational outcome of K-12 schools.
3. Describe the impact of selected teacher characteristics (years of teaching experience, content area taught, method of earning licensure, policies in place at the school, and professional development opportunities) on their perceptions of career readiness.
4. Determine the relationship between teachers' perceptions of career readiness and intention to teach employability skills in the classroom.

Research Design

This study utilized exploratory factor analysis (EFA) to develop and validate an instrument that measured teachers' perceptions of career readiness and a second instrument that assessed teachers' instructional intentions related to employability skills. Following the

exploratory factor analysis, the data collected using the validated instruments were used to conduct further analyses.

The second part of the study was a descriptive relational study that examined the effect of demographic characteristics, such as years of teaching experience, content area taught, method of earning licensure, policies in place at the school, and teacher involvement in professional development opportunities, on teachers' perceptions of career readiness (three constructs of career readiness were identified through the EFA) as a potential student outcome of secondary schools. Additionally, the study investigated the relationship between the independent variables of teachers' perceptions of career readiness and the dependent variables of teachers' intentions to teach professionalism and work ethic, teamwork, and critical thinking and problem solving in their classrooms. The present study employed a one-measurement cross-sectional survey design (Cohen, Manion, & Morrison, 2011) where secondary teacher subjects completed a questionnaire on Qualtrics to acquire their perceptions of career readiness and their intentions to teach employability skills in their classrooms. Further, pertinent demographic data was also collected.

Variables

The demographic variables of years of teaching experience, content area taught, method of earning licensure, policies in place at the school, and teacher involvement in professional development opportunities remained as independent variables throughout this study. Due to the nature of the methodology in this study, the variables of career readiness served as both dependent and independent variables throughout the study. The additional independent and dependent variables utilized in this study are described below.

Objective Three

The independent variables for objective three of this study were teachers' years of teaching experience, content area taught, method of earning licensure, policies in place at the school, and teacher involvement in professional development opportunities. The selection of these variables was supported by literature. The dependent variables were teacher's perceptions of career readiness, which were broken into three separate constructs based upon the results of the EFA: perceptions of career readiness, perceptions of skill development, and perceived value of career readiness over academics.

The researcher measured years of teaching experience, content area taught, method of licensure, policies in place at the school, and teacher involvement in professional development through self-reported responses in the demographics portion of the questionnaire. Years of teaching experience may impact teachers' identities and personal teaching philosophies which can change overtime (Beauchamp & Thomas, 2009), and could ultimately impact their perceptions of career readiness as an outcome of secondary schools. Additionally, the developmental differences between novice and expert teachers are well-documented (Hammerness et al., 2005), however, if experience impacts perceptions of career readiness is unknown. It is likely that teachers who embrace vocationalism as a philosophy of education would have more positive perceptions of career readiness than teachers who have opposing views regarding the purpose of education. Career and technical education teachers are tasked with preparing students for their future careers, so a teacher's content area may impact their perception of career readiness (ACTE, 2020). How teachers come to earn their teaching license may also impact their perceptions of career readiness. During the 2015-2016 school year, 90% of secondary teachers were licensed through an accredited teacher education program (US

Department of Education, 2018). The remaining teachers entered the profession through alternative means, often coming from business, trade, and industry to become a teacher (Mackelvie & Varrato, 2017). Because alternatively certified teachers have real-world career experience outside of education, it is plausible their perceptions of career readiness may contrast the perceptions of traditionally certified teachers. Policies in place at the school and access to professional development have an impact on school climate (Wang & Degol, 2016), which in turn can impact teacher's perceptions (Aldridge & Fraser, 2016).

Perceptions of career readiness were measured through an instrument developed and validated by the researcher. The final instrument included the following three constructs: (a) perceptions of career readiness; (b) their perceptions of skill development; (c) perceived value of career readiness over academics.

Objective Four

The independent variables for objective four were the three constructs of perceptions of career readiness and the dependent variables of teachers' instructional intentions regarding the instruction of teamwork and collaboration, professionalism and work ethic, and critical thinking and problem solving.

Teacher's instructional intentions were assessed using an instrument developed and validated by the researcher. The final instrument included the following three constructs: (a) intention to teach teamwork and collaboration; (b) intention to teach professionalism and work ethic; (c) intention to teach problem solving and critical thinking. The researcher selected four a priori constructs based upon reports by employers that ranked the most sought-after employability skills (Casner-Lotto & Barrington, 2006; NACE, 2019). In both published reports, teamwork and collaboration, professionalism and work ethic, critical thinking and problem

solving, and communication appeared in the top five most sought-after skills by employers. Thus, those four skills were selected from those lists to develop the a priori constructs of this instrument. After subjecting the instrument to exploratory factor analysis, three valid constructs emerged.

Subject Selection

The target population for this study consisted of middle and high school secondary (Grade 6 to Grade 12) teachers in North Dakota during the spring of 2020. A census sample was administered to the licensed teachers in the state of North Dakota (North Dakota Department of Public Instruction [ND DPI], 2019d). The population was selected due to its proximity to the researcher.

On average, North Dakota teachers have 13.78 years of teaching experience, with the range being from 0-55 years of experience (ND DPI, personal communication, February 25, 2020). In North Dakota, 98% of current teachers received their teaching license through an accredited teacher education program and 51 presently teaching teachers (2%) earned their license through alternative certification methods (ND DPI, personal communication, February 25, 2020). Regarding content areas, there are 370 English language arts, 358 math, 331 science, 315 social studies, 196 music/art/theater, 180 physical education/health, 109 foreign language, 364 Career and Technical Education, and 309 other teachers in the state of North Dakota (ND DPI, personal communication, February 25, 2020).

The majority of high schools in North Dakota (n = 112) are quite small and have fewer than 100 students in grades nine through 12 (ND DPI, 2019b). The largest schools (n = 15) in North Dakota have more than 900 students in grades nine through 12 (ND DPI, 2019b). There

are *n* = 4 schools that have 400-899 students, *n* = 9 schools that have 200-399 students, and *n* = 41 schools that have 100-199 students enrolled (ND DPI, 2019b).

A common measure of socio-economic status of a school is determined by the percentage of students receiving free and reduced-price lunch subsidies. The majority of K-12 schools in North Dakota provide free and reduced-price lunch to more than 41% of their students (*n* = 141). Additionally, there are 32 schools that provide free and reduced lunch to less than 10% of their students, 119 school that provide free and reduced lunch to 11-25% of their students, and 116 schools that provide free and reduced lunch to 26-40% of their students (ND NDPI, 2019c).

Instrumentation

Perceptions of Career Readiness

The Perceptions of Career Readiness Instrument (PCRI) was developed by the researcher to assess teachers' perceptions of student career readiness as an outcome of secondary schools. The initial instrument was organized around four, a priori constructs: (a) teacher's perceptions of career readiness as a broad school goal (CRB); (b) teacher's perceptions of employability skill development as a broad school goal (CRBX); (c) teacher's perceptions of their role as an independent teacher in the development of career readiness as a student outcome (CRI); and (d) teacher's perceptions of their role as an independent teacher in the development of employability skills as a student outcome (CRIX). The definitions which guided the development of the a priori constructs were supported by extant literature (ACTE, 2010; Conley, 2012; Mishkind, 2014). A total of 33 Likert-type scaled items (eight questions per construct) were included in the initial instrument. A five-point scale and descriptors were used for responding and included: 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree/disagree*), 4 (*agree*), and 5 (*strongly agree*).

The proposed constructs and definitions of the constructs for the initial PCRI are included in Table 3.1. After subjecting the instrument to exploratory factor analysis, three valid constructs emerged which are fully described in Chapter 4.

Table 3.1

Proposed Constructs of the Perceptions of Career Readiness Instrument (PCRI)

Construct	Definition of Construct	Indicators
Perceptions of career readiness broadly	Teachers' perceptions of the role schools have in the development of career ready secondary students.	8
Perceptions of career readiness broadly without saying the word "career"	Teachers' perceptions of the role schools have in the development of employability skills among secondary students.	8
Perceptions of career readiness individually	Teachers' perceptions of their individual role in the development of career ready secondary students.	8
Perceptions of career readiness individually without saying the word "career".	Teachers' perceptions of their individual role in the development of employability skills among secondary students.	8

Instructional Intentions

The Instructional Intentions Questionnaire was developed by the researcher to assess teachers' intentions to teach employability skills to their students. To narrow the instrument, the researcher used literature to select the top four employability skills sought by employers to develop the instrument (Casner-Lotto & Barrington, 2006; NACE, 2019). The instrument was developed around the following a priori constructs: (a) intention to teach teamwork and collaboration; (b) intention to teach communication skills (verbal, nonverbal, and written communication); (c) intention to teach problem solving and critical thinking; and (d) intention to teach professionalism and work ethic. The items were inductively developed by the researcher using the employability skill standards included in the P21 Framework Definitions (Partnership for 21st Century Learning, 2019a) and guided by the teacher behaviors in the proposed Skill

Development Model (Figure 1.1). The initial instrument included 41 items from four constructs: (a) teamwork and collaboration- 12 items; (b) communication skills- 9 items; (c) problem solving and critical thinking- 10 items; and (d) professionalism and work ethic- 10 items. The question stem for this series of questions was "When teaching, it is my intention to…" A five-point scale and descriptors were used for responding and included: 1 (*never*), 2 (*rarely*), 3 (*occasionally*), 4 (*often*), and 5 (*daily*).

The proposed constructs and definitions of the constructs included in the initial IIQ are found in Table 3.2. Following data collection and exploratory factor analysis, the instrument was narrowed to three valid constructs emerged, which are fully described in Chapter 5 and Appendix D.

Table 3.2

Proposed Constructs of the Instructional Intentions Questionnaire (IIQ)

Construct	Definition of Construct	Indicators
Intent to teach teamwork and collaboration	Teachers' intentions of using teaching activities which lead to the development of teamwork and collaboration.	12
Intent to teach communication skills (verbal, nonverbal, and written)	Teachers' intentions of using activities which lead to the development of teamwork and collaboration.	9
Intent to teach problem solving and critical thinking	Teachers' intentions of using activities which lead to the development of problem solving and critical thinking.	10
Intent to teach professionalism and work ethic	Teachers' intentions of using activities which lead to the development of professionalism and work ethic.	10

Demographics

The final section of instrumentation included (12) demographic questions and statements. Items specific to the participants included: years of teaching experience, content area taught, method of earning licensure, age, school size, socioeconomic status of their school, policies in place at their school, and teacher involvement in professional development opportunities. The

inclusion of the demographic variables was supported by previous research (ACTE, 2020; Aldridge & Fraser, 2016; Cotton, 1996; Hammerness et al., 2005; Mackelvie & Varrato, 2017; Perry, 2012; US Department of Education, 2018; Wang & Degol, 2016).

Validity and Reliability Procedures

Each psychometric instrument was assessed for validity and reliability. A panel of experts consisting of four faculty members at North Dakota State University and one faculty member at the University of Minnesota reviewed the instruments for face and content validity. Of the faculty experts who provided feedback about the instruments, two also had secondary teaching experience, which allowed them to view the instruments through the lens of a practicing teacher. Additionally, two of the faculty members were considered experts in the development of psychometric tests and their feedback focused on the wording of the questions, future analysis feasibility, and the logical construction of the instrument. Finally, the instruments were evaluated by two current secondary teachers for readability and logic. Feedback from all experts was incorporated into the final instruments.

Instrument internal consistency was achieved through exploratory factor analysis (EFA) following the guidelines of Field (2013), Fabrigar and Wegner (2012), Gorsuch (1983), and Pett, Lackey, and Sullivan (2003). Items which did not fit in the final constructs were removed from the instrument. Reliability was assessed by producing Cronbach alphas for the entire final instrument and each subscale. The results of the EFA and the final internal consistency coefficients are reported in Chapter 4.

Data Collection

The Career Readiness Perceptions Instrument (CRPI), Instructional Intentions Questionnaire (IIQ), and demographic questions were combined into one survey and administered to secondary teachers across the state of North Dakota (see Appendix C).

The North Dakota State University Institutional Review Board (IRB) reviewed and approved the study design and data collection procedures prior to the administration of the instrument. Participants were informed of their rights and benefits of participation in the study through a cover letter on the instrument. Confidentiality was maintained by collecting non-identifying information and keeping data on a password protected computer and secure server.

A list of all licensed educators in the state of North Dakota was obtained from the North Dakota Department of Public Instruction through a public records request. They did not request any restrictions on the use of the email addresses for research purposes. A recruitment email was sent to licensed educators in the state of North Dakota (8,975). Because many of the teachers included in the invitation email were not secondary teachers, the first item for response asked "I currently teach middle school or high school classes." If the respondent selected "yes," they were directed to the rest of the survey. If the responded selected "no," they were directed to the end of the survey. After the initial invitation was sent out, elementary teachers were removed from the invitation list, as well as anyone who requested being removed from the email list and any undeliverable email addresses. A reminder email was sent one week later to 7,660 licensed educators. Data collection remained open for 16 days, with one reminder email sent a week after data collection began. At the conclusion of the collection window, non-respondents were not followed up on. Nonresponse bias was evaluated by comparing early respondents to late respondents. The first 250 respondents were compared to the last 250 respondents using an

independent samples t-test. Prior to running the t-test, the data was trimmed to remove any perfect scores (means of 5.00 or 1.00) (Field, 2013). The independent samples t-test indicated there were no significant differences between the group of early respondents and late respondents, reducing the concern of nonresponse bias and ensuring the generalizability of the results of this study to the population of teachers in North Dakota.

According to (Kline, 2016), 10 participants per proposed parameter are necessary to run an exploratory factor analysis. In the proposed factor models, there are up to 41 loadings per model, which would require at least 410 participants. Field (2013) recommends a sample greater than 300 participants based upon a synthesis of many researchers' various findings regarding sample size for exploratory factor analysis. After 16 days, the total number of surveys collected was N = 1,689. Calculating the response rate was challenging due to the lack of definitive information about the population of teachers in North Dakota. According to the Department of Public Instruction, there were 2,433 licensed ninth through 12th grade teachers and 4,992 licensed K-8 teachers in North Dakota (DPI, 2019a). Because this study included middle school teachers, some sixth-grade, all seventh-grade, and all eighth grade teachers would be included in the population. However, the Department of Public Instruction does not have information regarding which licensed teachers teach specific grades. Therefore, to estimate the total population, the researcher divided the number of licensed elementary teachers by nine, since there are nine grade levels in K-8 schools. When added to the number of licensed secondary teachers, the estimated population of sixth to 12th grade secondary teachers in North Dakota was approximately 4,097. Because some schools consider sixth grade to be elementary and others consider sixth grade to be middle school, it is likely that about half of the sixth grade teachers would have self-selected themselves out of the survey due to the fact that they do not consider

themselves to be secondary teachers. That brings the final best estimate for the total population of secondary teachers to approximately N = 3,820. Based upon the total number of surveys returned (N = 1,689), the response rate for the study was 44%. Two surveys were removed for response set and 391 surveys were considered incomplete and removed from the data set. Therefore, the total number of useable surveys for the EFA was N = 1,296. Of the surveys retained for the EFA, only 1,209 surveys included all of the completed demographic data, which were necessary for the ANOVA and multiple linear regression analyses (N = 1,209). Therefore, the response rate for the EFA was approximately 34% and approximately 32% for the ANOVA and regression analyses.

Characteristics of the sample can be found in Table 3.3. The majority of respondents were early-career teachers with 0 to 5 years of experience (21.8%, n = 283) and 6 to 10 years of experience (20.9%, n = 271). Subsequent demographic groups of teachers based upon their years of experience were evenly distributed from n = 170 teachers with 11 to 15 years of experience (13.1%) to n = 112 teachers with 26 to 30 years of experience (8.6%). Core academic teachers made up more than half of the sample with n = 719 teachers (55.5%). Only n = 77 of the teachers in the sample received their teaching licensure through alternative licensing pathways (5.9%), whereas, an overwhelming majority of teachers were licensed through a traditional teacher education program (90.1%, n = 1,168). Most of the participants had engaged in professional development regarding employability skills ranging from 1 workshop or training (15.3%, n = 198) to 5 or more workshops (24.9%, n = 311). Of the teachers who had attended professional development, most were required to attend the workshops (28.5%, n = 369). Other demographic data related to teacher demographic characteristics are included in Table 3.3.

Table 3.3

*Demographic Characteristics of Participating Teachers (*N *= 1,296)*

Variable	*n*	%
Years of Experience		
0-5 years	283	21.8
6-10 years	271	20.9
11-15 years	170	13.1
16-20 years	155	12.0
21-25 years	124	9.6
26-30 years	112	8.6
31 of more years	133	10.3
Missing	48	3.7
Content Specialty		
Core Academics	719	55.5
CTE	243	18.8
Special Education	96	7.4
Other	186	14.4
Missing	52	4.0
Licensure		
Traditional Licensure	1168	90.1
Alternative Licensure	77	5.9
Missing	51	3.9
Engagement in Professional Development		
0 workshops/trainings attended	274	21.1
1 workshop/training attended	198	15.3
2 to 4 workshops/trainings attended	462	35.6
5 or more workshops/trainings attended	311	24.9
Missing	51	3.9
Reason for Engagement in Professional Development		
Required to attend	369	28.5
One of several options to attend	308	23.8
Sought out the opportunity to attend	286	22.1
Other	7	0.5
Missing	326	25.2

School policies were assessed by collecting information from the participants regarding how their school district managed the instruction and assessment of employability skills. A list of

13 employability skills most sought by business and industry was compiled and included in the questions related to school policy (Bunshaft et al., 2015; Casner-Lotto & Barrington, 2006; Corder & Irlbeck, 2018; Easterly et al., 2017; Hart Research Associates, 2015; Landrum et al., 2010; McNamara, 2009; NACE, 2019; Robles, 2012). Teachers were then asked to select all of the skills that fit the proposed scenario. A description of teachers' responses regarding the policies in place at their schools can be found in Table 3.4.

Table 3.4

*Description of School Policies by Respondents (*N *= 1,296)*

Variable	*n*	%
All teachers are expected to incorporate skills		
1-3 skills are expected	161	12.4
4-8 skills are expected	541	41.7
9 or more skills are expected	439	33.9
No skills are expected	104	8.0
Missing	51	3.9
Schools assess skills		
1-3 skills are assessed	314	24.2
4-8 skills are assessed	522	40.3
9 or more skills are assessed	196	15.1
No skills are assessed	213	16.4
Missing	51	3.9
Schools require skills for graduation		
1-3 skills are required for graduation	317	24.5
4-8 skills are required for graduation	227	17.5
9 or more skills are required for graduation	91	7.0
No skills are required for graduation	610	47.1
Missing	51	3.9

Most schools expected all teachers to incorporate some employability skills into their classrooms as only 8% of participants responded that no skill instruction was expected by all teachers in the school district (n = 104). Fewer teachers (n = 1,032) worked in school districts that required the assessment of student employability skill development compared to the number

of teachers who taught in schools that expected teachers to teach employability skills (n = 1,141). Interestingly, about half of the teachers (n = 635) worked in school districts that required student skill development for graduation and the other half (n = 610) worked in districts that did not require any evidence of student skill development for graduation. Table 3.4 includes detailed information regarding the school policies in place at the respondents' workplaces.

Data Analysis

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) software version 26. First, an exploratory factor analysis (EFA) assessed the validity of the proposed constructs and the developed instruments. The Perceptions of Career Readiness Instrument (PCRI) included four proposed constructs with eight to nine indicators per construct (total = 33 indicators). The Instructional Intentions Questionnaire (IIQ) included four proposed constructs ranging from nine to 12 indicators per construct (total = 41 indicators).

Once the instruments were finalized and the constructs were determined, scale means were calculated for each participant for each of the final constructs. Then, descriptive analysis was conducted for each variable including mean, standard deviation, range, and frequency (when appropriate). The data was checked for errors, outliers, and response set. Analysis of Variance (ANOVA) was conducted to assess the impact of the independent variables of teachers' years of experience, content area taught, method of earning licensure, policies in place at the school, and professional development opportunities on the dependent variables of perceptions of career readiness, which include the constructs perceptions of career readiness, perceptions of skill development, and perceived value of career readiness over academics. Multiple regression analysis was performed to assess the relationship between the dependent variables of intentions to teach employability skills, which included the three constructs of intentions to teach teamwork

and collaboration, intentions to teach professionalism and work ethic, and intentions to teach critical thinking and problem solving, and the independent variables of perception career readiness (all three constructs). Table 3.5 outlines the dependent and independent variables in the study.

Table 3.5

Level of Measurement of the Dependent and Independent Variables in the Study

Level of Measurement	Variables	
Nominal	Independent:	Teacher licensure, Content Area Taught, Reason for Attending Professional Development
Ordinal	Independent:	Years of Experience, Engagement in Teacher Professional Development, School Policies
	Independent:	Perceptions of Career Readiness [PCR, PSD, CR>A]
Interval	Dependent:	Perceptions of Career Readiness [PCR, PSD, CR>A] Intentions to Teach Employability Skills [teamwork/collaboration, professionalism/work ethic, critical thinking/problem solving]

Note. PCR = perceptions of career readiness, PSD = perceptions of skill development, and CR>A = perceived value of career readiness over academics.

Analysis for each objective is discussed herein:

Objective One

An exploratory factor analysis (EFA) was conducted using principal axis factoring (also known as common factor analysis) (Field, 2013). After the initial factor extraction, the data was evaluated. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and correlation matrix were evaluated. Horn's Parallel Analysis (Horn, 1965; O'Connor, 2000) was used to determine the number of factors to extract from the PCRI. The factor analysis was re-run to force a three-factor solution and a direct oblimin oblique rotation was applied. Variables with salience

lower than .30 or with cross-loadings greater than .30 were removed from the instrument. The final factors were named and given a definition. Then the variables within each factor were assessed to ensure they fit with the other variables and matched the overarching construct definition. Upon completion of the final instrument and subscales the internal consistency reliabilities were measured using Cronbach's alphas for the entire scale and individual subscales. A minimum reliability coefficient of .70 was determined a priori (Nunnally, 1978). The same steps were followed for the validation of the IIQ.

Objective Two

Upon the conclusion of the EFA, scale means were calculated for all participants based upon their perceptions of career readiness among three constructs: (a) perceptions of career readiness; (b) perceptions of skill development; and (c) perceived value of career readiness over academics. After scale means were calculated, descriptive statistics were conducted to assess the mean, standard deviation, and range of the responses.

Objective Three

Analysis of variance (ANOVA) was used to measure the effect of demographic variables of teachers' years of experience, content area taught, method of earning licensure, and teacher professional development opportunities on the dependent variables of career readiness, expressed as a series of scale means.

The hypotheses for the analysis of variance are:

H_0: Demographic variables did not explain a significant ($p > .05$) proportion of variance in teachers' perceptions of career readiness.

H_1: Demographic variables did explain a significant ($p < .05$) proportion of variance in teachers' perceptions of career readiness.

Objective Four

Multiple linear regression was used to measure the impact the independent variables of teachers' perceptions of career readiness (all three constructs) presented on the dependent variables of intentions to teach employability skills in the classroom (all three constructs).

The hypotheses for the regression analysis were:

H_0: Teachers' perceptions of career readiness did not explain a significant ($p > .05$) proportion of variance in teachers' intentions to teach employability skills in the classroom.

H_1: Teachers' perceptions of career readiness did explain a significant ($p < .05$) proportion of variance in teachers' intentions to teach employability skills in the classroom.

CHAPTER 4. CONSTRUCTION AND VALIDATION OF AN INSTRUMENT TO ASSESS SECONDARY TEACHERS' PERCEPTIONS OF CAREER READINESS

Abstract

The purpose of this study was to develop and validate an instrument meant to assess teachers' perceptions of career readiness as an outcome of secondary schools. Instrument items were developed using current definitions of career readiness, which included a focus on employability skill development. All North Dakota middle school and high school teachers were invited to complete the preliminary instrument via email during the spring semester. Exploratory factor analysis with direct oblimin rotation was used to produce a three-factor solution that included 27 instrument items with loadings greater than .30. Reliability analysis on the instrument produced a Cronbach's alpha level of .95 with individual subscales ranging from .79 to .92. It is recommended the instrument be used to assess the perceptions of different populations to strengthen the reliability of the instrument. Additionally, it is recommended the instrument be used to assess teachers' perceptions of career readiness in order to develop effective professional development, establish useful local-level school policies, and guide administrators as they provide support to their classroom teachers.

Introduction

College and career readiness, as an outcome of secondary schools, has grown in acceptance across the United States as demonstrated by the adoption of policies and legislation specifically intended to prepare students for their futures. A few examples of policies that include wording regarding the preparation of graduates for college and careers include: (a) the Every Student Succeeds Act, which is the most recent iteration of the Elementary and Secondary Education Act; (b) Perkins V, which guides career and technical education nationwide; and (c)

the Individuals with Disabilities Act (IDEA), which supports students with disabilities and ensures they receive equitable preparation for college and careers (Cushing, English, Therriault, & Lavinson, 2019; English, Cushing, Therriault, & Rasmussen, 2017; US Department of Education, n.d.a; US Department of Education, n.d.b). As the focus on college and career readiness grows in importance, it is necessary to understand how classroom teachers perceive of college and career readiness, due to the role teachers inevitably play in the implementation of educational policy (Spillane, Reiser, & Reimer, 2002). Therefore, the development of an instrument which could assess teachers' perceptions of career readiness as an outcome of secondary schools was identified as a way to amend an identified gap in our current understanding of college and career readiness implementation in the United States.

Review of Literature

A universal definition of what it means to be college and/or career ready does not currently exist. The College and Career Readiness and Success Center (CCRS) at American Institutes for Research conducted an analysis of the 37 statewide definitions of college and career readiness and discovered that the range of definitions varied greatly from state to state (Mishkind, 2014). At the conclusion of the review, six practical sub-definitions of college and career readiness were identified among the statewide definitions, which included (a) academic knowledge such as mathematics, English, and other core subjects; (b) critical thinking and/or problem solving; (c) social and emotional learning, collaboration, and/or communication; (d) grit/resilience/perseverance; (e) citizenship and/or community involvement; and (f) other additional activities such as knowledge of technology, a commitment to lifelong learning, etc. (Mishkind, 2014). According to Conley (2012), a college and career ready student is able to successfully complete introductory coursework in a degree program or entry-level training in a

career pathway without requiring remedial coursework. ACT Inc. claims that college and career readiness can be determined based upon a standardized measure of reading, writing, English Language Arts, math, and science ability (ACT, Inc., 2018), though Conley (2012) cautions against the use of a single academic "cut score" (such as the ACT) to measure college and career readiness due to the wide range of potential student goals and possible pathways they may take in order to achieve those goals.

Though it is important to define what college and career readiness are, it is also worth examining whether college readiness and career readiness are distinct from one another. By definition, a majority of states consider college readiness and career readiness to be analogous (Mishkind, 2014) and there are numerous arguments for combining the definitions into one. The primary reason for combining college and career readiness into one definition is because it is very difficult to find success in present day careers without some form of post-secondary training. It is readily agreed upon that most people currently entering the workforce will need some level of postsecondary training, education, or certification in order to be successful in their career (Achieve, 2012; Cushing et al., 2019; Steedle, Radunzel, & Mattern, 2017). In fact, 63% of available jobs between 2010 and 2018 required some amount of postsecondary training or education (Carnevale, Smith, & Strohl, 2010). Additionally, there are financial advantages to pursuing postsecondary education. At the time Carnevale, Smith, and Strohl (2013) published their report, employees who had some form of postsecondary education earned about 74% more than workers with a high school diploma or less. Thus, it is imperative that high schools prepare students to be college ready so they can seek the necessary postsecondary education in order to pursue their future careers.

In order to be successful in all postsecondary education and training, students must be academically capable, which justifies some of the focus on academic achievement as a measure of college and career readiness. Empirical studies connect variables such as rigorous high school curriculum, grade point average (GPA), ACT score, and other measures of academic ability to postsecondary success and successful careers (ACT, Inc., 2013; American Diploma Project, 2004). For example, students who meet the ACT College Readiness Benchmarks are more likely to earn a college GPA greater than 3.0 and complete a college degree (ACT, 2013; Steedle et al, 2017). Additionally, according to Bowen, Kurzweil, and Tobin (2005) a lack of exposure to "rigorous academic courses" during high school can be a significant barrier to postsecondary completion (as cited in Steedle et al, 2017, p. 4). Thus, since virtually all students will need some form of postsecondary education in order to pursue their future career, then college, or at least some form of postsecondary training, must come before a career. Hence, there is justification to define college and career readiness as one.

However, even though college and career readiness can be defined as one, it is still important to consider the subtle differences between the two; there are important distinctions between what it means to be college ready and what it means to be career ready. First, different jobs require different levels of academic rigor (Conley & McGaughy, 2012). The types of academic ability required for a middle skills job may be quite different than the types of academic capability required for a bachelor's degree program, and thus academic expectations of secondary students should reflect that difference (Conley & McGaughy, 2012). In a series of semi-structured interviews with 27 state and county education leaders in California, Koppich, Humphrey, Venezia, Nodine, and Jaeger (2017) noted most of the interviewees agreed college and career readiness share much overlap and should not be separated into separate constructs.

However, those same participants felt career readiness should be prioritized more in schools, rather than being treated as second-best to college preparation (Koppich et al., 2017). Conley (2012), a leading expert on college and career readiness, agreed college and career readiness share many similar skills and abilities but stressed the need to also recognize they are not entirely the same thing. In fact, even though academic ability is necessary to be successful in postsecondary education, there is much more to college and career readiness than academic achievement. Conley (2012) identified four keys to college and career readiness including (a) cognitive strategies including problem solving, communication, and conducting research; (b) content knowledge which includes technical knowledge and skills; (c) learning skills and techniques which includes components of being a self-directed learner like persistence, goal setting, time management, and study skills; and (d) transition knowledge and skills such as being able to navigate the transition from high school to adulthood, which includes knowing what questions to ask of whom when necessary, such as how to apply for financial aid or what classes one should take in preparation for a certain degree. This definition of college and career readiness is more thorough and comprehensive as it takes into consideration more than just academic achievement; it holistically acknowledges what it requires for students to be successful in college and their careers.

One of the only organizations to define career readiness independent of college readiness is The Association for Career and Technical Education (ACTE, 2010). According to ACTE, career readiness involves the intersection of three types of skills (a) core academic skills; (b) employability skills; and (c) technical, job-specific skills. Confirming what others have said regarding the importance of academic skills, ACTE agreed that employees must be able to apply academic content in the context of their work in order to be successful (ACTE, 2010). In addition

to academic skills, the topic of employability skills has gained attention in the 21st century. Due to their critical importance in contemporary workplaces, employees who possess employability skills are highly sought after by employers (ACTE, 2010). Though employers still value employees who possess necessary technical skills, a greater emphasis is currently being placed on employability skills (Casner-Lotto & Barrington, 2006; Hart Research Associates, 2015; National Association of Colleges and Employers [NACE], 2019). The most common employability skills desired by employers and business executives are outlined in Table 4.1. Technical skills are the last skill included in the definition of career readiness by ACTE. Technical skills are those skills which are specific to a career and are commonly taught in Career and Technical Education courses, vocational training, post-secondary training, or on the job training (ACTE, 2010).

Table 4.1

Top Employability Skills Sought by Business and Industry

Skill	Citations
Teamwork	Bunshaft, et al., 2015; Casner-Lotto & Barrington, 2006; Hart Research Associates, 2015; McNamara, 2009; NACE, 2019; Robles, 2012
Communication (written and oral communication)	Bunshaft et al., 2015; Casner-Lotto & Barrington, 2006; Corder & Irlbeck, 2018; Easterly et al., 2017; Hart Research Associates, 2015; NACE, 2019; Robles, 2012
Reliability	Bunshaft et al., 2015
Flexibility	Bunshaft et al., 2015; Robles, 2012
Ethical Decision Making	Hart Research Associates, 2015; McNamara, 2009
Critical Thinking and Problem Solving	Casner-Lotto & Barrington, 2006; Easterly et al., 2017; Hart Research Associates, 2015; McNamara, 2009; NACE, 2019
Integrity and Character	Corder & Irlbeck, 2018; Robles, 2012
Professionalism and Work Ethic	Casner-Lotto & Barrington, 2006; McNamara, 2009; NACE, 2019; Robles, 2012
Interpersonal Skills	McNamara, 2009; Robles, 2012
Responsibility	Landrum, Hettich, & Wilner, 2010; Robles, 2012

Based upon the evidence provided in the various definitions of college and career readiness, it is justifiable to consider career readiness as a unique construct. Further, the development of career readiness is broader than simply preparing a student for a job. Career readiness means supporting a student's development of employability skills that can help them achieve success in postsecondary education in pursuit of their career. Additionally, it is important to note that the development of employability skills would be beneficial in any career a student chooses to pursue. With that broader definition in mind, it may be necessary to

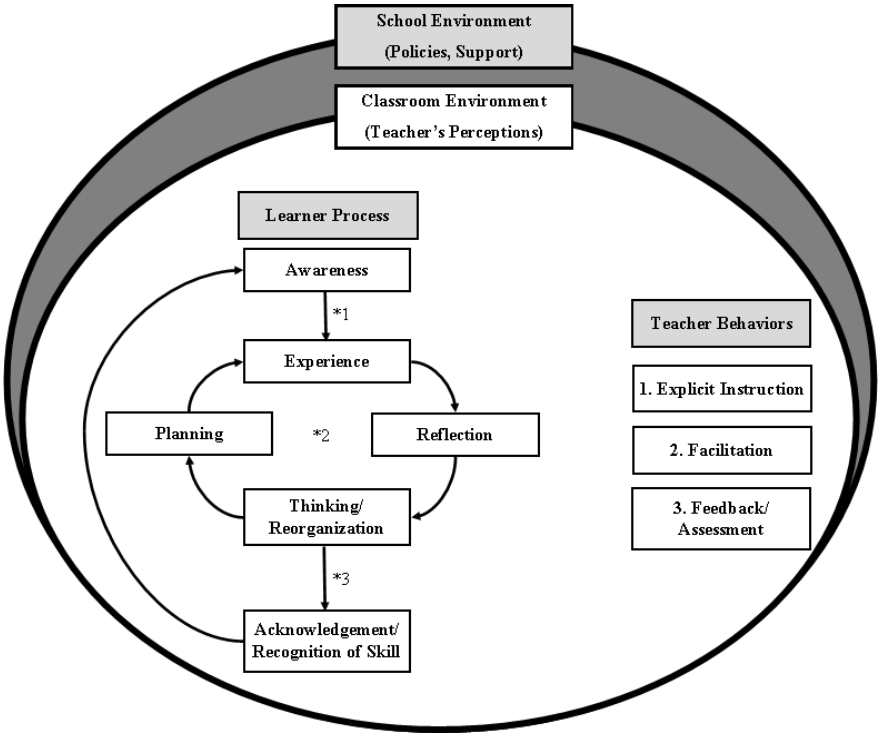
understand how teachers perceive of career readiness. Do they believe career readiness has a place in secondary schools across the nation?

Conceptual Framework

The overarching framework which guided the development Perceptions of Career Readiness Instrument (PCRI) can be found in Figure 4.1.

Figure 4.1

Learner Skill Development Model



Note. This model shows the steps a learner would go through to develop a new skill. Teacher behaviors are identified with an *. The model includes a single example of when teacher behaviors could take place within the learner process. However, it is important to note that the location of a teachers' behaviors can take place at many locations throughout the model. The act of learning and teaching is nested within the classroom environment, which is impacted by teachers' perceptions. Additionally, the classroom environment is nested within the larger school environment, which is impacted by policies and support in the form of leadership and professional development training.

The diagram, which was developed to reflect components of information processing theory (Atkinson & Schifrin, 1968) and experiential learning theory (Kolb, 1984), shows the skill development process a learner must go through to develop a new skill. Within the context of the present study, those skills include career readiness and employability skills. That process of student skill development is directly impacted by teacher's behaviors, specifically explicit instruction, facilitation, and feedback and assessment. The figure acknowledges learning takes place in a classroom environment that is impacted by individual teacher's perceptions (Deemer, 2004). Further, the classroom environment exists within the greater school environment, which is impacted by policies, administration, and professional development (Aldridge & Fraser, 2016, Wang & Degol, 2016).

The development of the PCRI was guided by evidence that supports the notion that teachers' perceptions drive the instructional decisions they make on a day to day basis (Deemer, 2004). Therefore, how teachers perceive the concept of career readiness as an outcome of secondary schools could impact how they understand the policies regarding career readiness instruction and ultimately, how they chose to integrate the instruction of those skills into their classrooms (Spillane et al., 2002).

An understanding of contradictory philosophies of education also guided the development of the PCRI. Some educators maintain a liberal philosophy of education, which advocates for a well-rounded, academic education that leads to rigorous intellectualism and deep thinking (Elias & Merriam, 2004). A liberal education involves studying the great works of philosophers, reading classic literature, and studying history, grammar, and logic (Elias & Merriam, 2004). Some educators maintain an alternative view of the purpose of education; one where the purpose of education is more pragmatic and focused on preparing students for their

future careers and life. This progressive, vocational philosophy is focused on the specific needs and interests of individual students and is particularly concerned with vocational education which is meant to prepare students for work (Elias & Merriam, 2004; Kliebard, 1999). There have been supporters of both philosophies of education since public education began in the United States. It is likely there are educators who maintain these philosophies today.

Purpose

The purpose of this study was to develop and validate an instrument that could be used to assess secondary teachers' perceptions of career readiness as an outcome of secondary schools.

Methods

This study utilized a one-measurement cross-sectional survey design where data was collected at one point in time (Cohen, Manion, & Morrison, 2011). A census of licensed teachers in the state of North Dakota was used to collect data during the spring term of 2020 (n = 8,975). Because the instrument was designed specifically for teachers who work with middle and high school students, teachers who considered themselves to be secondary teachers were invited to opt into the study and complete the questionnaire. It was challenging to develop a very clear sampling frame due to a lack of accessible data. The available sampling frame included all licensed secondary teachers. However, possessing a secondary teaching license does not necessarily mean an individual is currently teaching in the classroom. Individuals who have licenses but who are not classroom teachers may be school counselors, administrators, specialists, and a broad range of other school employees. Therefore, the researchers agreed that having individuals opt-into the study was the most appropriate way to reach as many individuals in the target population as possible. Based upon demographic information collected from the Department of Public Instruction, the estimated target population of secondary teachers in North

Dakota was N = 3,820. According the Department of Public Instruction, there are 2,433 licensed ninth to 12th grade teachers and 4,992 K-8 teachers in North Dakota. Because this population of middle school teachers included some sixth grade (some schools consider sixth grade to be elementary), all seventh grade, and all eighth grade teachers, estimations needed to be made. Using an estimated size of half of the sixth, all of the seventh, and all of the eighth grade teachers in North Dakota, the final estimated population of N = 3,820 was determined. The data collection period was left open for 16 days and one follow-up email reminder was sent one week after the initial invitation to participate.

A total of 1,689 surveys were completed (N = 1,689), achieving an approximated 44% response rate. Questionnaires were checked for errors, outliers, and response set. Two surveys were removed for response set and 391 surveys were considered incomplete and removed from the data set. Therefore, the total number of useable surveys was n = 1,296, which accounted for approximately 34% of the population and is considered an excellent sample size for instrument development (Comrey, 1988).

Sample

Demographic information about the respondents can be found in Table 4.2. The majority of respondents were early-career teachers with 0-5 years of experience (21.8%, n = 283) and 6-10 years of experience (20.9%, n = 271). Subsequent demographic groups of teachers based upon their years of experience were evenly distributed from n = 170 teachers with 11-15 years of experience (13.1%) to n = 112 teachers with 26-30 years of experience (8.6%). Core academic teachers made up more than half of the sample with n = 719 teachers (55.5%). Only n = 77 of the teachers in the sample received their teaching licensure through alternative licensing pathways (5.9%), whereas, an overwhelming majority of teachers were licensed through a traditional

teacher education program (90.1%, *n* = 1,168). Other demographic data related to teacher demographic characteristics are included in Table 4.2.

Table 4.2

*Demographic Characteristics of Participating Teachers (*N *= 1,296)*

Variable	*n*	%
Years of Experience		
0-5 years	283	21.8
6-10 years	271	20.9
11-15 years	170	13.1
16-20 years	155	12.0
21-25 years	124	9.6
26-30 years	112	8.6
31 of more years	133	10.3
Missing	48	3.7
Content Specialty		
Core Academics	719	55.5
CTE	243	18.8
Special Education	96	7.4
Other	186	14.4
Missing	52	4.0
Licensure		
Traditional Licensure	1,168	90.1
Alternative Licensure	77	5.9
Missing	51	3.9

Demographic data specific to the schools the respondents worked in can be found in Table 4.3. The largest group of respondents taught in schools that had more than 900 students in middle school and high school combined (*n* = 402, 33.3%). The smallest group of respondents worked in schools with 1 to 100 students in middle school and high school (*n* = 165, 13.6%). Socioeconomic status of the school district was determined by asking participants what percentage of the students in their schools received free and reduced-price lunch. The largest group of respondents indicated they taught in schools where 26 to 40% of students in their

schools received free and reduced-price lunch (*n* = 305, 25.2%). The smallest group of respondents were from schools that had fewer than 10% of students receiving free and reduced-price lunch (*n* = 77, 6.4%). Table 4.3 includes demographic data about the schools.

Table 4.3

*Demographic Characteristics of Schools (*N *= 1,209)*

Variable	*n*	%
School Size		
1-100 students	165	13.6
101-200 students	217	17.9
201-399 students	215	17.8
400-900 students	206	17.0
901 or more students	402	33.3
Missing	4	0.3
School Socioeconomic Status		
Fewer than 10% free and reduced-price lunch	77	6.4
11-25% free and reduced-price lunch	284	23.5
26-40% free and reduced-price lunch	305	25.2
Greater than 41% free and reduced-price lunch	240	19.9
Unsure	299	24.7
Missing	4	0.3

Preliminary Instrument Development

The preliminary instrument was developed by consulting the guidelines of DeVellis (2017) and Crocker and Algina (1986). The goal of the Perceptions of Career Readiness Instrument (PCRI) was to assess teachers' perceptions of career readiness. Following, the researchers developed two a priori constructs to assess teachers' perceptions of career readiness. The first construct was developed with the intention of assessing teachers' perceptions of the words "career readiness," specifically with regard to how they perceive career readiness as an outcome of secondary schools. The second construct was developed with the intention of measuring teachers' perceptions of career readiness without using the words "career readiness."

Those questions were drafted using definitions of career readiness and the factors that constitute career readiness utilizing extant literature (Association for Career and Technical Education [ACTE], 2010; Conley, 2012; Mishkind, 2014). In general, it is commonly accepted that career readiness involves the acquisition of academic skills, technical skills, and employability skills (ACTE, 2010). The researchers did not feel it would be beneficial to assess teachers' perceptions of academic skills, since it was assumed most teachers would be very committed to the instruction of the content they teach. The researchers also chose to refrain from including questions related to technical skills because the intention of this instrument was to broadly assess teachers' perceptions of career readiness. Typically, technical skills are specific to the career a student may pursue and are more difficult for teachers to foster the development of within a broad range of courses. Therefore, the researchers wanted to focus on teachers' perceptions of employability skills and whether or not they believed the acquisition of those skills should be a desired outcome of secondary schools. Many of the questions in this construct were the same as the questions in the first construct except the words career readiness were replaced by communication skills, teamwork skills, critical thinking skills, and professionalism and work ethic. To narrow the list of skills included in the questionnaire, the top four employability skills sought by employers were used to develop the items in the instrument (Casner-Lotto & Barrington, 2006; NACE, 2019).

Once the two primary constructs were developed, the researcher split the constructs into two additional categories. The first category was written as teachers' perceptions of career readiness and/or employability skills as a broad educational goal. Those questions were worded to assert that career readiness and/or the development of employability skills was important for schools to accomplish, but "I", as the individual teacher responding to the survey may not be

responsible for the achievement of those goals. The second category was written as teachers' perceptions of career readiness and/or employability skills as a personal responsibility. In those questions, the method of question construction was to meant assess the personal commitment each specific teacher felt towards the fostering of career readiness and/or employability skills among their students in their own classroom. Therefore, the four final a priori constructs were: (a) teacher's perceptions of career readiness as a broad school goal; (b) teacher's perceptions of employability skill development as a broad school goal; (c) teacher's perceptions of their role as an independent teacher in the development of career readiness as a student outcome; and (d) teacher's perceptions of their role as an independent teacher in the development of employability skills as a student outcome.

Once the a priori construct definitions were completed, the developers of the instrument drafted questions to create an item pool. The following recommendations by DeVellis (2017) guided the development of the instrument items: (a) avoid extremely long items; (b) ensure appropriate reading level; (c) avoid multiple negatives; (d) avoid double-barreled questions; (e) avoid grammatical issues such as unclear pronoun usage, misplaced modifiers, and incorrect usage of adjectives versus nouns; (f) avoid ambiguity; and (g) avoid reverse coded items. The reading level of the instrument was checked and found to be written at a college level. However, the instrument was being administered to secondary teachers, who must have received a college degree to be licensed, so the developers felt the reading level was appropriate for the audience. The developers also chose to intentionally use double-barreled questions. Because the intention of the employability skill questions was to assess teachers' perceptions of the concept of teaching the skills as a group, not necessarily their specific perception of teamwork or communication individually, the researchers chose to double-barrel the questions in hopes that teachers would

respond with the intention of teaching all of the skills collectively. The instrument developers chose to use redundantly worded items following the guidelines of DeVellis (2017). The developers were conscientious about making sure redundant questions were really asking the similar questions in a different way, rather than just adjusting the grammatical structure. For example, the question "time in school should be dedicated towards the instruction of career readiness skills" was meant to be a redundant question to "all students must receive instruction related to career readiness in schools." In addition to developing redundant questions, the developers intended to increase the difficulty of the questions throughout the instrument by using words such as must, all, and required instead of should, some, and intended or expected. It is important to ensure that a person who responds with agreeance actually possesses a high level of the latent variable being assessed, which can be achieved through polarizing questions DeVellis, 2017). It is also important to avoid situations where someone with a mild opinion of agreeance would choose an extreme option on the scale (DeVellis, 2017). If every respondent responds with the same level of agreeance, the instrument does not truly accomplish it's intended goal of assessing perceptions.

A total of 48 items were drafted and shared with a panel of experts. It is recommended to draft more items than needed to allow for the removal of some items throughout the process (DeVellis, 2017). Seven experts (n = 7) reviewed the instrument for content validity. Five of the experts were faculty members within education with experience in psychometric instrument development, two of whom also had experience as secondary school teachers, which allowed them to provide feedback specifically related to the content of the instrument. Additionally, two current secondary teachers reviewed the instrument for readability. Adjustments were made to the final instrument based upon feedback from the experts, especially related to clarity and

conciseness of the items. Based upon recommendations from the expert panel, the a priori constructs were reduced to eight or nine questions for each construct, leading to a total of *n*=33 questions in the instrument. A Likert-scale was selected as the response option due to the instrument being a measure of perceptions (DeVellis, 2017). A five-point scale with the following descriptors was used for responding: 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree/disagree*), 4 (*agree*), and 5 (*strongly agree*).

It was determined the best format for the instrument would be a web-based questionnaire developed on the university version of Qualtrics. The instrument was converted to a web-based questionnaire, which included Likert-style questions. The researchers limited the number of questions per page to no more than 11 to reduce respondent fatigue. Additionally, descriptors for the five-point scale were placed at the beginning, end, and in the middle of each set of items to improve readability on a computer screen and cell phone. Finally, the instrument was checked and found to be ADA accessible by Qualtrics analytics.

DeVellis (2017) recommended considering the inclusion of validation items in the instrument, such as a social-acceptability scale. The researchers did not feel the instrument was likely to lead to bias related to social-acceptability. Therefore, to keep the length of the instrument as short as possible, the researchers opted to not include a social-desirability scale in the instrument.

The final step of the initial instrument development was administering the instrument to a sample of individuals from the target population (N = 1,296). In order to validate the instrument, it was necessary to subject the scale to exploratory factor analysis. Though there is no agreed upon ideal sample size for factor analysis, Kline (2016) recommends 10 participants per parameter. Because the PCRI included 33 items, a minimum sample size of 330 was required.

However, Comrey (1988) describes sample sizes greater than 1,000 participants as excellent for instrument development. Once the surveys were collected, the researchers moved forward with evaluating the instrument using exploratory factor analysis.

Data Analysis

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) software version 26. Common factor analysis was conducted using principal axis factoring (DeVellis, 2017; Field, 2013; Fabrigar & Wegner, 2012; Gorsuch, 1983; Pett, Lackey, & Sullivan, 2003)

Findings

Initial Factor Analysis

An exploratory factor analysis (EFA) was conducted using principal axis factoring (also known as common factor analysis) (Field, 2013). After the initial factor extraction, the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was .961, which is considered "marvelous" according to Hutcheson and Sofroniou (1999, as cited in Field, 2013, p. 685). The correlation matrix was evaluated for highly or minimally correlated variables. None of the variables had correlations greater than 0.8 or several correlations below 0.3, therefore none of the variables were removed based upon the results of the correlation matrix (Field, 2013).

Following the initial extraction of factors for the PCRI, there were multiple factor solutions to evaluate. According to the Kaiser-Guttman Criterion, which retains all factors with eigenvalues greater than 1.0 (Field, 2013; Kaiser, 1960), there were five factors. After evaluating the scree plot (Cattell, 1966), it was determined that a three-factor solution was most appropriate. A third method, Horn's Parallel Analysis (Horn, 1965; O'Connor, 2000), also indicated a three-factor solution was the best fit for the data set. After comparing the potential factor solutions, it was determined that a three-factor solution was the most appropriate for the instrument. The two

constructs related to perceptions of career readiness and perceptions of skill development without using the words “career readiness” remained in the final factor solution. The a priori constructs related to personal and holistic responsibility for the fostering of career readiness did not emerge as valid factors in the three- or five-factor solutions. The five-factor solution included a number of cross-loadings, factors with minimal variables, and lacked clear theoretical justification to retain the fourth and fifth factors as they did not seem distinguishable to the researcher. Therefore, the common factor analysis was run again with a forced three-factor solution. Oblique rotation was conducted using direct oblimin rotation and the resulting data were reviewed once again. Items with loadings below .30 were not considered salient and thus, were removed from the instrument. Additionally, items with cross-loadings greater than .30 were also removed from the final instrument. Communalities were also checked. According to Field (2013), acceptable communalities are determined by sample size. Due to the large sample size, the researchers chose to accept communalities that were as low as .30.

After evaluating the theoretical basis of the remaining items within each factor, the final three factors were determined to be (a) Factor 1: importance and responsibility to teach employability skills (IRTES); (b) Factor 2: favoring career readiness skills versus academic skills (CR>A); and (c) Factor 3: importance and responsibility for teaching career readiness (IRTCR). The questions that were retained in the factor solution were evaluated for conceptual fit. Once the final instrument items were decided upon, the common factor analysis was performed on the final set of 27 items. The final set of items still showed excellent sampling adequacy (KMO = .961). The three factors accounted for 41% of the total shared variance after a direct oblimin rotation. The loading (pattern) matrix for the final rotated factor solution with item loadings and communalities can be found in Table 4.4.

Table 4.4

Loading Matrix for the Final Rotated Factor Solution of the Perceptions of Career Readiness Instrument (PCRI)

Item #	A Priori Construct	Factor			Communalities
		1	2	3	
21	CRBX	.860			.611
20	CRIX	.756			.573
18	CRBX	.720			.448
12	CRIX	.679			.568
25	CRIX	.674			.574
24	CRBX	.668			.536
27	CRBX	.597			.480
29	CRIX	.582			.556
6	CRBX	.580			.421
4	CRIX	.516			.371
14	CRBX	.424			.300
8	CRIX	.376			.353
17	CRB		.835		.719
16	CRIX		.770		.647
10	CRBX		.408		.382
3	CRI			.933	.634
7	CRI			.791	.639
19	CRI			.638	.604
28	CRI			.592	.590
9	CRB			.578	.460
30	CRI			.558	.498
11	CRI			.538	.460
1	CRB			.512	.318
5	CRB			.481	.372
13	CRB			.467	.503
31	CRB			.365	.516
26	CRB			.300	.380
Eigenvalues		11.67	1.73	1.47	
% of Variance		41.42%	4.89%	3.75%	

Note. Loadings below 0.3 are not shown. The original 31 items can be found in Appendix A. CRB: Career Readiness Broadly. CRI: Career Readiness Individually. CRBX: Career Readiness Broadly (with no mention of the word career). CRIX: Career Readiness Individually (with no mention of the word career).

When using oblique rotation, the factors are allowed to correlate. Table 4.5 contains the inter-factor correlations from the final factor analysis. Inter-factor correlations greater than .70

are a sign of concern (Field, 2013). However, the researchers felt the high correlation between IRTES and IRTCR was justified based upon the conceptual basis upon which the instrument was developed. Because the IRTCR construct and the IRTES construct were essentially asking the same questions with different words, it was logical that the constructs were highly correlated. However, the unique subscales may provide future users of this instrument with valuable information regarding participants should one wish to understand a teachers' perceptions of IRTCR versus IRTES. Thus, it was decided to keep the two constructs even though they were highly correlated.

Table 4.5

Inter-factor Correlations Among the Final Set of Retained Items

Factors	IRTCR	IRTES	CR>A
IRTCR	1.00	.733	.367
IRTES		1.00	.381
CR>A			1.00

Interestingly, the developers of the instrument created four a priori constructs and only two of the a priori factors emerged in the final solution. The constructs related to personal responsibility versus the broad responsibility of the school system did not emerge as a final construct. A third unexpected construct emerged and the researchers decided to leave it in the final instrument. The basis of the third construct was that the development of career readiness or employability skills was more important or essential than the academic content taught in schools. Tables 4.6, 4.7, and 4.8 include information about the final factors, loadings, item stems, and a priori constructs of the items in the final instrument.

Table 4.6

Factor 3: Importance and Responsibility to Teach Career Readiness (IRTCR) Final Instrument Items and Loadings

Item #	A Priori Construct	Item Stem	Loading
3	CRI	It is my job to teach career readiness skills.	.933
7	CRI	It is appropriate for me to spend time during my class(es) to instruct career readiness skills.	.791
19	CRI	Fostering career readiness is an important part of my job.	.638
28	CRI	I believe it is important to address career readiness development during my class(es).	.592
9	CRB	Career readiness should be assessed during high school.	.578
30	CRI	It is my goal to prepare students for their future careers.	.558
11	CRI	I am equally responsible for teaching academic content and career readiness skills.	.538
1	CRB	Public high schools must play a role in preparing students for their future careers.	.512
5	CRB	Students must possess basic career readiness skills when they graduate from high school.	.481
13	CRB	All students must receive instruction related to career readiness during middle/high school.	.467
31	CRB	Time in school should be dedicates to the instruction of career readiness skills.	.365
26	CRB	Students should be career ready when they finish high school.	.300

Table 4.7

Factor 1: Importance and Responsibility to Teach Employability Skills (IRTES) Final Instrument Items and Loadings

Item #	A Priori Construct	Item Stem	Loading
21	CRBX	All students must receive instruction related to problem solving, collaboration, and communication during high school.	.860
20	CRIX	All teachers must foster the development of communication skills, teamwork, and critical thinking skills.	.756
18	CRBX	When students graduate from high school, they should know how to communicate in a wide range of contexts.	.720
12	CRIX	I should play a role in ensuring my students develop communication and teamwork skills before they graduate from high school.	.679
25	CRIX	It is my job to teach students to be professional, work successfully in groups, solve real world problems.	.674
24	CRBX	Time in school should be dedicated to the instruction of skills such as communication, critical thinking, and professionalism.	.668
27	CRBX	Secondary schools are responsible for fostering the development of skills such as professionalism, problem solving, and communication among graduates.	.597
29	CRIX	It is appropriate for me to dedicate classroom instructional time towards skill development such as teamwork, communication, and problem solving.	.582
6	CRBX	Secondary schools must teach students how to work in teams, solve real-world problems, and communicate.	.580
4	CRIX	Fostering the development of skills, such as problem solving, critical thinking, and teamwork, are important parts of my job.	.516
14	CRBX	The purpose of secondary education is broader than academic standards.	.424
8	CRIX	When students finish my class, I want them to have developed work ethic and professionalism.	.376

Table 4.8

Factor 2: Favoring the Development of Career Readiness Skills Over Academic Skills (CR>A) Final Instrument Items and Loadings

Item #	A Priori Construct	Item Stem	Loading
17	CRB	It is more important that public schools teach career readiness skills than academic standards.	.835
16	CRIX	If my students are career ready when they graduate, I have succeeded at my job.	.770
10	CRBX	Schools should value the development of teamwork, critical thinking skills, and communication more than academic content.	.408

Instrument Reliability

After the EFA was finalized, internal consistency coefficients were calculated for each subscale using Cronbach's alpha (Table 4.9). Typically, coefficients greater than .70 are considered acceptable (Nunnally, 1978). Specifically, for the purpose of scale development, DeVellis (2017) defines acceptable coefficients as being between .70 and .80 and very good coefficients as being between .80 and .90. In cases where the internal consistency coefficient is great than .90, DeVellis (2017) recommends reducing the length of the scale. The perceptions of IRTCR (Factor 3) and perceptions of IRTES (Factor 1) subscales had very good internal consistency, which were greater than .90. The third subscale, CR>A (Factor 2), had an internal consistency of .79, which was still considered reliable (Field, 2013). The third subscale only included three items, which is the recommended minimum number of items for a subscale (Kline, 2016). Fewer items can lead to lower reliability, so the smaller alpha number was to be expected for the scale. Individual item-scale statistics were also inspected at this time, but no additional items were removed because their removal from the instrument would reduce the overall alpha value of the subscale. The alpha coefficient of the entire instrument (all 27 items)

was also assessed and found to be α= .95. Table 4.9 includes the Cronbach's alpha scores for the subscales included in the final instrument.

Table 4.9

Final Construct Reliability for Factors included in the Perceptions of Career Readiness Instrument (PCRI)

Subscale	Cronbach's Alpha	Number of Items
Importance and Responsibility to Teach Career Readiness	.92	12
Importance and Responsibility to Teach Employability Skills	.91	12
Favoring the Development of Career Readiness Skills over Academic Skills	.79	3

Scoring Protocol

Each item in the Perceptions of Career Readiness Instrument are scored by the respondents on a 1 to 5 scale ranging from strongly disagree to strongly agree. A calculated mean for each subscale is recommended for scoring this instrument. The resulting values would range from 1.00 to 5.00. For the purpose of interpretation, scale means for Factor 1: IRTES and Factor 3: IRTCR ranging from 1.00 to 2.75 should be interpreted as not viewing the instruction of employability skills or career readiness as being important. Means from 2.76 to 3.50 should be interpreted as neutral, and 3.51 to 5.00 should be interpreted as viewing the instruction of employability skills or career readiness as important. For Factor 2: CR>A, scale means from 1.00 to 3.00 should be interpreted to mean that the teacher values the development of academic skills over career readiness skills. Scale means from 3.00 to 5.00 should be interpreted to mean that the teacher values the development of career readiness skills more than academic skills.

Conclusions/Recommendations/Implications

The purpose of this research was to design and validate an instrument used to measure teachers' perceptions of career readiness as an outcome of secondary education. The results of the EFA provide evidence to support the presence of latent constructs of perceptions of career readiness teachers may possess. The completed and validated instrument can be used to assess teachers' perceptions of career readiness as three interpretable and internally consistent factors: perceptions of IRTCR, IRTES, and CR>A.

The potential applications for this instrument are far-reaching. Policies that push for the development of college and career ready secondary school graduates continue to be developed and adopted (Cushing et al., 2019; English et al., 2017; US Department of Education, n.d.a; US Department of Education, n.d.b). Yet, it is largely unknown how teachers perceive career readiness as an outcome of secondary education. How teachers come to understand and perceive educational policy impacts how they proceed with the implementation of that policy (Spillane et al., 2002). Therefore, it is critical to understand how teachers perceive career readiness because their perceptions can impact their implementation of career readiness policy. However, simply knowing how teachers feel about career readiness does not accomplish anything meaningful. Instead, research should be conducted to determine how teachers' perceptions of career readiness specifically shape their actions and behaviors. This could be accomplished by using the PCRI in a variety of different experiment designs, such as measuring the effectiveness of an intervention to change perceptions of career readiness through a quasi-experimental design. The PCRI could also be combined with other assessment tools to measure the impact of teachers' perceptions on dependent variables, such as instructional decisions, or the impact of independent variables, such as teaching philosophy, on teachers' perceptions of career readiness. In order to fully understand

how to best encourage the development of career ready secondary school graduates, it is necessary to have a more complete picture of the role teachers and their perceptions have in the process.

Knowing that factors such as school policies, professional development, and administrative support have the ability to impact teachers' perceptions (Aldridge & Fraser, 2016, Wang & Degol, 2016), this instrument could be used to evaluate the effectiveness of career readiness policies and leadership involved in the implementation of those policies across the country. There is no clear definition of what it means to be college and/or career ready, which makes effective policy implementation particularly convoluted. Definitions of career readiness and the policies that support its development among secondary school graduates vary across the country (Mishkind, 2014). Using the PCRI to assess teachers' perceptions of career readiness from state to state may lead to the discovery of model states which exemplify implementation of career readiness policy through effective leadership which fosters teacher engagement in the development of career readiness in a way that increases teachers' perceptions of career readiness. Once those exemplary states are identified, examination of their decisions and actions could be used to forge a clearer path forward regarding the meaningful and effective adoption and implementation of career readiness policy nationwide.

At the local level, school districts should use the PCRI to assess teachers' perceptions of career readiness within their school district. The instrument could be used to assess perceptions prior to and after the completion of school sanctioned professional development regarding career readiness. The PCRI could also be used to assess whether or not the school climate truly supports the development of career readiness among its graduates due to the impact school climate has on

teachers' perceptions. As an administrator, the evidence provided by the PCRI could help school districts identify gaps and areas for improvement.

As it currently stands, the PCRI was developed for use with secondary teachers. However, simple alterations of the PCRI may be made to assess how other populations perceive career readiness as an outcome of secondary schools. Understanding how administrators, school counselors, school board members, state and federal lawmakers, employers, parents, and other external stakeholders perceive career readiness has the potential to provide substantial insight to our current understanding of career readiness implementation and acceptance across the country. Alterations which may be necessary to adjust the instrument for a different population are most likely necessary for the questions which were developed to assess personal responsibility in the development of career readiness skills. For example, many of the questions use the words "teach/instruct" and "my class/classroom". Adjustment of those questions to reflect the personal responsibility of the identified population should be achievable. Hypothetically, if the instrument was going to be adjusted for administrators, a question may change from "it is appropriate for me to spend time during my class(es) to instruct career readiness skills" to "it is appropriate for the teachers in my school to spend time during their class(es) to instruct career readiness skills." Upon the adjustment of the instrument, it will be necessary for future researchers to establish new internal consistency coefficients. Expanded use of the instrument in future populations and studies is needed to further validate the instrument.

DeVeliss (2017) recommended shortening the instrument once the subscale alpha levels reach .90, which was achieved in the subscales of perceptions of career readiness and perceptions of skill development. We considered shortening the instrument, but instead decided to publish the entire instrument and allow future users of the instrument to shorten or change the scale as

they see fit. In some cases, individual questions may be revised and prove to be stronger contributors to the instrument during future use. Shortening the instrument from 12 to six questions for Factor 1 and Factor 3 is an option and would still maintain very good construct reliability (greater than .85), should future users of the instrument desire a shorter scale (DeVellis, 2017). Shorter instruments reduce participant fatigue, which is especially important when scales are combined to create extensive instruments used to collect multitudes of data.

There are limitations to the PCRI. Early results show a high-level of agreeance among participants in their support for career readiness and skill development. Thus, establishing the guidelines for interpretation of the scale means as being negative, neutral, and positive was challenging. Continued use of the PCRI will contribute to more accurate guidelines for interpretation of the scale means as it is used in more populations with larger ranges of perceptions. Additionally, though it may be true that the majority of teachers have positive perceptions of career readiness, further refinement of the instrument is recommended to establish its validity. Though the instrument developers sought to create questions with various levels of difficulty, the distribution of responses for individual instrument items tended to cluster between neutral and strongly agree. It appeared that very few items in the scale led to clusters of negative perceptions. More robust statistical analysis may help identify ways to further strengthen and refine the instrument.

Specifically, the subscale of favoring the development of career readiness skills over academic skills could be improved. It was not developed as an a priori construct; it emerged through the factor analysis process. Therefore, there are only three questions within the construct. The overall reliability of the construct could be improved by drafting and testing additional items. Additionally, though the current items do converge into a reliable factor that

seems to have a clear construct definition, additional questions designed with that definition in mind could improve the overall construct. Further, with improved reliability and a clearer definition of the latent variable represented by the construct, the overall interpretability of the construct would be improved.

The PCRI is a unique instrument that has the potential to fill gaps in our understanding of teachers' perceptions of career readiness and how those perceptions impact the implementation of career readiness policy nationwide. Though there are limitations, further use of the PCRI is encouraged by researchers, school leaders, policy makers, and teacher educators as ongoing research using the PCRI is necessary to improve the scale and refine the construct validity.

CHAPTER 5. THE RELATIONSHIP BETWEEN TEACHERS' PERCEPTIONS OF CAREER READINESS AND THEIR INSTRUCTIONAL INTENTIONS

Abstract

The purpose of this study was to examine whether a relationship existed between teachers' perceptions of career readiness and their intention to teach employability skills in their classrooms, which included (a) professionalism and work ethic; (b) teamwork and collaboration; and (c) critical thinking and problem solving. A census survey was sent to middle school and high school teachers in North Dakota during the spring semester to collect information regarding their perceptions of career readiness using the Perceptions of Career Readiness Instrument and their intentions to teach employability skills using the Instructional Intentions Questionnaire. Three multiple linear regression models were tested to measure the effect of perceptions of career readiness on instructional intentions. In all cases, perceptions of career readiness made a significant contribution to teachers' intentions to teach professionalism and work ethic, teamwork and collaboration, and critical thinking and problem solving. The effect of the contribution ranged from 10% to 18%. Thus, future research is recommended to explain what other factors impact teachers' decisions or abilities to teach employability skills.

Introduction

Presently, there are policies in place that support the implementation of employability skill instruction into secondary schools across the United States, including the Every Student Succeeds Act, the Common Core College and Career Readiness Standards (CCR), and Perkins V (Cushing, English, Therriault, & Lavinson, 2019; English, Cushing, Therriault, & Rasmussen, 2017; US Department of Education, n.d.a; US Department of Education, n.d.b). However, policies do not immediately equate to action. Many factors impact the effective implementation

of educational policy (Spillane, Reiser, & Reimer, 2002). Teachers play a key role in the implementation of educational policy because they are responsible for making the daily instructional decisions in their classrooms. Therefore, how teachers come to understand a policy and how they perceive that policy can greatly impact how they implement those policies into their classrooms (Spillane et al., 2002). Consequently, in order to effectively implement policy related to the development and instruction of career readiness among secondary students, it is first important to understand how teachers perceive the idea of career readiness as an outcome of secondary schools.

Review of Literature

Presently, there is a global shortage of qualified employees reported by businesses and organizations of all sizes (Manpower, 2018). Worldwide, 45% of employers have expressed their struggle filling open positions due to a lack of candidates who possess the necessary skills to be successful (Manpower, 2018). Additionally, available jobs continue to evolve, making career preparation a moving target. According to Yang (2013), half of the jobs 2013 did not exist 25 years prior.

To address this challenge, the American educational system has responded by drafting and implementing policies which press for the development of college and career ready graduates. However, definitions of career readiness and plans for implementation vary from state to state (Balestreri, Sambolt, Duhon, Smerdon, & Harris, 2014; Mishkind, 2014). Among leaders within education there is disagreement regarding what students must truly be able to do in order to be career ready. Some educational organizations argue that academic ability is equivalent to career readiness (ACT, Inc., 2018; American Diploma Project [ADP], 2004; Steedle, Radunzel, & Mattern, 2017). Other organizations and experts believe career readiness is broader than

academic skills and includes a wide range of other skills including technical, life-long learning, and employability skills (Association of Career and Technical Education [ACTE], 2019; Balestreri et al., 2014; Conley, 2012). Since leaders within education are unable to clearly define a path towards career readiness, employers' support for the development of employability skills has emerged in recent years.

The importance of employability skills has grown in the 21st century due to the critical role they play in employees' performance in contemporary workplaces. In addition to employability skills (ACTE, 2010), these skills are also referred to as soft skills (Lippman, Ryberg, Carney, & Moore, 2015), transferrable skills, 21st century skills (Partnership for 21st Century Skills, 2019b), professional skills, and non-academic skills, among other names. These skills are often cited as the most sought after by employers due to their critical importance in the contemporary workplaces (ACTE, 2010). Though employers still value employees who possess necessary technical skills, a greater emphasis is being placed on employability skills (Casner-Lotto & Barrington, 2006; Hart Research Associates, 2015; NACE, 2019). Many of the specific employability skills desired by employers and business executives are outlined in Table 5.1.

Table 5.1

Employability Skills Sought by Business and Industry

Skill	Citations
Teamwork	Bunshaft, et al., 2015; Casner-Lotto & Barrington, 2006; Hart Research Associates, 2015; McNamara, 2009; NACE, 2019; Robles, 2012
Communication (written and oral communication)	Bunshaft et al., 2015; Casner-Lotto & Barrington, 2006; Corder & Irlbeck, 2018; Easterly et al., 2017; Hart Research Associates, 2015; NACE, 2019; Robles, 2012
Reliability	Bunshaft et al., 2015
Flexibility	Bunshaft et al., 2015; Robles, 2012
Ethical Decision Making	Hart Research Associates, 2015; McNamara, 2009
Critical Thinking and Problem Solving	Casner-Lotto & Barrington, 2006; Easterly et al., 2017; Hart Research Associates, 2015; McNamara, 2009; NACE, 2019
Integrity and Character	Corder & Irlbeck, 2018; Robles, 2012
Professionalism and Work Ethic	Casner-Lotto & Barrington, 2006; McNamara, 2009; NACE, 2019; Robles, 2012
Interpersonal Skills	McNamara, 2009; Robles, 2012
Responsibility	Landrum, Hettich, & Wilner, 2010; Robles, 2012

Unfortunately, due to challenges associated with the assessment of employability skills (Balestreri et al., 2014; Koppich et al., 2017), secondary schools struggle to provide clear evidence regarding the development of employability skills among graduates. Therefore, the data which exists comes from surveys of employers, indicating a *skills gap* may exist between the needs of employers and the actual employability skills graduates possess (Bunshaft et al, 2015; Casner-Lotto & Barrington, 2006; McNamara, 2009; NACE, 2018). Based upon the perceptions of employers, secondary schools are not adequately preparing their graduates for work, especially in regard to employability skills.

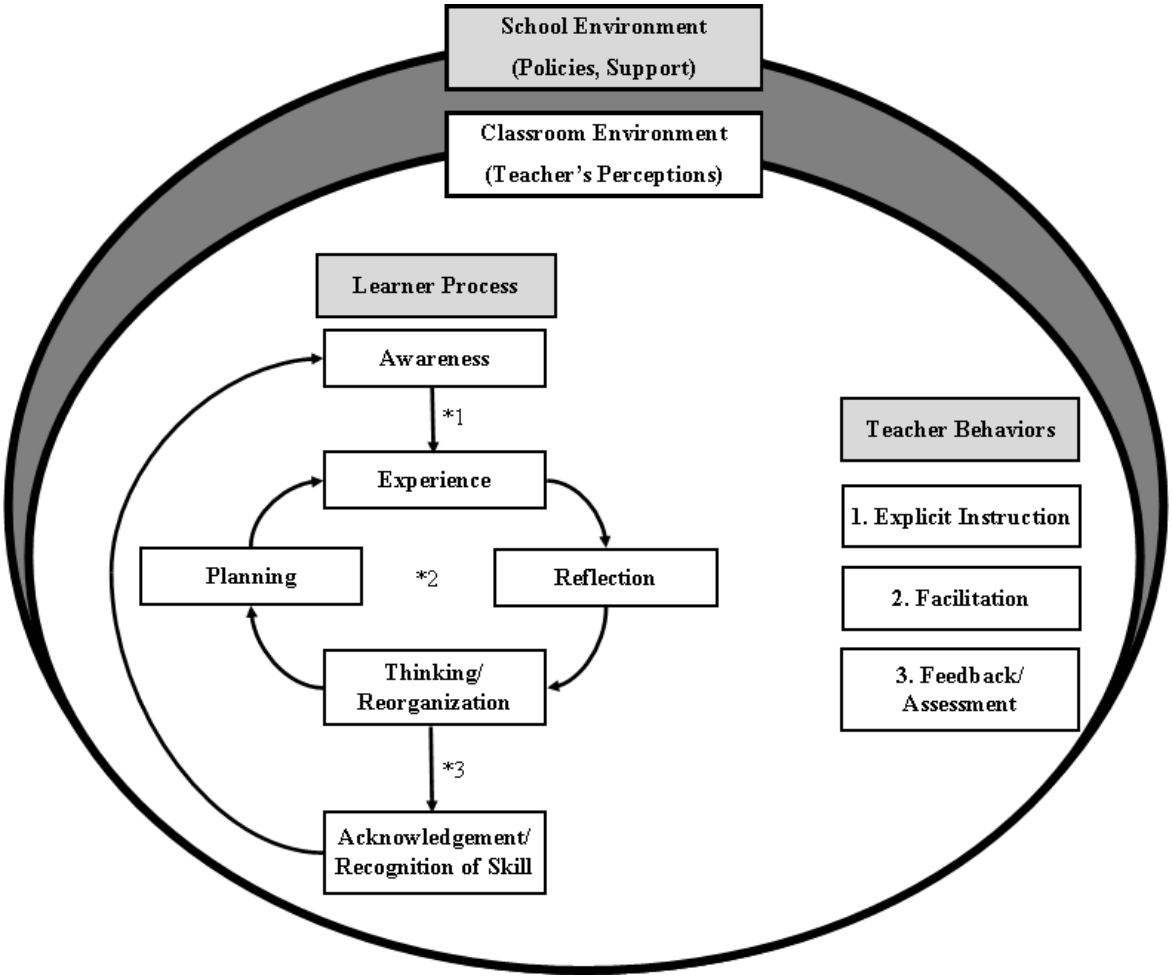
If employability skills are the missing piece of the career readiness puzzle, it can be argued that secondary schools should play a role in the instruction and fostering of those skills. Plausibly, the gap in employability skills among high school graduates may be impacted by the instructional decisions made by their teachers because teachers play an instrumental role in the transformation of educational policy and curriculum expectations into student outcomes (Spillane et al., 2002). Further, teachers' attitudes and perceptions toward employability skills impact whether or not those skills are effectively fostered and developed within the school system (Laroux & Lafleur, 1992). Due to the critical role teachers play in the instruction of employability skills (Jayram & Engmann, 2014; Laroux & Lafleur, 1992), we need to examine if their perceptions of career readiness impact their intentions to teach employability skills. Understanding the relationship between teachers' perceptions of career readiness and their intentions regarding the instruction of employability skills will provide additional clarity to the potential causes of the employer-perceived skill gap

Conceptual Framework

Figure 5.1 is a representation of the conceptual framework which was developed to guide this study using information processing theory (Atkinson & Schifrin, 1968) and experiential learning theory (Kolb, 1984). The framework shows the skill development process a learner goes through to develop a new skill to support their development of career readiness. That process is impacted by teacher's behaviors, specifically explicit instruction, facilitation, and feedback and assessment. The figure acknowledges learning takes place in a classroom environment that is impacted by individual teacher's perceptions. Further, the classroom environment exists within the greater school environment, which is impacted by policies, school leadership, and professional development.

Figure 5.1

Learner Skill Development Model



Note. This model shows the steps a learner would go through to develop a new skill. Teacher behaviors are identified with an *. The model includes a single example of when teacher behaviors could take place within the learner process. However, it is important to note that the location of a teachers' behaviors can take place at many locations throughout the model. The act of learning and teaching is nested within the classroom environment, which is impacted by teachers' perceptions. Additionally, the classroom environment is nested within the larger school environment, which is impacted by policies and support in the form of leadership and professional development training.

Empirical evidence tends to support the use of explicit instruction as the most effective strategy for the development of employability skills among students (Conley, 2007; Conley, 2010; DeHann, 2009; Kriflik & Mullan, 2007; Mason, Williams, & Cranmer, 2009; Riebe,

Roepen, Santarelli, & Marchioro, 2010). Conley (2007, 2010) established that employability skill development happens when students are cognitively engaged and aware of the skill development as it occurs. In line with information processing theory, learners must be made explicitly aware of what they are to learn (Atkinson & Shifrin, 1968). Additionally, facilitation (Hattie, 2003) and feedback and assessment (Hattie, 2003) are critical to the effectiveness of the skill development model. Therefore, learners must be taught how to use a skill, guided through the process by a facilitator who encourages thinking and reflection, and involved in assessment of the skill learned. As noted in Figure 5.1, teachers' behaviors of instruction, facilitation, and feedback and assessment can theoretically take place at multiple places within skill development process. However, a key component of this model is that explicit skill instruction, facilitation, and assessment must take place at some point during the learning process.

In order for learning to be stored in long-term memory, which is what ultimately makes the learning useable in the future, the new information must be meaningful to the learner and they must have had the opportunity to connect their new learning to prior knowledge through the process of elaboration (Lutz & Huitt, 2003). Learners can elaborate when they have the opportunity to think and act at higher levels of engagement (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). When learners engage in a learning exercise which allows them to practice the employability skill in a purposeful manner they may develop that skill more effectively than their peers who receive instruction in a less explicit and purposeful way. DeHann (2009) found that learning the skills of creativity and critical thinking was more likely when learners were given opportunities to explicitly practice and develop those skills. That assertion is also guided by Kolb's Experiential Learning theory (1984), which involves a four-cycle process of learning including a concrete experience, reflective observation, abstract conceptualization, and active

experimentation. Within the context of a classroom learning activity, students would be engaged in practice during the concrete experience. The inclusion of purposeful focus on employability skill development would require a learner to participate in reflection and deeper thinking. Often, this stage requires teacher facilitation to draw learners' attention to the specific skill development. As learners recognize the development of employability skills, they engage in analysis and assessment, a higher-order thinking practice, which leads to long-term memory storage of the new information about that skill. At this point, learners acknowledge and recognize their current level of skill development. If they recognize a gap in their abilities and a need for growth, they may be motivated to seek more instruction, either formally or informally, to further develop that skill. Even if a learner is confident in their abilities and perceives a high-level of ability, they may still be motivated to further develop their skills and seek more experiences which allow them to continue to develop that skill.

The entire skill development model is nested within the school environment and classroom environment, indicating that before any skill development can take place, the environment must be conducive to the instruction. School policies, available professional development, and administrative support are all factors which impact school climate (Aldridge & Fraser, 2016, Wang & Degol, 2016). Other factors which impact the school environment include school size (Cotton, 1996) and socioeconomic status of the school (Perry, 2012). The environment of the school has the potential to impact a teacher's perceptions and consequently their instructional intentions (Aldridge & Fraser, 2016; Wang & Degol, 2016). At the same time, the classroom environment, which is greatly influenced by the teacher's perceptions, beliefs, and instructional priorities, may also impact a teacher's instructional intentions (Deemer, 2004). The perceptions which ultimately define a teacher's classroom environment may be impacted by their

years of experience and age (Hammerness et al., 2005), primary content area taught (ACTE, 2020), and method of earning their teaching license (Mackelvie & Varrato, 2017).

Purpose and Objectives

The purpose of this study was to describe secondary teachers' perceptions of career readiness and their intentions to teach employability skills in the secondary classroom. Further, the study sought to examine if there was a relationship between teachers' perceptions of career readiness and their intentions related to the instruction of employability skills in the secondary classroom. To guide these purposes, the following research objectives were developed.

1. Describe teachers' perceptions of career readiness as a student educational outcome of public K-12 schools and teachers' intentions to teach employability skills in the secondary classroom.
2. Determine the relationship between teachers' perceptions of career readiness and their intentions to the employability skills of professionalism and work ethic, teamwork and collaboration, and critical thinking and problem solving in the classroom.

Methods

This descriptive relational study investigated the relationship between the independent variables of teachers' perceptions of career readiness expressed using the following constructs: focus on skills, a focus on career readiness, and valuing career readiness more than academics, and the dependent variables of teachers' intentions to teach professionalism and work ethic, teamwork and collaboration, and critical thinking and problem solving in their classrooms. The study included all middle and high school classroom teachers (grades six through 12) in the state of North Dakota in the identified population, which was estimated to be 3,820 (N) teachers based upon information received from the North Dakota Department of Public Instruction (DPI,

2019c). Establishing a clear sampling frame and exact population total was complicated by many factors, including schools not being required to report what grade specific licensed teachers taught to DPI, data being collected from schools during the fall semester but not during the spring semester, the list of licensed educators not differentiating between classroom teachers and licensed administrators or school support staff, and some schools considering sixth grade to be middle school and others considering sixth grade to be middle school. Therefore, the researchers had to estimate how many teachers would identify themselves as middle and high school classroom teachers since the data was not clearly available. Demographic data, teachers' perceptions of career readiness, and teachers' intentions to teach employability skills in their classrooms was collected through a questionnaire on Qualtrics that was delivered to participants via email. Because the study only collected data at one point in time, the study followed a one-measurement cross-sectional survey design (Cohen, Manion, & Morrison, 2011).

Data was collected via email using a census of all licensed teachers in the state of North Dakota during the second semester of the school year. Teachers who identified themselves as secondary teachers were invited to opt into the study and complete the questionnaire. The data collection period was left open for 16 days and one follow-up email reminder was sent one week after the initial invitation to participate. At the conclusion of the collection window, non-respondents were not followed up on. Nonresponse bias was evaluated by comparing early respondents to late respondents. The first 250 respondents were compared to the last 250 respondents using an independent samples *t*-test. Prior to running the t-test, the data was trimmed to remove any perfect scores (means of 5.00 or 1.00) (Field, 2013). The independent samples *t*-test indicated there were no significant differences between the group of early respondents and

late respondents, reducing the concern of nonresponse bias and ensuring the generalizability of the results of this study to the population of secondary teachers in North Dakota.

A total of 1,689 surveys were completed (N = 1,689), achieving a 44% response rate. Questionnaires were checked for errors, outliers, and response set. Two surveys were removed for response set and 480(n) surveys were considered incomplete and removed from the data set. Therefore, the total number of useable surveys was N = 1,209, which accounted for approximately 32% of the secondary teacher population.

Instrument

The Perceptions of Career Readiness Instrument (PCRI) and Instructional Intentions Questionnaire (IIQ) were developed by the researcher specifically for this study. The PCRI was developed using the guidance of currently accepted definitions of career readiness, which include the development of employability skills as an expectation of career readiness (Association for Career and Technical Education [ACTE], 2010; Conley, 2012; Mishkind, 2014). The IIQ was developed in order to assess teachers' intentions to teach employability skills to their students. Using literature, the top four employability skills sought by employers (communication, teamwork and collaboration, critical thinking and problem solving, and professionalism and work ethic) were used to develop the instrument (Casner-Lotto & Barrington, 2006; NACE, 2019). The items were inductively developed by the researcher using the employability skill standards included in the P21 Framework Definitions (Partnership for 21st Century Learning, 2019a) and guided by the teacher instructional behaviors in the proposed Skill Development Model (Figure 5.1).

Seven experts (n = 7) reviewed the instrument for content validity. Five of the experts were faculty members within education with experience in psychometric instrument

development, two of whom also had experience as secondary school teachers, which allowed them to provide feedback specifically related to the content of the instrument. Additionally, two secondary teachers reviewed the instrument for readability. Adjustments were made to the final instrument based upon feedback from the experts.

Exploratory factor analysis (EFA) using principal axis factoring (Field, 2013) was used to establish the reliability of the instruments. After the conclusion of the EFA, three constructs emerged for the PCRI. Those constructs were perceptions of career readiness as: (a) focus on career readiness (FCR); (b) focus on skill development (FSD); and (c) valuing career readiness over academics (CR>A). The overall instrument reliability was $\alpha = .944$.

Using the same EFA process as the PCRI, three constructs also emerged for the IIQ after the EFA was completed. Those constructs were: (a) intentions to teach teamwork and collaboration; (b) intentions to teach professionalism and work ethic; and (c) intentions to teach critical thinking and problem solving. The overall instrument reliability was $\alpha = .935$. Final construct reliabilities for both instruments can be found in Table 5.2.

The final Perceptions of Career Readiness Instrument included 27 Likert-style questions that included the following descriptors with the five-point scale: 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree/disagree*), 4 (*agree*), and 5 (*strongly agree*). The final Instructional Intentions Questionnaire included 24 questions that started with the statement "When teaching, it is my intention to…" A five-point Likert scale and descriptors were used for responding and included: 1 (*never*), 2 (*rarely*), 3 (*occasionally*), 4 (*often*), and 5 (*daily*). Within the questionnaire, rarely was defined as accounting for less than 10% of the time in the classroom and often was defined as more than 50% of the time in the classroom to provide additional context to the responses.

Table 5.2

Final Construct Reliability for Constructs included in the Perceptions of Career Readiness Instrument (PCRI) and the Instructional Intentions Questionnaire (IIQ)

Subscale	Cronbach's Alpha	Number of Items
Focus on Career Readiness	.915	12
Focus on Skill Development	.911	12
Perceived Value of Career Readiness Over Academics	.789	3
Intention to Teach Teamwork/Collaboration	.906	9
Intention to Teach Professionalism/Work Ethic	.873	10
Intention to Teach Critical Thinking/Problem Solving	.820	5

Additionally, five demographic questions were included in the questionnaire to better understand the respondents. Those items included the teachers' years of experience, content area taught, method of earning teaching licensure, student population size of their school, and percentage of free and reduced-price lunch as a measure of socioeconomic status. The inclusion of demographic variables was supported by previous research (Aldridge & Fraser, 2016; Association of Career and Technical Education [ACTE], 2020; Beauchamp & Thomas, 2009; Cotton, 1996; Hammerness et al., 2005; Mackelvie & Varrato, 2017; Perry, 2012).

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) software version 26. Scale means were calculated for each participant for the three subscales of perceptions of career readiness and the three factors of intentions to teach employability skills. Descriptive statistics were run to gather the means, medians, modes, standard deviations, and ranges of the independent and dependent variables. The data were checked for errors, outliers, and the necessary assumptions for regression were assessed. Multiple regression analysis was

then performed to assess the relationship between the dependent variables of intention to teach teamwork and collaboration, intention to teach critical thinking and problem solving, and intention to teach professionalism and work ethic and the independent variables of perception career readiness as a focus on career readiness (FCR), a focus on skill development (FSD), and valuing career readiness over academics (CR>A).

The hypotheses for the regression analyses were:

Professionalism and Work Ethic

H_0: Teachers' perceptions of career readiness did not explain a significant ($p > 05$) proportion of variance in teachers' intentions to teach professionalism and work ethic in the classroom. ($R^2 = 0$)

H_1: Teachers' perceptions of career readiness did explain a significant ($p < .05$) proportion of variance in teachers' intentions to teach professionalism and work ethic in the classroom. ($R^2 \neq 0$)

Teamwork and Collaboration

H_0: Teachers' perceptions of career readiness did not explain a significant ($p > 05$) proportion of variance in teachers' intentions to teach teamwork and collaboration in the classroom. ($R^2 = 0$)

H_1: Teachers' perceptions of career readiness did explain a significant ($p < .05$) proportion of variance in teachers' intentions to teach teamwork and collaboration in the classroom. ($R^2 \neq 0$)

Critical Thinking and Problem Solving

H_0: Teachers' perceptions of career readiness did not explain a significant ($p > 05$) proportion of variance in teachers' intentions to teach critical thinking and problem solving in the classroom. ($R^2 = 0$)

H_1: Teachers' perceptions of career readiness did explain a significant ($p < .05$) proportion of variance in teachers' intentions to teach critical thinking and problem solving in the classroom. ($R^2 \neq 0$)

Assumptions

Based upon the recommendations of Field (2013) and Lomax and Hahs-Vaughn (2012), the data were checked for assumptions including additivity and linearity, independent errors, homogeneity of variance, normality, noncollinearity, non-zero variance, and variable type. The appropriate assumptions were met for regression analysis as detailed here.

First, variable type was determined to be appropriate for multiple linear regression because both the independent and dependent variables were interval data (Field, 2013). Further, the outcome variable was "unbounded," meaning there were no constraints on the variability of the dependent variable (Field, 2013, p. 312). Additionally, evaluation of the data set confirmed the non-zero variance assumption as none of the predicted values had variances equal to zero.

Additivity and linearity were assessed by inspecting the scatterplots of the independent variables of perceptions of career readiness (all three constructs) versus the dependent variables of intentions to teach employability skills (all three constructs). In general, it was determined there was no systematic pattern of points in the scatterplots and as the values of the independent variables increased, the values of the dependent variables also typically increased. Therefore, linearity was confirmed.

The assumption of independent errors was assessed by examining the residual plots of the standardized residuals and the standardized predicted values of the dependent variables. In all cases, the random display of points on the scatterplot indicated evidence of independence. To further confirm independence of errors, the Durbin-Watson statistic was also computed. Results of the Durbin-Watson test are in Table 5.3. All values are considered acceptable as they fall within the range of 1.0 to 3.0 and are close to the value of 2.0 (Field, 2013).

Table 5.3

*Durbin-Watson Statistic for Independent Errors for Instructional Intentions Variables (*N = *1,209)*

Variables	Durbin-Watson Statistic
Professionalism and Work Ethic	1.93
Teamwork and Collaboration	1.94
Critical Thinking and Problem Solving	1.91

Homogeneity of variance was assessed using scatterplots. Three types of scatterplots were graphed to assess homogeneity of variance. Field (2013) recommended plotting standardized residuals against standardized predicted values for each of the dependent variables. This was done for each of the dependent variables of professionalism and work ethic, teamwork and collaboration, and critical thinking and problem solving. Lomax and Hahs-Vaughn (2012) recommended graphing two additional scatterplots. The first scatterplot should graph the studentized residuals against unstandardized predicted values for each dependent variable and the second scatterplot should graph the studentized residuals of each dependent variable against each independent variable. In all cases, the data points appeared to be randomly scattered across the graphs. Therefore, the assumption of homogeneity of variance was confirmed.

Normality was assessed by examining the distribution of the unstandardized residuals (Field, 2013; Lomax & Hahs-Vaughn, 2012). Due to the large sample size, the Shapiro-Welk test

for normality was not used due to its lack of reliability with large samples (Field, 2013). However, the skewness and kurtosis statistics, though there is slight negative skew for teamwork and critical thinking and kurtosis is slightly positive for teamwork, indicate normality could be reasonably assumed because all values fall within the absolute value range of 2.0 (Lomax & Hahs-Vaughn, 2012). The skewness and kurtosis statistics and their standard errors can be found in Table 5.4.

Table 5.4

*Assumptions of Normality Statistics for the Dependent Variables (*N *= 1,209)*

	Skewness	*SE* of Skewness	Kurtosis	*SE* of Kurtosis	Cook's Distance
Professionalism and Work Ethic	-0.28	0.07	-0.34	.14	1.93
Teamwork and Collaboration	-0.55	0.07	0.46	.14	1.94
Critical Thinking and Problem Solving	-0.40	0.07	0.13	.14	1.91

Further, the Q-Q plots, P-P plots, boxplots, and histograms for all three dependent variables appeared to have normal distributional shape (Field, 2013). Though there were outliers identified through the boxplots and identified as being greater than three standard deviations from the predicted value, all outliers were checked individually. Those that were not true outliers (response set) were removed from the data set (n = 2). All other outliers were determined to be true outliers and kept in the data set. Additionally, inspection of the maximum Cook's Distance was found to be =.095 for the dependent variable of professionalism, =.026 for the dependent variable of teamwork, and =.035 for the dependent variable of critical thinking, which is well below the value of 1.0, the point at which concern should be raised (Field, 2013; Lomax & Hahs-Vaughn, 2012). The values of Cook's Distance for each dependent variable can be found in Table 4. Mahalanobis distances were also checked and a number of cases were found to be larger

than the accepted critical value of $z(3)=7.81$ at the desired alpha level of $p = .05$ (Field, 2013; Lomax & Hahs-Vaughn, 2012). There were 59 cases with values greater than 7.81 for the independent variables of FCR, FSD, and CR>A. Though in many instances the removal of those cases would have led to an improved predictive model, there was no theoretical justification for the removal of those cases. The contribution of those cases to the outcomes of this study were determined to be too important to remove based solely upon Mahalanobis distance.

The final assumption that must be met for multiple linear regression is noncollinearity. Noncollinearity can be assumed when tolerance values are greater than .10 and the variance inflation factor (VIF) statistics are less than 10 and the average VIF is not substantially different than 1 (Field, 2013). The tolerance value for the independent variable of FCR was 0.35 and the VIF was 2.82. For the independent variable of FSD, the tolerance value was 0.38 and the VIF was 2.62. The tolerance value for the independent variable of CR>A was 0.69 and the VIF was 1.45. In all cases, the statistics fell within the accepted values and thus, noncollinearity could be safely assumed.

Regression Analysis

Correlational and regression analysis was completed to develop three predictive models, including one for each dependent variable (intentions to teach professionalism/work ethic, teamwork/collaboration, and critical thinking/problem solving) and the independent variables of perceptions of career readiness including FCR, FSD, and CR>A. The method of multiple linear regression selected for this study was forced entry, when all of the independent variables were forced into the regression model at the same time (Field, 2013). Because there was no theoretical reason to enter one predictor before another, forced entry was chosen because it does not prioritize one variable over another, such as with hierarchical multiple regression (Field, 2013).

Description of Respondents

A demographic description of respondents can be found in Table 5.5.

Table 5.5

*Demographic Characteristics of Participating Teachers (*N *= 1,209)*

Variable	*n*	%
Years of Experience		
0-5 years	276	22.8
6-10 years	262	21.7
11-15 years	167	13.8
16-20 years	150	12.4
21-25 years	117	9.7
26-30 years	110	9.1
31 of more years	126	10.4
Missing	1	0.1
Content Specialty		
Core Academics	701	58.0
CTE	242	20.0
Special Education	86	7.1
Other/Elective	180	14.9
Licensure		
Traditional Licensure	1,130	90.1
Alternative Licensure	75	5.9
Missing	4	0.3

Almost half of the respondents were early career teachers with zero to five years of teaching experience (*n* = 276, 22.8%) and six to ten years of teaching experience (*n* = 262, 21.7%). The other half of the respondents ranged from 11 to 15 years of teaching experience (*n* = 167, 13.8%) to 31 or more years of teaching experience (*n* = 126, 10.4%). The majority of respondents taught core academic courses, including English Language Arts, math, science, or social studies (*n* = 701, 58%). The second largest group of respondents were Career and Technical Education teachers (*n* = 242, 20%). Teachers who taught any courses other than core academic courses, CTE courses, or special education courses were placed in a group together referred to as other/elective (*n* = 180, 14.9%). There were also *n* = 86 special education teachers

who completed the survey (7.1%). An overwhelming majority of teachers in the sample earned their teaching license through a traditional teacher education program (*n* = 1,130, 90.1%).

In regard to school demographics, a third of respondents taught in schools that had more than 900 students in middle school and high school combined (*n* = 402, 33.3%). Based upon school size, the rest of the respondents were fairly evenly distributed among the other groups with the smallest group of respondents being teachers who worked in schools with 1 to 100 students in middle school and high school (*n* = 165, 13.6%). Socioeconomic status of the school district was collected by asking teachers what percentage of the students in their schools received free and reduced-price lunch. The largest group of respondents indicated they taught in schools where 26 to 40% of students in their schools received free and reduced-price lunch (*n* = 305, 25.2%). The small group of respondents were from schools that had fewer than 10% of students receiving free and reduced-price lunch (*n* = 77, 6.4%). Table 5.6 includes demographic data about the schools.

Table 5.6

*Demographic Characteristics of Schools (*N *= 1,209)*

Variable	*n*	%
School Size		
1-100 students	165	13.6
101-200 students	217	17.9
201-399 students	215	17.8
400-900 students	206	17.0
901 or more students	402	33.3
Missing	4	0.3
School Socioeconomic Status		
Fewer than 10% free and reduced-price lunch	77	6.4
11-25% free and reduced-price lunch	284	23.5
26-40% free and reduced-price lunch	305	25.2
Greater than 41% free and reduced-price lunch	240	19.9
Unsure	299	24.7
Missing	4	0.3

Findings

Objective One

Objective one was to describe teachers' current perceptions of career readiness as a defined by the three identified constructs of career readiness. In general, middle and high school classroom teachers in North Dakota had positive perceptions of career readiness for both constructs of FCR (*M* = 4.18, *SD* = .53) and FSD (*M* = 4.38, *SD* = .43). Teachers perceptions of career readiness for the construct CR>A were not as positive (3.46, *SD* = .88). On the scale of responses, a score of three included the descriptor of neither agree or disagree. Therefore, teachers in North Dakota tend to lean slightly towards favoring a focus on the development of career readiness skills over academic skills. Table 5.7 includes details about teachers' perceptions of career readiness, including the range of scores, means, medians, modes, and standard deviations.

Table 5.7

*Descriptive Statistics of Teachers' Perceptions of Career Readiness (*N *= 1,209)*

					Range	
Career Readiness Construct	*M*	*Mdn*	Mode	*SD*	Min	Max
Focus on Skills	4.38	4.33	5.00	0.43	2.42	5.00
Focus on Career Readiness	4.18	4.17	5.00	0.53	1.50	5.00
Career Readiness > Academics	3.46	3.33	3.00	0.88	1.00	5.00

Note. The PCRI used a 5-point Likert scale using the descriptors 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree or disagree*), 4 (*agree*), and 5 (*strongly agree*).

Additionally, objective one sought to describe teachers' intentions to teach employability skills, which included intentions to teach professionalism and work ethic, teamwork and collaboration, and critical thinking and problem solving. The IIQ used a 5-point Likert scale using the descriptors 1 (*never*), 2 (*rarely*), 3 (*occasionally*), 4 (*often*), and 5 (*daily*). The average participant intended to teach professionalism and work ethic occasionally to often (*M* = 3.81, *SD*

= .61), teamwork and collaboration occasionally to often (*M* = 3.58, *SD* = .66), and critical thinking occasionally to often (*M* = 3.92, *SD* = .60). Table 5.8 includes details about teachers' intentions to teach employability skills, including the range of scores, means, medians, modes, and standard deviations.

Table 5.8

*Descriptive Statistics of Teachers' Instructional Intentions (*N *= 1,209)*

					Range	
Instructional Intentions Constructs	*M*	*Mdn*	Mode	*SD*	Min	Max
Professionalism and Work Ethic	3.81	3.80	3.80	0.61	2.00	5.00
Teamwork and Collaboration	3.58	3.67	4.00	0.66	1.00	5.00
Critical Thinking and Problem Solving	3.92	4.00	4.00	0.60	1.80	5.00

Note. The IIQ used a 5-point Likert scale using the descriptors 1 (*never*), 2 (*rarely*), 3 (*occasionally*), 4 (*often*), and 5 (*daily*).

Objective Two

Objective two was to determine if the three factors of teachers' perceptions of career readiness (FCR, FSD, and CR>A) could predict their intentions to teach employability skills (professionalism and work ethic, teamwork and collaboration, and critical thinking and problem solving). To test the null hypotheses (H_0), that the multiple coefficients of determination (R^2) were 0, three multiple linear regression models were analyzed. Statistics calculated and reported for each analysis and regression model included: unstandardized regression coefficient (*b*), standard error for the unstandardized regression coefficient (*SE*), standardized regression coefficient (*b**), 95% confidence intervals, *t*-test statistic (*t*), significance (*p*), *F* statistic with degrees of freedom (*df*), correlation coefficient (*R*), multiple coefficient of determination (R^2), and the adjusted multiple coefficient of determination (R^2_{adj}). Effect size was interpreted using Cohen's (1988) standards for R^2: small = 0.1, medium = 0.3, and large = 0.5.

Professionalism and Work Ethic Regression

The results of the multiple linear regression (Table 5.9) suggest that a significant proportion of the total variation in intentions to teach professionalism and work ethic was predicted by the three constructs of perceptions of career readiness, $F(3, 1205) = 70.468$, $p < .001$. Additionally, the predictors of FCR, FSD, and CR>A all made significant contributions to predicting the outcome of intention to teach professionalism and work ethic. FCR produced the greatest contribution to the model $t(1205) = 4.72$, $p < .001$. CR>A made the next significant contribution to the model $t(1205) = 4.01$, $p < .001$, followed by the contribution made by FSD $t(1205) = 2.44$, $p = .015$. Contribution to the model can be measured by the size of the *t*-test statistic and *p*-value (Field, 2013). Together, the independent variables of perceptions of career readiness accounted for 15% ($R^2_{adj} = .15$) of the variance in teachers' intentions to teach professionalism and work ethic, which amounts to a small effect (Cohen, 1988).

Table 5.9

*Multiple-Regression of Perceptions of Career Readiness on Instructional Intentions regarding Professionalism and Work Ethic (*N *= 1,209)*

Instructional Intentions	*b*	*SE*	*b**	95% CI	*t*	*p*	*F*(*df*)
Professionalism and Work Ethic Model							70.47(3, 1205)*
Constant	1.86	0.17		1.53, 2.18	11.21	.000	
FCR	0.24	0.05	.211	0.14, 0.34	4.72	.000	
FSD	0.15	0.06	.105	0.03, 0.27	2.44	.015	
CR>A	0.09	0.13	.128	0.05, 0.13	4.01	.000	

Note. *$p<.05$, Model: $R = .39$, $R^2 = .15$, $R^2_{adj} = .15$, $p = .000$, FCR= Focus on Career Readiness, FSD= Focus on Skill Development, CR>A= Valuing Career Readiness over Academics

Teamwork and Collaboration Regression

The results of the multiple linear regression (Table 5.10) suggest that a significant proportion of the total variation in intentions to teach teamwork and collaboration was predicted by the three constructs of perceptions of career readiness, $F(3, 1205) = 86.94$, $p < .001$. Two

predictors, FSD and CR>A, made significant contributions to predicting the outcome of intention to teach teamwork and collaboration. CR>A made the largest significant contribution to the model $t(1205) = 7.47$, $p < .001$, followed by the contribution made by FSD $t(1205) = 5.15$, $p < .001$. The contribution of FCR was not statistically significant $t(1205) = 0.88$, $p = .380$. Together, the independent variables of perceptions of career readiness accounted for 18% ($R^2_{adj} = .18$) of the variance in teachers' intentions to teach teamwork and collaboration, which amounts to a small overall effect (Cohen, 1988).

Table 5.10

*Multiple-Regression of Perceptions of Career Readiness on Instructional Intentions regarding Teamwork and Collaboration (*N *= 1,209)*

Instructional Intentions	*b*	*SE*	*b**	95% CI	*t*	*p*	*F*(*df*)
Teamwork and Collaboration Model							86.94(3, 1205)*
Constant	1.30	0.18		0.96, 1.65	7.31	.000	
FCR	0.05	0.05	.039	0.21, 0.46	0.88	.380	
FSD	0.34	0.07	.218	0.13, 0.22	5.15	.000	
CR>A	0.18	0.02	.235	-0.06, 0.15	7.47	.000	

*Note.**p<.05, Model: $R = .42$, $R^2 = .18$, $R^2_{adj} = .18$, p =.000, FCR= Focus on Career Readiness, FSD= Focus on Skill Development, CR>A= Valuing Career Readiness over Academics

Critical Thinking and Problem-Solving Regression

The results of the multiple linear regression (Table 5.11) suggest that a significant proportion of the total variation in intentions to teach critical thinking and problem solving was predicted by the three constructs of perceptions of career readiness, $F(3, 1205) = 46.03$, $p < .001$. The only significant predictor for the outcome of intention to teach teamwork and collaboration was FSD $t(1205) = 5.51$, $p < .001$. Neither the predictor of FCR $t(1205) = 1.13$, $p = .258$ or CR>A $t(1205) = 1.79$, $p = .073$ made significant contributions to the model. Considered together, the independent variables of perceptions of career readiness accounted for 10% ($R^2_{adj} = .10$) of

the variance in teachers' intentions to teach critical thinking and problem solving, amounting to a small effect (Cohen, 1988).

Table 5.11

*Multiple-Regression of Perceptions of Career Readiness on Instructional Intentions regarding Critical Thinking and Problem-Solving (*N= *1,209)*

Instructional Intentions	*b*	*SE*	*b**	95% CI	*t*	*p*	*F*(*df*)
Critical Thinking and Problem Solving Model							46.03(3, 1205)*
Constant	2.06	0.17		1.73, 2.39	12.27	.000	
FCR	0.06	0.05	.052	-0.04, 0.16	1.13	.258	
FSD	0.34	0.06	.244	0.22, 0.46	5.51	.000	
CR>A	0.40	0.02	.052	-0.00, 0.08	1.79	.073	

Note. *p<.05, Model: R = .32, R^2 = .10, R^2_{adj} = .10, p = .000, FCR= Focus on Career Readiness, FSD= Focus on Skill Development, C>A= Valuing Career Readiness over Academics

Conclusions/Recommendations/Implications

The purpose of this study was to examine how teachers' perceptions of career readiness impacted their intentions related to the instruction of employability skills in the secondary classroom. Based upon the findings of the multiple linear regression models, teachers' perceptions of career readiness can predict some of their intentions to teach employability skills in the classroom. Though the predictors only contributed between 10 to 18% of the variability in teachers' intentions to teach employability skills, the effect was still a notable small effect based upon the suggestions of Cohen (1988). These findings support previous literature and adds to the body of understanding that teachers' perceptions influence the instructional decisions they make (Deemer, 2004; Jayram & Engmann, 2014; Laroux & Lafleur, 1992; Spillane et al., 2002). A limitation of this study was that the data was collected during the 2020 COVID-19 pandemic. Though the response rate may have been higher due to teachers having easy access to their computers, it is possible that some teachers' perceptions and intentions were impacted based upon the distance learning environment many were thrown into unexpectedly.

For the purpose of predicting teachers' intentions to teach employability skills, the current models examined within this study are incomplete. The predictors of FSD, FCR, and CR>A predicted 10 to 18% of the total variance within the models. That leaves 82 to 90% of the variance unaccounted for within the regression models. Extant literature acknowledges that teacher demographic characteristics such as years of teaching experience, the content area they teach, and their formal and informal training impact teachers' perceptions, which could ultimately contribute to their intentions to teach employability skills (ACTE, 2020; Hammerness et al., 2005; Mackelvie & Varrato, 2017). Additionally, school climate, which is impacted by policies in place, professional development, administrative leadership, school size, and socioeconomic status of the school, also influences teachers' perceptions and consequently their instructional intentions (Aldridge & Fraser, 2016; Cotton, 1996; Perry, 2012; Wang & Degol, 2016). A more complete predictive model should include data which reflect those identified teacher and school demographic characteristics to assess how demographic characteristics impact teachers' intentions to teach employability skills. Depending on the purpose of future research studies, future predictive models could be more complex multiple regression models or structural equation models. Because the primary purpose of this study was to understand the influence of teachers' perceptions of career readiness on their intentions to teach employability skills, the model developed, though simple, was determined to be acceptable in addressing the primary questions at hand. According to the developed models, teachers' perceptions of career readiness do influence and predict some amount of teachers' intentions to teach employability skills.

An implication of discovering teachers' perceptions of career readiness impact their intentions to teach employability skills is acknowledgement that teachers' perceptions of career readiness need to be considered when moving forward with the implementation of career

readiness policies and instruction at the secondary school level. This is particularly important for school leaders and policy makers to be aware of as they make decisions which directly affect the work of teachers. In general, teachers' perceptions have been found to be influenced by school climate, which is affected by policies in place, school leadership, and professional development (Aldridge & Fraser, 2016; Wang & Degol, 2016). Therefore, teachers' perception of career readiness could be positively impacted by school policies which support the implementation and assessment of employability skills, the expansion of professional development which supports the instruction of employability skills, and consistent, supportive messaging from school leadership. Intentionally nurturing a school climate which supports and values the fostering of career readiness among secondary school graduates could result in increasing teachers' overall intentions to teach employability skills. Hopefully, increased intentions to teach employability skills leads to actual increased instruction and assessment of skill development in the classroom.

Additionally, understanding the role teachers' perceptions of career readiness have in directing teachers' instructional decisions is important for teacher education programs to understand as well. In order to positively impact pre-service teachers' perceptions of career readiness, it is essential that teacher education programs support the instruction and assessment of employability skills as an important part of the secondary school curriculum. Drawing attention to the importance of the skill development is an important first step towards the implementation of employability skill development in the classroom. Taking the time to explicitly teach pre-service teachers how to teach skills outside of their direct content area should help them feel more confident in their ability to teach employability skills in their future classrooms. Further, providing pre-service teachers with instruction regarding effective teaching strategies for the development of teamwork, critical thinking, and professionalism should serve

to positively impact pre-service teachers' perceptions of employability skills, which should in turn positively impact their intentions to teach employability skills as well.

We do acknowledge that intention and action are not equivalent. In regard to the instruction of the three employability skills that were the focus of this study, most teachers intended to teach those skills occasionally to often (between 10% and 50% of the time). For the purpose of this study, intention was selected because observations to measure action were not feasible for a sample size this large. However, in order to understand what may be causing the perceived employability skill gap among secondary school graduates, it is critical to observe how teachers are actually teaching these skills in their classrooms and then determine if those teaching strategies are effective by assessing student outcomes. In order to assess student outcomes, a useful assessment will need to be developed to measure employability skill development. Once effective teaching strategies are identified, teachers can be trained on how to teach employability skills to their students, which should contribute to the further development of career ready graduates. Future research should continue in the area of employability skill assessment and effective teaching methods.

In general, teachers had positive perceptions of the career readiness, especially related to the subscales of focus on career readiness and focus on skill development. This was evident by the scale means above 4.00 on a 1.00 to 5.00 scale, but also by the fact that the modes for both FCR and FSD were 5.00, meaning that the most common scale average for participants was a perfect 5.00 or strongly agree with the constructs of FSD and FCR. However, teachers' perceptions of valuing career readiness over academics were not as positive, and instead were between neutral and agree. The mode for CR>A was 3.00, indicating the majority of participants had more neutral perceptions of CR>A than FSD and FCR. Though a few teacher outliers who

had very negative perceptions existed, it can comfortably be stated that teachers, in general, seem to be in favor of fostering the development of career readiness and employability skills among secondary students. However, it is less clear whether that instruction should be at the expense of the instruction of academic content, based upon teachers' perceptions of valuing career readiness over academics. The interpretation could be made clearer by improving the subscale used to assess teachers' perceptions of valuing career readiness over academics. Questions in the instrument intended to assess if teachers valued career readiness over academics included "it is more important that public schools teach career readiness skills than academic standards" and "if my students are career ready when they graduate, I have succeeded at my job." The valuing career readiness over academics subscale was not drafted as an a priori construct. It emerged as a result of the EFA and only included three items, compared to the 12 items in the other subscales. To truly understand if teachers perceive career readiness to be more important than academics, this factor could be made more robust by drafting and testing additional questions which intend to measure the underlying construct of valuing career readiness over academics. A more reliable and robust subscale could provide a more accurate picture of how teachers perceive career readiness in relation to the importance of academics.

Knowing that teachers agree that career readiness and employability skill development are important, it is important to investigate what other factors may be causing the perceived employability skill gap identified by employers. The perceived gap may be rooted in misunderstanding and ambiguous communication. When the IIQ was originally drafted, four employability skills were selected and included based upon lists of the most sought-after skills by employers (Casner-Lotto & Barrington, 2006; NACE, 2019). Of the four employability skills identified for the preliminary IIQ, only professionalism and work ethic are not also considered

one of the Four C's of education. According to the National Education Association (2012), the Four C's of education, which include communication, creativity, collaboration, and critical thinking, are a condensed version of the eighteen 21st century skills identified by the Partnership for 21st Century Learning. Since 2012, the Four C's have been heavily publicized as the focus of many initiatives and conversations within education (National Education Association [NEA], 2012). Based upon the results of the regression models, there appears to be a difference in how respondents perceive the constructs of professionalism/work ethic and teamwork/collaboration and critical thinking/problem-solving. FSD made the only significant contribution to the critical thinking and problem-solving model and FSD made a significant contribution to the teamwork and collaboration model. Even though FSD made a significant contribution to the professionalism and work ethic model, it was much smaller than the contribution FCR made to the model. FCR, on the other hand, did not make a significant contribution to either the teamwork and collaboration model or the critical thinking and problem-solving model. Instead, FCR was only useful in predicting teachers' intentions to teach professionalism and work ethic.

Supposedly, the three skills, professionalism/work ethic, teamwork/collaboration, and critical thinking/problem-solving, share many similarities as they are all considered important employability skills and 21st century skills (Partnership for 21st Century Learning, 2019a; Casner-Lotto & Barrington, 2006; NACE, 2019). The skills are all highly sought after by employers and identified as being skills which entry level employees lack (Casner-Lotto & Barrington, 2006; NACE, 2019). However, they are not all considered one of the Four C's of education (NEA, 2012). It is possible teachers' perceptions of which skills are most important could have been impacted by rhetoric surrounding the Four C's of education, therefore impacting teachers' perceptions regarding their focus on skill development (FSD). Because professionalism

and work ethic are not included in the Four C's, perhaps teachers do not see that skill as being as important as critical thinking/problem solving and teamwork/collaboration. However, employers place a very high value upon professionalism and work ethic skill development for employees. Professionalism and work ethic were identified as being an absolutely essential career readiness skill by 97.5% of employers surveyed by NACE (2014) and Casner-Lotto & Barrington's report "Are They Ready For Work" (2006) found that 70.3% of employers felt high school graduates were deficient in professionalism and work ethic. Clearly, professionalism and work ethic are important to employers. If professionalism is such an important part of being career ready, how is professionalism and work ethic not identified as a critical skill for secondary schools to incorporate into the curriculum?

According to the NEA (2012), "leaders of all kinds" were interviewed and reached near unanimity in support of the Four C's, which include communication, collaboration, critical thinking, and creativity, when the list of eighteen 21st century skills was shortened to the Four C's (p. 3). NEA does not specifically define who the leaders involved in the identification of the Four C's were, but there is little evidence to indicate employers and other stakeholders outside of education were involved in the interviews. The identification of creativity as one of the Four C's is a contradiction to current literature as there is little evidence that employers support the development creativity over professionalism and work ethic. NACE (2014) does not include creativity on its published list of key competencies sought by employers and Casner-Lotto and Barrington (2006) only found that 36% of employers believed creativity was a very important skill for high school graduates to possess. These discrepancies indicate a lack of agreeance between schools, educational leaders, and employers. Perhaps the perceived skill gap is due to school leaders and teachers misunderstanding the needs of business and industry. To amend this

misunderstanding, conversations need to be established between educational entities and private business. Specifically, employers need to be made aware of multitude of expectations placed on schools today that extend beyond the purpose of preparing students for their future careers. Career readiness is simply one piece of the puzzle, but it is an important piece of the puzzle that can be integrated throughout the broad school curriculum if done correctly. Additionally, schools and teachers should value the development of transferrable skills as contributing to a well-rounded education which prepares students for life, not just for the purpose of preparing students for their future careers. Together, employers and school leaders should develop a clear definition of career readiness, which includes a specific list of outcomes all students should be encouraged to demonstrate by the conclusion of their time in secondary school. A clear definition and outcomes would also help guide teachers' decisions as they relate to the instruction of employability skills.

The effect sizes within this study are small, but that is to be expected when we consider how many factors impact a teachers' daily instructional decisions. Yes, the data indicate that perceptions of career readiness can impact those decisions, but many other factors also affect the decisions teachers make every day. For example, Jayram and Engmann (2014) identified barriers to the instruction of employability skills in the classroom: (a) teachers not being trained on how to teach skills outside of their direct content specialty (i.e. employability skills vs. academic content skills); (b) a heavy focus on standardized assessment of content standards which limited time to dedicate to other topics; and (c) unclear expectations regarding how teachers should be integrating employability skill development into the current curriculum. With that in mind, even if teachers perceive the skills to be important, they have many other pieces to consider when making instructional decisions on a day to day basis. School administrators should seek to

understand what barriers may be in place within their own school district. This can be accomplished by observing instruction or by having conversations with teachers. It is also important that empirical research be conducted to assess the extent to which these barriers prevent the instruction of employability skills nationwide. If a focus on standardized assessment of academic standards is confirmed to be a barrier within the United States, perhaps we need to reevaluate the usefulness of those assessments and the rigid focus on academic standards. Ultimately, if educational policy leaders believe in the importance of fostering career readiness and employability skills among graduates, they will need to evaluate the mandates and expectations currently being placed upon local school districts and teachers. Educational policy leaders cannot expect schools and teachers to continue to add more and more mandates without adjusting expectations in other areas.

CHAPTER 6. UNDERSTANDING TEACHERS' PERCEPTIONS OF CAREER READINESS

Abstract

The purpose of this study was to describe teachers' perceptions of career readiness as an outcome of secondary school and determine the association between demographic characteristics, school policies, and engagement in professional development and teachers' perceptions of career readiness, as defined by three constructs: (a) perceptions of career readiness; (b) perceptions of skill development; and (c) valuing career readiness over academics. A census survey was shared with middle and high school teachers in North Dakota (Grade 6 to 12) during the spring of 2020 to assess their perceptions of career readiness using the Perceptions of Career Readiness Instrument. A series of one-way ANOVAs were conducted to assess the differences in perceptions of career readiness based upon groups. According to the findings of the study, on average, teachers in North Dakota have positive perceptions of career readiness and skill development. Many small associations between demographic characteristics and the constructs of perceptions of career readiness exist. The content area taught by a teacher had the largest effect on the total variance observed in perceptions of career readiness, with Career and Technical Education and special education teachers reporting significantly more positive perceptions of career readiness than core academic and other/elective teachers. It is recommended that professional development opportunities be made available to more educators, both at the pre-service and in-service level. Additionally, the language used to discuss career readiness initiatives should be evaluated and changed to be clearer and more intentional.

Introduction

The expectation that all secondary school graduates are college and career ready is growing in acceptance across the United States (Association of Career and Technical Education [ACTE], 2017; Conley, 2010; English, Cushing, Therriault, & Rasmussen, 2017; Koppich, Humphrey, Venezia, Nodine, & Jaeger, 2017; Mishkind, 2014). Yet, the meaning of college and career ready varies from one definition to another (Mishkind, 2014). Some believe college and career readiness should be solely a measure of academic achievement (ACT, Inc., 2018; American Diploma Project [ADP], 2004; Steedle, Radunzel, & Mattern, 2017). Others advocate for a more balanced approach, including the acquisition of employability and interpersonal skill development combined with academic ability to achieve career readiness (ACTE, 2017; Balestreri, Sambolt, Duhon, Smerdon, & Harris, 2014; Conley, 2012). Even though policies supporting the implementation of career readiness development are being put into place across the country, the unclear and inconsistent language used to describe the policies may ultimately hinder their effective implementation (Spillane, Reiser, & Reimer, 2002).

Looking beyond policy, it is largely undocumented how teachers, who are in the end expected to foster the development of career readiness among students, perceive career readiness as an outcome of secondary education. In most cases, teachers are the managers of their classrooms; they are the gateway to what is effectively taught to their students. Even if subconsciously, teachers' attitudes and beliefs towards a subject impact the way they make daily instructional decisions (Spillane et al., 2002). Therefore, when it comes to making changes in education, it is essential to understand teachers' perceptions in order for the change to be effectively accomplished.

Though there are outside factors, such as mandated assessment of academic standards and administrative control which impact the instructional decisions teachers make (Alridge & Fraser, 2016), teachers are responsible for the type of learning that takes place in their classroom. Even in the case of mandated instructional content or policies, each individual teacher's prior knowledge, experience, context, and biases can impact how that teacher interprets and understands educational policies, which in turn impacts the consistent implementation of those mandated policies in a school system (Spillane et al., 2002). Simply setting educational policy does not guarantee successful fulfilment of that policy as each unique teacher plays an instrumental role in transformation of policy and curriculum expectations into student outcomes (Spillane et al., 2002). Therefore, the first step towards more consistent implementation of policy surrounding career readiness instruction is understanding the current perceptions of secondary teachers regarding career readiness as an outcome of secondary education.

Review of Literature

The philosophies that have guided the initiation and expansion of the American system of public education have evolved over time from a liberal philosophy focused on the development of intellectualism to a behaviorist philosophy focused on the strict acquisition of academic standards proven through competency tests (Elias & Merriam, 2005). Throughout history, another philosophy, a progressive, vocational philosophy, has ebbed in importance, serving as the leading philosophy from time to time (Elias & Merriam, 2005, Kliebard, 1999). Though the American system of education has never settled on one clear, overarching philosophy and purpose of education, the idea that schools should play a role in preparing students for their future careers has long been an important thread in the debate.

Vocational training was really the first form of education available to the common man. Apprenticeships, for example, were virtually the only way average citizens could receive an education during colonial times (Gordon, 2014). As the world of work became more complex through the 1800s due to the emergence of the Industrial Revolution, the demand for vocational education continued to increase (Kliebard, 1999). At the same time, public secondary education was expanding to reach a larger and more diverse student population, which caused school leaders to reconsider the overall purpose of education; was the purpose of public school to prepare students for college or for work (Kliebard, 2004)?

Although the debate surrounding the purpose of education has never settled on a singular focus, the generally accepted idea in the 21st century is that students should be college and career ready when they graduate from an American high school. There is evidence of this belief in the policies which drive contemporary education, including the Every Student Succeeds Act (ESSA), the Common Core College and Career Readiness Standards (CCR), and Perkins V legislation (Cushing et al., 2019; English et al.,2017; US Department of Education, n.d.a; US Department of Education, n.d.b). Preparing students to be college and career ready is not a new idea; however, the idea that all students should possess the skills and abilities necessary to pursue education beyond high school is a revolutionary concept that challenges the philosophies upon which public education in the United States was founded (Conley, 2010). Recently, the term *choice ready* has been used to describe the desired student outcome upon graduation (Advance Career and Technical Education [CTE], 2017). Instead of being college or career ready, a student should be prepared for whatever choice they make after their high school graduation (Conley, 2010). The term *choice ready* further emphasizes the need for all students to possess the necessary skills and abilities required to be successful in college and careers upon graduation.

Thus, the instruction necessary to prepare students for their future careers, whether those careers come before or after post-secondary education, needs to be equitably available to all students across the country.

Nonetheless, just because policies in place support the development of career readiness among secondary students, does not mean the implementation of those policies are guaranteed to be effective at impacting student outcomes. First, many definitions of career readiness exist across the nation (Miskind, 2014). The lack of clear expectations can lead to failed implementation of policy (Spillane et al., 2002). Secondly, how teachers make sense of policy can greatly impact how they implement policy and ultimately how those policies impact student outcomes regarding the development of career readiness (Spillane et al., 2002). Misconceptions, bias, prior knowledge, and misunderstanding can all lead to failure in policy implementation (Spillane et al., 2002). In order to effectively implement policies that advocate for the development of career readiness among students, it is important to first understand how teachers perceive career readiness.

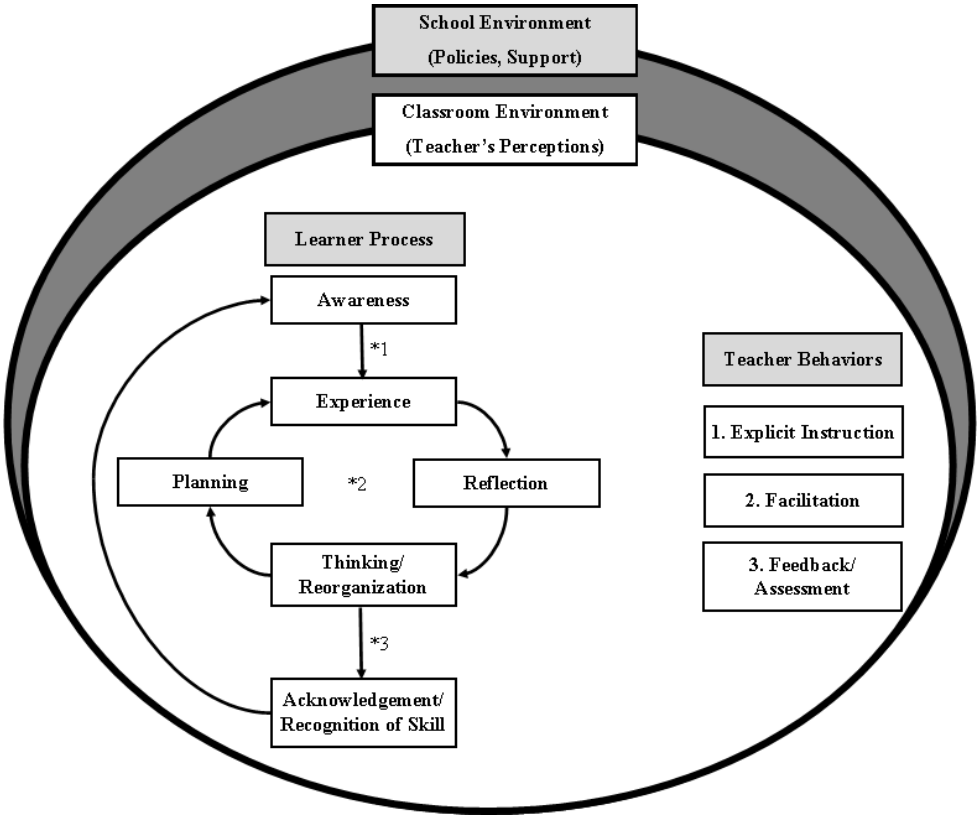
Framework

The principal conceptual framework which guided this study can be found in Figure 6.1. The framework was guided by information processing theory (Atkinson & Schifrin, 1968) and experiential learning theory (Kolb, 1984). The framework shows the skill development process a learner goes through to develop a new skill to support their development of career readiness. That process is impacted by teacher's behaviors, specifically explicit instruction, facilitation, and feedback and assessment. The figure acknowledges learning takes place in a classroom environment that is impacted by individual teacher's perceptions. Further, the classroom

environment exists within the greater school environment, which is impacted by policies, school leadership, and professional development.

Figure 6.1

Learner Skill Development Model



Note. This model shows the steps a learner would go through to develop a new skill. Teacher behaviors are identified with an *. The model includes a single example of when teacher behaviors could take place within the learner process. However, it is important to note that the location of a teachers' behaviors can take place at many locations throughout the model. The act of learning and teaching is nested within the classroom environment, which is impacted by teachers' perceptions. Additionally, the classroom environment is nested within the larger school environment, which is impacted by policies and support in the form of leadership and professional development training.

In regard to teachers' perceptions of career readiness, it is important to understand what factors impact teachers' perceptions and what outcomes are affected by teachers' perceptions. First, the conceptual framework in Figure 6.1 recognizes that student learning is situated within a school environment and classroom environment. The school environment is representative of the

local school district and the decisions made to adopt policies into the local curriculum. Further, the school environment represents administration and the decisions they make to support initiatives through professional development, shared visions, and collaboration among school staff. Prior studies have found school policies, available professional development, and administrative support are all factors which impact school climate (Aldridge & Fraser, 2016, Wang & Degol, 2016). Finally, the classroom environment is nested within the school environment because each classroom is impacted by the overall environment of the school. Additionally, each classroom environment is unique due to teachers' perceptions, instructional priorities, and philosophies (Deemer, 2004). Ultimately, student learning outcomes are achieved through instruction situated within a teacher's classroom, within a school's environment, and within the American system of public education.

Purpose and Objectives

This study sought to describe teachers' current perceptions of career readiness. Additionally, the study sought to explore how selected teachers' demographic characteristics impacted their perceptions of career readiness, perceptions of employability skill development, and perceptions regarding the value of career readiness over academics. To guide these purposes, the following research objectives were developed:

1. Describe teachers' perceptions of career readiness as a student educational outcome of public K-12 schools.
2. Describe the impact of selected teacher characteristics (years of teaching experience, content area taught, method of earning licensure, policies in place at the school, and professional development opportunities) on their perceptions of career readiness.

The hypotheses for the analyses of variance are:

H_0: Demographic variables did not explain a significant ($p > .05$) proportion of variance in teachers' perceptions of career readiness.

H_1: Demographic variables did explain a significant ($p < .05$) proportion of variance in teachers' perceptions of career readiness.

3. Describe the impact of selected teacher characteristics (years of teaching experience, content area taught, method of earning licensure, policies in place at the school, and professional development opportunities) on their perceptions of employability skill development.

   The hypotheses for the analyses of variance are:

   H_0: Demographic variables did not explain a significant ($p > .05$) proportion of variance in teachers' perceptions of employability skill development.

   H_1: Demographic variables did explain a significant ($p < .05$) proportion of variance in teachers' perceptions of employability skill development.

4. Describe the impact of selected teacher characteristics (years of teaching experience, content area taught, method of earning licensure, policies in place at the school, and professional development opportunities) on their perceptions regarding the value of career readiness over academics.

   The hypotheses for the analyses of variance are:

   H_0: Demographic variables did not explain a significant ($p > .05$) proportion of variance in teachers' perceptions regarding the value of career readiness over academics.

H_1: Demographic variables did explain a significant ($p < .05$) proportion of variance in teachers' perceptions regarding the value of career readiness over academics.

Methods

This descriptive relational study examined the effect of demographic characteristics, such as years of teaching experience, content area taught, method of earning licensure, policies in place at the school, and teacher involvement in professional development opportunities, on teachers' perceptions of career readiness as a potential student outcome of secondary schools.

The population of interest for this study was middle and high school (sixth through 12th grade) classroom teachers in the state of North Dakota. The total population was estimated to be 3,820 (*N*) based upon demographic details provided by the Department of Public Instruction (DPI, 2019c). The study employed a one-measurement cross-sectional survey design (Cohen, Manion, & Morrison, 2011) where secondary teacher subjects completed a questionnaire on Qualtrics to gather pertinent demographic data and acquire their perceptions of career readiness. Data were collected via email using a census of all licensed teachers in the state of North Dakota during the second semester of the school year. Teachers who considered themselves secondary teachers were invited to opt into the study and complete the questionnaire. The data collection period was left open for 16 days and one follow-up email reminder was sent one week after the initial invitation to participate. At the conclusion of the collection window, non-respondents were not followed up on. Nonresponse bias was evaluated by comparing early respondents to late respondents. The first 250 respondents were compared to the last 250 respondents using an independent samples *t*-test. Prior to running the *t*-test, the data was trimmed to remove any perfect scores (means of 5.00 or 1.00) (Field, 2013). The independent samples *t*-test indicated

there were no significant differences between the group of early respondents and late respondents, reducing the concern of nonresponse bias and ensuring the generalizability of the results of this study to the population of teachers in North Dakota.

A total of 1,689 surveys were completed (N = 1,689), achieving a 44% response rate. Questionnaires were checked for errors, outliers, and response set. Two surveys were removed for response set and 480(n) surveys were considered incomplete and removed from the data set. Therefore, the total number of useable surveys was N = 1,209, which accounted for approximately 32% of the population of North Dakota 6th through 12th grade classroom teachers. Among the retained surveys, 4(n) surveys were missing some of the demographic data. Therefore, those surveys could be used for some, but not all, of the planned analyses.

Instrument

The Perceptions of Career Readiness Instrument (PCRI) was developed by the researcher specifically for this study. Based upon accepted definitions of career readiness, four a priori constructs were developed for the instrument, including: (a) teacher's perceptions of career readiness as a broad school goal; (b) teacher's perceptions of employability skill development as a broad school goal; (c) teacher's perceptions of their role as an independent teacher in the development of career readiness as a student outcome; and (d) teacher's perceptions of their role as an independent teacher in the development of employability skills as a student outcome (Association for Career and Technical Education [ACTE], 2010; Conley, 2012; Mishkind, 2014). Primarily, the researcher wanted to understand if teachers perceived the importance of the development of employability skills differently than they perceived the importance of the development of career readiness, even though accepted definitions of career readiness include the development of employability skills as part of the definition. Henceforth, the a priori

constructs related to employability skill development intentionally did not include the word "career" at any point in the statements. Further, the researcher was interested in examining whether or not teachers maintained different perceptions of their own personal responsibilities versus the responsibility of the entire educational system, which further divided the constructs into two groups: one construct focused on teacher's perceptions of their individual role in the development of career readiness and the second construct focused on teacher's perceptions of the role the entire educational systems plays in the development of career readiness. Eight questions per construct were included in the instrument for a total of 32 Likert-type scaled items. A five-point scale and descriptors were used for responding and included: 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree/disagree*), 4 (*agree*), and 5 (*strongly agree*).

A panel of five faculty experts and two secondary school teachers (n = 7), reviewed the instrument for content validity. Two of the faculty experts had secondary teaching experience, which allowed them to view the instrument through the lens of a practicing teacher. Two secondary teachers also reviewed the instrument for readability. Adjustments were made to the final instrument based upon feedback from the experts.

The instrument was subjected to an exploratory factor analysis (EFA) using principal axis factoring (Field, 2013). After the initial factor extraction, the data was evaluated for multicollinearity and minimally correlated variables. Horn's Parallel Analysis (Horn, 1965) was used to determine that a three-factor solution was the most appropriate for the instrument. After the final factor solution was tested, the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was found to be .961, which is considered "marvelous" according to Hutcheson and Sofroniou (1999) (as cited in Field, 2013, p. 685). The final resulting factors were (a) perceptions of career readiness (12 items); (b) perceptions of skill development (12 items); and

(c) valuing career readiness over academics (3 items). The overall reliability of the instrument was α = .944. Table 6.1 includes details regarding the final construct reliabilities.

Table 6.1

Final Construct Reliability for Factors included in the Perceptions of Career Readiness Instrument (PCRI)

Subscale	Cronbach's Alpha	Number of Items
Perceptions of Career Readiness	.915	12
Perceptions of Skill Development	.911	12
Perceived Value of Career Readiness Over Academics	.789	3

Table 6.2 includes sample items that were included in the instrument used to assess teachers' perceptions of career readiness. Examples are included from each of the three constructs.

The final section of the instrument included nine demographic questions and statements to collect information regarding years of experience, content area taught, method of earning teaching licensure, policies in place in schools, and teacher engagement in professional development. The inclusion of the selected demographic variables was supported by previous research (ACTE, 2020; Aldridge & Fraser, 2016; Cotton, 1996; Hammerness et al., 2005; Mackelvie & Varrato, 2017; Perry, 2012; US Department of Education, 2018; Wang & Degol, 2016).

Table 6.2

Sample Instrument Items of the Perceptions of Career Readiness Instrument (PCRI)

	Sample Instrument Item	21st Century Skill Construct
1	It is my job to teach career readiness skills.	Perceptions of Career Readiness
2	All students must receive instruction related to career readiness during middle/high school.	Perceptions of Career Readiness
3	All teachers must foster the development of communication skills, teamwork, and critical thinking skills.	Perceptions of Skill Development
4	It is my job to teach students to be professional, work successfully in groups, solve real world problems.	Perceptions of Skill Development
5	It is more important that public schools teach career readiness skills than academic standards.	Valuing Career Readiness Over Academics
6	If my students are career ready when they graduate, I have succeeded at my job.	Valuing Career Readiness Over Academics

Note. A total of 27(*n*) items comprised the Perceptions of Career Readiness Instrument.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) software version 26. Scale means were calculated for each participant for each of the three constructs of career readiness. Then, descriptive statistics were run to analyze independent and dependent variables, including means and standard deviations. The data set was checked for errors, outliers, and response set, and necessary assumptions of normality, homogeneity of variance, and independence were met. Several one-factor between subjects Analyses of Variance (ANOVAs) was conducted to assess the impact of the independent variables of teachers' years of experience, content area taught, method of earning licensure, policies in place at the school, and teacher engagement in professional development opportunities on the dependent variables of perceptions

of career readiness, which include the constructs perceptions of career readiness, perceptions of skill development, and valuing career readiness over academics. Gabriel's pairwise test procedure was selected to conduct post hoc tests due to the unequal sample sizes between groups (Field, 2013).

Description of Respondents

Descriptive statistics were used to analyze demographic information of the respondents. Characteristics of the sample are found in Table 6.3. The majority of respondents were early-career teachers with 0-5 years of experience (22.8%, *n* = 276) and 6-10 years of experience (21.7%, *n* = 262). Core academic teachers (English Language Arts, science, math, and social studies teachers) made up more than half of the sample (58%, *n* = 701). A small percentage of respondents received their teaching licensure through an alternative licensing pathway (5.9%, *n* = 75), whereas, an overwhelming majority of teachers indicated they were licensed through a traditional teacher education program (90.1%, *n* = 1130). Most of the participants had engaged in professional development regarding employability skills ranging from one workshop or training (15.7%, *n* = 190) to five or more workshops (25.3%, *n* = 306). Of the teachers who had attended professional development, most were required to attend the workshops (29.7%, *n* = 359). Other demographic data related to teacher demographic characteristics are included in Table 6.3.

Table 6.3

*Demographic Characteristics of Participating Teachers (*N *= 1,209)*

Variable	*n*	%
Years of Experience		
0-5 years	276	22.8
6-10 years	262	21.7
11-15 years	167	13.8
16-20 years	150	12.4
21-25 years	117	9.7
26-30 years	110	9.1
31 of more years	126	10.4
Missing	1	0.1
Content Specialty		
Core Academics	701	58.0
CTE	242	20.0
Special Education	86	7.1
Other	180	14.9
Licensure		
Traditional Licensure	1130	90.1
Alternative Licensure	75	5.9
Missing	4	0.3
Engagement in Professional Development		
0 workshops/trainings attended	263	21.8
1 workshop/training attended	190	15.7
2 to 4 workshops/trainings attended	446	36.9
5 or more workshops/trainings attended	306	25.3
Missing	4	0.3
Reason for Engagement in Professional Development		
Required to attend	359	29.7
One of several options to attend	298	24.6
Sought out the opportunity to attend	278	23.0
Other	6	0.5
Missing	268	22.2

Information regarding school policies was collected by asking participants how their school district managed the instruction and assessment of employability skills. A list of 13 employability skills most sought by business and industry was compiled and included in the

questions related to school policy (Bunshaft et al., 2015; Casner-Lotto & Barrington, 2006; Corder & Irlbeck, 2018; Easterly et al., 2017; Hart Research Associates, 2015; Landrum et al., 2010; McNamara, 2009; NACE, 2019; Robles, 2012). Those 13 skills were teamwork/collaboration, written communication, oral communication, creativity, critical thinking/problem solving, flexibility, ethical decision making, reliability, integrity/character, professionalism, work ethic, interpersonal skills, and responsibility. Teachers were then asked to select all of the skills that fit the proposed scenario in the question, such as "at my current school, students' skill development is assessed in the following area(s)." Most schools expected all teachers to incorporate some of the 13 employability skills into their classrooms as only 8.2% of participants responded that no skill instruction was expected by all teachers in the school district in which they worked (n = 99). Policies regarding the assessment of skills were less common than policies that supported the instruction of skills, as indicated by the fact that n = 1,001 teachers worked in schools that required the assessment of any employability skills compared to the n = 1,106 teachers that were expected to teach at least one employability skill. Policies that required evidence of student skill development in at least one employability skill area as a requirement for graduation were only present in about half of the teachers' school districts (n = 617). The other half of the participants (n = 588) worked in districts that did not require any evidence of student skill development for graduation. Table 6.4 includes detailed information regarding the school policies in place at the respondents' workplaces.

Table 6.4

*Respondents' Description of School Policies (*N *= 1,209)*

Variable	*n*	%
All teachers are expected to incorporate skills		
1-3 skills are expected	158	13.1
4-8 skills are expected	521	43.1
9 or more skills are expected	427	35.3
No skills are expected	99	8.2
Missing	4	0.3
Schools assess skills		
1-3 skills are assessed	305	25.2
4-8 skills are assessed	502	41.5
9 or more skills are assessed	194	16.0
No skills are assessed	204	16.9
Missing	4	0.3
Schools require skills for graduation		
1-3 skills are required for graduation	309	25.6
4-8 skills are required for graduation	219	18.1
9 or more skills are required for graduation	89	7.4
No skills are required for graduation	588	48.6
Missing	4	0.3

Findings

Objective One

Objective one was to describe teachers' current perceptions of career readiness as defined by the three identified constructs of career readiness. In general, middle and high school classroom teachers in North Dakota had moderate to positive perceptions of career readiness. Teachers had the most favorable perceptions of career readiness when focused on the employability skills that contribute to career readiness, such as teamwork, communication, critical thinking, and professionalism (M = 4.38, SD = .43). Though the overall mean was lower than teachers' perceptions of skill development, teachers' perceptions of career readiness indicate they agreed that career readiness as an outcome of secondary schools was important (*M*

= 4.18, *SD* = .53). Notably lower, teachers' perceptions of career readiness defined as valuing career readiness above academics were not as positive as the other constructs (*M* = 3.46, *SD* = .88). Table 6.5 includes details about the range of scores, in addition to the means, modes, medians, and standard deviations.

Table 6.5

*Descriptive Statistics of Teachers' Perceptions of Career Readiness (*N = *1,209)*

Perceptions of Career Readiness Constructs	*M*	*Mdn*	Mode	*SD*	Range	
					Min	Max
Perceptions of Skill Development	4.38	4.33	5.00	0.43	2.42	5.00
Perceptions of Career Readiness	4.18	4.17	5.00	0.53	1.50	5.00
Valuing Career Readiness over Academics	3.46	3.33	0.88	0.88	1.00	5.00

Note. Perceptions of career readiness used a five-point scale with the descriptors *strongly disagree* (1), *disagree* (2), *neither agree or disagree* (3), *agree* (4), and *strongly agree* (5).

Objective Two

Objective two was to describe the impact of selected teacher characteristics, including years of teaching experience, content area taught, the method of earning their license, policies in place at their school, and engagement in professional development opportunities on their perceptions of career readiness. The teachers were broken into groups based upon their responses to the demographic questions in the instrument. Then, a series of one-way ANOVAs were conducted to determine if the means of teachers' perceptions of career readiness were different from one demographic group to another. The results of the ANOVA tests for the perceptions of career readiness can be found in Table 6.6. The results indicate there are significant differences in the means of perceptions of career readiness among groups of teachers based upon the content area they teach ($F = 40.27$, $df = 3, 1205$, $p = .000$), the way they earned their teaching license (*F*

= 6.19, *df* = 1, 1203, *p* = .013), and based upon policies in place at the schools they work regarding the number of skills they are expected to teach (*F* = 4.42, *df* = 3, 1201, *p* = .004), assess (*F* = 5.50, *df* = 3, 1201, *p* = .001), and require for graduation (*F* = 2.89, *df* = 3, 1201, *p* = .035). The results also highlighted a significant difference in the means of perceptions of career readiness based upon the number of workshops teachers attended for professional development (*F* = 9.84, *df* = 3, 1201, *p* = .000) and the motivation for their attendance at those workshops (*F* = 7.42, *df* = 3, 937, *p* = .000). The omnibus *F* test for years of experience was not statistically significant (*F* = 2.09, *df* = 6, 1201, *p* = .052).

Except in the case of years of experience, the null hypothesis is rejected as demographic variables (content area taught, method of earning licensure, school policies in place, and engagement in professional development) did explain significant proportions of variance in teachers' perceptions of career readiness.

Table 6.6

*Association Between Teacher Demographic Characteristics and Perceptions of Career Readiness (*N *= 1,209)*

Demographic Characteristic	*df*	*F*	η^2	ω^2	*p*
Years of Experience	6, 1201	2.09	.01	.01	.052
Content Area Taught*	3, 1205	40.27	.09	.09	.000
School Policies: All Teachers Expected to Teach*	3, 1201	4.42	.01	.01	.004
School Policies: Assessment*	3, 1201	5.50	.01	.01	.001
School Policies: Graduation Requirement*	3, 1201	2.89	.01	.00	.035
Engagement in Professional Development*	3, 1201	9.84	.02	.02	.000
Reason for Attending Professional Development*	3, 937	7.42	.02	.02	.000

Note. * indicates significant *p*-value (<.05).

Interpretation of the omega-squared values (Table 6.6) was guided by the recommendations of Kirk (1996, as cited in Kotrlik & Williams, 2003, p. 5). According the

omega-squared values, there is a small association between policies regarding the instruction and assessment of employability skills and engagement in professional development and perceptions of career readiness as a focus on career readiness. The computed value indicates that between 1% and 2% of variability in perceptions of career readiness can be attributed to the school policies in place regarding instruction and assessment of employability skills and based upon a teacher's engagement in professional development. There is a medium association between teachers' content area taught and their perceptions of career readiness as a focus on career readiness. This association indicates that about 9% of the variability in perceptions of career readiness can be attributed to the content area a teacher teaches.

Given the statistically significant omnibus ANOVA *F* tests, post hoc analyses were conducted using Gabriel's pairwise test procedure on all possible pairwise contrasts. The results of the post hoc analyses can be found in Table 6.7. The pairs of groups which were found to be significantly different ($p < .05$) for content area taught include: core academic teachers (M = 4.10, SD = .53) and CTE teachers (M = 4.48, SD = .45), core academic teachers (M = 4.10, SD = .53) and special education teachers (M = 4.32, SD = .47), other content area teachers (M = 4.05, SD = .54) and CTE teachers (M = 4.48, SD = .45), and other content area teachers (M = 4.05, SD = .54) and special education teachers (M = 4.32, SD = .47).

Two pairs of groups which were found to be significantly different ($p < .05$) based upon policies in place at the school related to the instruction of employability skills and the requirement of employability skills for graduation. Those comparisons include: all teachers are expected to teach nine or more skills (M = 4.25, SD = .54) and all teachers are expected to teach four to eight skills (M = 4.13, SD = .53), and no skills are required for graduation (M = 4.15, SD = .54) and nine or more skills are required for graduation (M = 4.33, SD = .52). When

considering the difference between groups based upon the policies regarding the assessment of employability skills the comparisons between schools requiring the assessment of nine or more skills (M = 4.31, SD = .50) were significantly different (p <.05) than all the other groups, including no assessment of employability skills (M = 4.11, SD = .55), assessment of one to three skills (M = 4.15, SD = .51), and assessment of four to eight skills (M = 4.17, SD = .55).

Table 6.7

Significant Pairwise Comparisons Between Groups Regarding Perceptions of Career Readiness

Comparison between groups					95% Confidence Interval	
Group 1	Group 2	ΔM	*SE*	*p*	*Lower bound*	*Upper bound*
Core Academic	CTE	-.384	.038	.000	-.481	-.287
	Special Education	-.223	.058	.000	-.361	-.084
Other Content Area	CTE	-.431	.050	.000	-.563	-.300
	Special Education	-.270	.067	.000	-.443	-.096
All teachers expected to teach 9 or more skills	All teachers expected to teach 4-8 skills	.125	.035	.002	.034	.216
9 or more skills are assessed in the school	No skills are assessed in the school	.200	.053	.001	.060	.341
	1 to 3 skills are assessed in the school	.162	.049	.005	.035	.290
	4 to 8 skills are assessed in the school	.142	.045	.007	.027	.257
9 or more skills are required for graduation	No skills are required for graduation	.177	.061	.009	.031	.323
5 or more workshops or trainings	No workshops or trainings	.205	.044	.000	.088	.322
	1 workshop or training	.213	.049	.000	.085	.341
2 to 4 workshops or trainings	No workshops or trainings	.113	.041	.033	.006	.220
	1 workshop or training	.121	.046	.041	.003	.239
Sought out the opportunity to attend professional development	Required to attend professional	.192	.042	.000	.082	.301

Note. ΔM= Mean difference.

Post hoc analyses were used to determine which groups were significantly different (p <.05) from one another in regard to professional development. Those pairs include teachers who attended five or more workshops or trainings (M = 4.29, SD = .54) and teachers who attended one workshop or training (M = 4.08, SD = .49) and teachers who did not attend any workshops or trainings (M = 4.09, SD = .55). Further, there were significantly different means between the groups of teachers who attended two to four workshops or trainings (M = 4.20, SD = .52) and teachers who attended one workshop or training (M = 4.08, SD = .49) and teachers who did not attend any workshops (M = 4.09, SD = .55). Additionally, there was a statistically significant difference between the means of those teachers who were required to attend workshops or trainings (M = 4.12, SD = .50) and those teachers who sought out the opportunity to attend the workshops or trainings (M = 4.31, SD = .50).

There were only two groups within the demographic variable describing how teachers earned their teaching license. Therefore, an independent samples t-test was used to examine the difference between the means of the two groups (Table 6.8). On average, teachers who earned their license through alternative methods had higher means of perceptions of career readiness (M = 4.33, SE = .074), than their peers who received their license through a traditional teacher education program (M = 4.17, SE = .016). The difference, -0.16, BCa 95% CI [-.283, -.033], was significant $t(1203) = -2.49$, p = .013. Cohen's d was calculated to assess the effect size and was found to be 0.30, which is a considered a small effect size (Field, 2013).

Table 6.8

*Perceptions of Career Readiness, Skill Development, and Valuing Career Readiness over Academics Among Teachers Based Upon Differences in Licensure (*N = *1,205)*

	n	*M*	*SD*	*SE*	*t*	*df*	*d*	Sig. (2-tailed)
Perceptions of Career Readiness					-2.49	1203	.30	.013
Traditional Licensure	1130	4.17	0.53	0.02				
Alternative Licensure	75	4.33	0.64	0.07				
Perceptions of Skill Development					-1.88	1203	.24	.060
Traditional Licensure	1139	4.37	0.42	0.01				
Alternative Licensure	75	4.47	0.52	0.06				
Valuing Career Readiness over Academics					-1.92	1203	.23	.057
Traditional Licensure	1130	3.44	0.87	0.03				
Alternative Licensure	75	3.64	0.99	0.12				

Objective Three

Objective three was to describe the impact of selected teacher characteristics, including years of teaching experience, content area taught, the method of earning their license, policies in place at their school, and engagement in professional development opportunities on their perceptions of skill development. The teachers were broken into groups based upon their responses to the demographic questions in the instrument. Then, a series of one-way ANOVAs were conducted to determine if the means of teachers' perceptions of skill development were different from one demographic group to another. The results of the ANOVA tests for the perceptions of employability skill development can be found in Table 6.9.

The results indicate there were significant differences in the means of perceptions of skill development among groups of teachers based upon their years of teaching experience ($F = 2.52$, $df = 6, 1201$, $p = .020$), content area they teach ($F = 6.69$, $df = 3, 1205$, $p = .000$), and based upon

the number of workshops teachers attended for professional development (F = 10.14, df = 3, 1201, p = .000) and the motivation for their attendance at those workshops (F = 4.12, df = 3, 937, p = .006). The omnibus F test did not indicate statistical significance between groups based upon any school policies related to instruction of employability skills (F = 2.47, df = 3, 1201, p = .061), assessment of employability skills (F = 2.41, df = 3, 1201, p = .066), or requiring evidence of skill development for graduation (F = 1.17, df = 3, 1201, p = .320).

The null hypothesis is rejected for the demographic variables of years of experience, content area taught, and engagement in professional development as they did explain significant proportions of variance in teachers' perceptions of skill development. The null hypothesis was accepted for the demographic variables of method of receiving licensure and all school policies in place as they did not explain significant proportions of variance in teachers' perceptions of skill development.

Table 6.9

*Association Between Teacher Demographic Characteristics and Perceptions of Skill Development (*N *=1,209)*

Demographic Characteristic	*df*	*F*	η^2	ω^2	*p*
Years of Experience*	6, 1201	2.52	.01	.01	.020
Content Area Taught*	3, 1205	6.69	.02	.01	.000
School Policies: All Teachers Expected to Teach	3, 1201	2.47	.01	.00	.061
School Policies: Assessment	3, 1201	2.41	.01	.00	.066
School Policies: Graduation Requirement	3, 1201	1.17	.00	.00	.320
Engagement in Professional Development*	3, 1201	10.14	.03	.02	.000
Reason for Attending Professional Development*	3, 937	4.12	.01	.01	.006

Note. * indicate significant *p*-value (<.05).

Inspection of the omega-squared values (Table 6.9) is necessary to assess the practical significance of the results. According the omega-squared values, there is a small association

between years of experience, content area taught, engagement in professional development (both the number of workshops attended and the motivation for attending). That omega-squared value indicates that 1% to 2% of the variability in perceptions of employability skill development can explained by those demographic characteristics (Kirk, 1996, as cited in Kotrlik & Williams, 2003, p. 5).

An independent samples *t*-test was used to assess the difference in perceptions of employability skill development between the two groups of teachers based upon how they received their teaching licenses. On average, teachers who earned their license through alternative methods had higher mean perceptions of employability skills (M = 4.47, SE = .060), than their peers who received their license through a traditional teacher education program (M = 4.37, SE = .013). The difference, however, -0.10, BCa 95% CI [-.197, .004], was not significant $t(1203) = -1.88$, $p = .060$. Cohen's d was calculated to assess the effect size and was found to be 0.24, which is a considered a small effect size (Field, 2013). The results of the independent samples *t*-test can be found in Table 8.

Given the statistically significant omnibus ANOVA F tests, post hoc analyses were conducted using Gabriel's pairwise test procedure on all possible pairwise contrasts. The results of the post hoc analyses can be found in Table 6.10. The pairs of groups which were found to be significantly different ($p < .05$) for content area taught include: core academic teachers (M = 4.36, SD = .43) and CTE teachers (M = 4.49, SD = .41), and other content area teachers (M = 4.33, SD = .42) and CTE teachers (M = 4.49, SD = .41).

The only school policy that led to a statistically significant difference between the means of two groups were teachers who were expected to teach nine or more skills (M = 4.43, SD = .45) compared to those teachers who were expected to teach four to eight skills (M = 4.35, SD = .42).

It is necessary to note that this specific pairwise comparison was significant, however, the overall omnibus *F* test was not statistically significant for this group of comparisons. In this instance, the specific pairwise comparison has more statistical power, and thus is the accepted as statistically significant (Chen, Xu, Tu, Wang, & Niu, 2018).

Attendance at professional development workshops and trainings contributed to a number of significant pairwise comparisons between teachers who attended five or more workshops (*M* = 4.48, *SD* = .42) and all other groups of teachers, including those who did not attend any workshops or trainings (*M* = 4.31, *SD* = .44), those who attended one workshop or training (*M* = 4.30, *SD* = .41), and those who attended two to four workshops or trainings (*M* = 4.39, *SD* = .42). Of those who attended workshops, there was a significant difference between the means of those who sought out the opportunity to attend the professional development (*M* = 4.48, *SD* = .42) and those who were required to attend the professional development (*M* = 4.35, *SD* = .42).

The omnibus *F* test that compared the difference in means between groups based upon years of teaching experience was significant. However, upon completing the post hoc analysis, no statistically significant pairwise comparisons were identified. This can happen due to a number of factors, including having too many groups within the ANOVA model (Chen et al., 2018). In general, these results indicate that years of experience has an effect small effect on the overall model of perceptions of employability skills, however, there are no unique significant pairwise comparisons within the model. Gabriel's pairwise test tends to be more conservative due to its use between groups of uneven sizes, which may have caused the lack of significant pairwise comparisons (Field, 2013).

Table 6.10

Significant Pairwise Comparisons Between Groups Regarding Perceptions of Skill Development

Comparison between groups					95% Confidence Interval	
Group 1	Group 2	Δ*M*	*SE*	*p*	*Lower bound*	*Upper bound*
CTE	Core Academic	.132	.032	.000	.051	.213
	Other Content Area	.158	.042	.001	.047	.268
All teachers expected to teach 9 or more skills	All teachers expected to teach 4-8 skills	.075	.028	.046	.001	.148
5 or more workshops or trainings	No workshops or trainings	.170	.036	.000	.076	.264
	1 workshop or training	.175	.039	.000	.073	.264
	2 to 4 workshops or trainings	.085	.032	.041	.002	.168
Sought out the opportunity to attend professional development	Required to attend professional development	.115	.034	.004	.026	.204

**Note*. Δ*M*= Mean difference.

Objective Four

The results of the ANOVA tests for valuing career readiness over academics can be found in Table 6.11. The results indicate there were significant differences in the means of perceptions related to valuing career readiness over academics among groups of teachers based upon their years of teaching experience ($F = 5.53$, $df = 6, 1201$, $p = .000$), the content area they teach ($F = 18.96$, $df = 3, 1205$, $p = .000$), and based upon policies in place at the schools they work in regarding the number of skills they are expected to assess ($F = 3.50$, $df = 3, 1201$, $p = .015$) and require for graduation ($F = 5.99$, $df = 3, 1201$, $p = .000$). The results also highlighted a significant difference in the means of perceptions related to valuing career readiness over

academics based upon the number of workshops teachers attended for professional development (F = 8.49, df = 3, 1201, p = .000) and the motivation for their attendance at those workshops (F = 3.54, df = 3, 937, p = .014). According to the omnibus F test, the difference in means between groups based upon school policies expecting all teachers to teach employability skills was not statistically significant (F = 1.28, df = 3, 1201, p = .282).

To assess the difference between the groups of teachers based upon how they received their teaching license, an independent samples t-test was used because there were only two groups. On average, teachers who teachers who earned their license through alternative methods had higher means of perceptions of valuing career readiness over academics (M = 3.64, SE = .115), than their peers who received their license through a traditional teacher education program (M = 3.44, SE = .026). The difference, however, -0.20, BCa 95% CI [-.404, .006], was not significant t(1203) = -1.92, p = .057. Cohen's d was calculated to assess the effect size and was found to be 0.23, which is a considered a small effect size (Field, 2013). The results of the independent samples t-test can be found in Table 6.4.

Table 6.11

*Association Between Teacher Demographic Characteristics and Valuing Career Readiness over Academics (*N *= 1,209)*

Demographic Characteristic	*df*	*F*	η^2	ω^2	*p*
Years of Experience*	6, 1201	5.53	.03	.02	.000
Content Area Taught*	3, 1205	18.96	.05	.04	.000
School Policies: All Teachers Expected to Teach	3, 1201	1.28	.00	.00	.282
School Policies: Assessment*	3, 1201	3.50	.01	.01	.015
School Policies: Graduation Requirement*	3, 1201	5.99	.02	.01	.000
Engagement in Professional Development*	3, 1201	8.49	.02	.02	.000
Reason for Attending Professional Development*	3, 937	3.54	.01	.01	.014

Note. * indicate significant p-value (<.05).

The omega-squared values were used to assess the overall effect of the demographic variables on the perceptions of valuing career readiness over academics. According to Kirk (1996, as cited in Kotrlik & Williams, 2003, p. 5) the omega-squared values, as seen in Table 6.11, indicate a small association between the content area taught and perceptions of valuing career readiness over academics. The content area taught attributed 4% of the variability to teachers' perceptions of valuing career readiness over academics. There was also a small association between all of the other demographic variables, except policies being in place regarding the instruction of employability skills, and perceptions of valuing career readiness over academics. The computed omega-squared values indicate that between 1% and 2% of variability in perceptions of valuing career readiness over academics can be attributed to years of experience, school policies in place regarding the assessment of employability skills and the requiring of evidence of skill development for graduation, and number of professional development workshops attended and the motivation for attendance.

Given the statistically significant omnibus ANOVA *F* tests, post hoc analyses were conducted using Gabriel's pairwise test procedure on all possible pairwise contrasts. The results of the post hoc analyses can be found in Table 6.12. The pairs of groups which were found to be significantly different ($p < .05$) for years of experience include: teachers with 0 to 5 years of experience ($M = 3.56$, $SD = .87$) and teachers with 11 to 15 years of experience ($M = 3.28$, $SD = .90$) and teachers with 26 to 30 years of experience ($M = 3.13$, $SD = .88$), teachers with 6 to 10 years of experience ($M = 3.55$, $SD = .88$) and teachers with 11 to 15 years of experience ($M = 3.28$, $SD = .90$) and teachers with 26 to 30 years of experience ($M = 3.13$, $SD = .88$), teachers with 16-20 years of experience ($M = 3.58$, $SD = .86$) and teachers with 11 to 15 years of experience ($M = 3.28$, $SD = .90$) and teachers with 26 to 30 years of experience ($M = 3.13$, $SD =$

.88), and teachers with 21 to 25 years of experience (M = 3.49, SD = .80) and 26 to 30 years of experience (M = 3.13, SD = .88).

The pairs of groups which were found to be significantly different ($p < .05$) for content area taught include: CTE teachers (M = 3.77, SD = .84) and core academic teachers (M = 3.32, SD = .87) and other content areas (M = 3.44, SD = .86), and special education teachers (M = 3.72, SD = .83) and core academic teachers (M = 3.32, SD = .87).

There were also pairs of groups that were significantly different ($p < .05$) based upon policies in place at the school including: requiring the assessment of nine or more skills (M = 3.63, SD = .92) and not requiring the assessment of any skills (M = 3.38, SD = .88) and requiring one to three skills to be assessed (M = 3.40, SD = .90), requiring evidence of nine or more skills for graduation (M = 3.76, SD = .88) and not requiring any evidence for graduation (M = 3.37, SD = .86) and requiring evidence of one to three skills for graduation (M =3.48, SD = .88). Differences existed between groups based upon engagement in professional development, including: teachers who attended five or more workshops (M = 3.61, SD = .94) and teachers who did not attend any workshops (M = 3.29, SD = .88) and those who attended one workshop (M = 3.31, SD = .86). There were also differences between groups of teachers who attended two to four workshops (M = 3.50, SD = .81) and those who did not attend any workshops (M = 3.29, SD = .88). In regard to the motivation for attending the workshops or trainings, there were significant ($p < .05$) differences between groups of teachers based upon those who sought out the opportunity to attend (M = 3.63, SD = .89) compared to the teachers who were required to attend (M = 3.43, SD = .88).

Table 6.12

Significant Pairwise Comparisons Between Groups Regarding Perceptions of Valuing Career Readiness over Academics

Comparison between groups					95% Confidence Interval	
Group 1	Group 2	Δ*M*	*SE*	*p*	*Lower bound*	*Upper bound*
0-5 years of experience	11-15 years of experience	.278	.085	.022	.021	.535
	26-30 years of experience	.432	.098	.000	.142	.722
6-10 years of experience	11-15 years of experience	.264	.086	.042	.005	.542
	26-30 years of experience	.419	.099	.000	.125	.712
16-20 years of experience	11-15 years of experience	.300	.098	.046	.003	.597
	26-30 years of experience	.454	.109	.001	.123	.784
21-25 years of experience	26-30 years of experience	.360	.115	.038	.009	.711
CTE	Core Academic	.446	.064	.000	.283	.610
	Other Content Area	.324	.085	.001	.102	.547
Special Education	Core Academic	.395	.098	.000	.162	.629
9 or more skills are assessed in the school	No skills are assessed in the school	.250	.088	.027	.019	.481
	1 to 3 skills are assessed in the school	.231	.080	.023	.021	.442
9 or more skills are required for graduation	No skills are required for graduation	.391	.099	.000	.152	.630
	1-3 skills are required for graduation	.283	.105	.029	.019	.548
5 or more workshops or trainings	No workshops or trainings	.319	.073	.000	.127	.512
	1 workshop or training	.291	.080	.002	.081	.501
2 to 4 workshops or trainings	No workshops or trainings	.217	.068	.007	.041	.394
Sought out the opportunity to attend professional development	Required to attend professional development	.198	.069	.026	.016	.381

**Note*. Δ*M*= Mean difference.

Discussion/Recommendations/Implications

The purpose of this study was to describe teachers' perceptions of career readiness. Based upon the results, we can comfortably acknowledge that, in general, teachers agree that fostering career readiness and the development of employability skills should be outcomes of secondary schools. Perceptions that value career readiness over academics were less enthusiastically supported by the teachers as a whole, though there were groups of teachers who were more likely to support the assertion that the development of career readiness was more important than academic content. Though there were a handful of teachers who maintained very negative perceptions of all constructs of career readiness, the findings indicate the majority of teachers seem to have embraced the idea that preparing students for their future careers is an important part of the secondary school curriculum.

The need for consistent messaging regarding career readiness and the skills which contribute to the development of career ready students is highlighted through the results of this study. The largest effect (ω^2=.09) identified in this study was the impact of content area taught on perceptions of career readiness. Core academic teachers and elective/other teachers had significantly less positive perceptions of career readiness compared to Career and Technical Education and special education teachers. Even though the constructs of perceptions of skill development and perceptions of career readiness were highly correlated (r = .733) and were designed to describe the same latent construct using different words (career readiness versus listing specific employability skills), the difference in perceptions of skill development between core academic teachers and CTE and special education teachers, though significant, were small to negligible (ω^2=.01). There is a pretty notable difference between how core academic teachers and elective/other teachers perceive skill development and career readiness. Because the

constructs are so highly related, it is likely core academic teachers and other teachers agree with the underlying ideas of career readiness, but they have some sort of negative perception of the statement career readiness. Though we can only surmise why those discrepancies exist, acknowledging and realizing those differences are present is important moving forward. We recommend future research explore why core academic and other/elective teachers have more negative perceptions of career readiness. In the meantime, school administrators and policy makers should be clear in explaining their expectations for career readiness development. If career readiness is truly defined by the development of employability skills, then that information needs to be made available to teachers in the form of professional development, clear policies, and administrative support.

The United States disproportionate focus on standardized assessments and academic standards may have contributed to varied perceptions among teachers of different content areas. It was not surprising that core academic teachers and other teachers had significantly lower perceptions of valuing career readiness over academics compared to CTE teachers and special education teachers, primarily because career readiness is a core tenet of Career and Technical Education and special education commonly focuses on educational goals which are broader than academic standards. Even though policy supports the development of career readiness among graduates, there is little indication that development should happen at the expense of academic standard attainment. The present data set also highlighted teachers were less likely to support career readiness at the expense of academics based upon their lower mean of perceptions of valuing career readiness over academics (M = 3.46, SD = .88). Even though policy is shifting to include language regarding the development of career readiness, within ESSA and other policies, the American system of education is still heavily driven by standards-based assessment and

accountability (US Department of Education, n.d.b). Henceforth, most core academic teachers have been living in a culture of academic accountability since the 1990s, and especially since the passage of No Child Left Behind in 2001 (US Department of Education, n.d.c). Jayram and Engmann (2014), found that a heavy focus on standardized assessment of content standards limited teachers' time to dedicate learning to other topics, such as employability skills. For some participants in this study, their entire careers have been within this climate of accountability, which has realistically impacted their experiences, philosophies, and values.

Changing educational policy related to the accountability movement over the years could have also contributed to differences in perceptions of teachers based upon their years of teaching experience. Years of teaching experience only contributed to a significant difference between groups when perceptions related to valuing career readiness over academics. Early career teachers with 0-5 years of experience and 6-10 years of experience had significantly more positive perceptions of valuing career readiness over academics compared to teachers with 11-15 years of experience and 26-30 years of experience. Interestingly, teachers with 16-20 years of experience also had significantly more positive perceptions of valuing career readiness over academics compared to teachers with 11-15 years of experience and 26-30 years of experience. Further research should be conducted to examine why teachers with 11-15 and 26-30 years of teaching experience specifically value academics so much more than teachers with 0-10 and 16-20 years of teaching experience. Could their perceptions be connected with the rise of the accountability movement and passage of the No Child Left Behind Act in 2001 or the Common Core Standards in 2009 (Common Core State Standards Initiative, 2020; US Department of Education, n.d.c)? Also, could a change in teacher preparation philosophy, such as the integration of instruction related to 21st Century Skills, have contributed to different perceptions

among early career teachers with fewer than ten years of experience (Partnership for 21st Century Learning, 2019b)?

The only situation where method of licensure made any impact on differences in perceptions was in regard to perceptions of career readiness. According to the independent samples *t*-test, teachers who earned their license through alternative means had more positive perceptions of career readiness compared to their peers who earned their teaching license through a traditional teacher preparation program. Because alternatively certified teachers often enter the teaching profession from business, trade, or industry (Mackelvie & Varrato, 2017), their perceptions are likely to be impacted by their real-world career experience outside of education. With this in mind, school leaders are encouraged to lean on their alternatively certified teachers to provide insight into the world of work outside of education as schools work to adopt career readiness policies moving forward.

Administrators and school leaders have the ability to positively impact teachers' perceptions of career readiness by establishing a school climate which supports the development of career ready students. Policies in place at schools have an impact on school climate (Wang & Degol, 2016), which in turn can impact teacher's perceptions (Alridge & Fraser, 2016). The results of this study led to mixed results regarding the impact of school policies on teachers' perceptions of career readiness, skill development, and valuing career readiness over academics. Though there were a handful of significant differences between groups based upon the number of skills included in school policies, the overall effect sizes were small to negligible (ω^2= .00 to .01). Yet, there were clear differences between the means of perceptions of career readiness between the group of teachers that taught in schools that assessed nine or more skills compared to all of the other groups of teachers (no skills were assessed, one to three skills were assessed,

and four to eight skills were assessed). It is noteworthy that assessment of skills led to a difference in perceptions of career readiness between all groups, whereas instruction of those same skills only led to a difference between teachers that worked in schools that expected all teachers to teach nine or more skills compared to teachers that worked in schools that expected all teachers to teach four to eight skills. It is possible that assessment of skill development leads teachers to be more intentional with their instruction, feedback, and documentation of skill development, which may lead to more positive perceptions of career readiness overall. Further, if schools are requiring teachers to teach specific skills, but not asking teachers to assess them, how would there be evidence that teachers are teaching the skills effectively? We recommend that if school leaders put policies in place regarding the development of career ready schools, they ensure assessment of employability skills be included in those policies. At this point, the information collected from the assessments is less important than actual act of teachers assessing skill development in regard to the fostering of positive perceptions of career readiness.

Sustained, diverse, and focused professional development on career readiness skills enhances teacher's perceptions of those skills and the likelihood students will engage with those skills across the curricula. Professional development engagement had a small, positive association in all constructs of perceptions of career readiness. Because evidence exists that professional development impacts school climate (Wang & Degol, 2016), it was likely that professional development would also have the potential to impact teachers' perceptions (Aldridge & Fraser, 2016). Within the context of this study, as teachers attended more workshops or trainings regarding the instruction and development of employability skills, their positive perceptions of career readiness and skill development increased. Repeated exposure to the topic of career readiness made a difference in teachers' perceptions. A feasible adjustment

for school districts, teacher preparation programs, alternative licensure programs, and professional organizations would be making more professional development and coursework available regarding the development and instruction of employability skills to in-service and pre-service teachers. In regard to policy implementation, sense-making of policies is driven by teachers' understanding of the policy at hand (Spillane et al., 2002). For effective career readiness policy to be implemented, teachers must have a shared understanding of what it means to be career ready. That shared understanding could potentially be achieved through professional development.

However, it is important to note that teachers who sought out the opportunity to engage in workshops also had significantly more positive perceptions of career readiness compared to teachers who were required to attend workshops. School leaders will need to tread lightly in the implementation of professional development within a school district. Simply requiring teachers to attend workshops does not seem to be effective. Instead, understanding may need to be reached through repeated conversations and encouragement to attend workshops or trainings which are not mandated for the entire staff. Creativity and future research in this area would benefit school district leaders who are trying to effectively implement career readiness policies.

It is true that many definitions of career readiness exist, making policy implementation of career readiness initiatives difficult. However, to simplify the conversation, most definitions include the acquisition of skills as being a component of career readiness (Association for Career and Technical Education [ACTE], 2010; Conley, 2012; Mishkind, 2014). Interestingly, very few differences in perceptions of skill development between groups of teachers were identified through this study. Very minor differences existed between content area taught and professional development engagement, but even those differences had small to negligible effect sizes (ω^2=.01

to .02). This was interpreted as, in general, secondary teachers in North Dakota shared equally positive perceptions of skill development as an outcome of secondary schools. Yet, many notable differences existed between groups when comparing perceptions of career readiness, even though, by definition, career readiness and skill development are virtually the same thing. The only difference between the instrument items was the presence of the word career versus a group of employability skills in opposing constructs. This indicates that the statement career readiness may cause some misunderstanding or bias. Perhaps the word career conflicts with teachers whose philosophies are more liberally focused on academic achievement versus those who maintain a more vocational mindset. Moving forward, we recommend adjusting the language used when talking about college and career readiness. Perhaps the term *choice ready* is the most appropriate way to express the pinnacle goal of schools. The conversation about the appropriate language to use when discussing college and career readiness goals needs to continue so the expectations are explicitly clear and all stakeholders are fully aware of what is being said.

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APPENDIX A. IRB APPROVAL LETTER

NDSU NORTH DAKOTA STATE UNIVERSITY

March 26, 2020

Adam Marx
School of Education

Re: IRB Determination of Exempt Human Subjects Research:
Protocol #HE20223, "Fostering Career Readiness Among Secondary Students: Teacher's perceptions and instructional intentions"

NDSU Co-investigator(s) and research team: B. Thiel

Date of Exempt Determination: 3/26/2020 Expiration Date: 3/25/2023
Study site(s): online survey Funding Agency: None

The above referenced human subjects research project has been determined exempt (category 2(i)) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, *Protection of Human Subjects*). This determination is based on the original protocol received 3/13/2020.

Please also note the following:

- If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
- The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
- Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
- Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.

Sincerely,

Josie Hayden, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult https://www.ndsu.edu/research/for_researchers/research_integrity_and_compliance/institutional_review_board_irb/. This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

RESEARCH INTEGRITY AND COMPLIANCE
NDSU Dept 4000 | PO Box 6050 | Fargo ND 58108-6050 | ndsu.research@ndsu.edu
Shipping Address: Research 1, 1735 NDSU Research Park Drive, Fargo ND 58102

APPENDIX B. PARTICIPANT RECRUITMENT LETTER

Fostering Career Readiness Among Secondary Students:
Teachers' Perceptions and Instructional Intentions

Dear ND Secondary Teacher:

My name is Brooke Thiel. I am a graduate student in the School of Education at North Dakota State University, and I am conducting a research project to understand teachers' perceptions of career readiness and how those perceptions impact their instructional intentions. It is our hope, that with this research, we will learn more about how we can further support students in the development of skills which prepare them for life, post-secondary education, and work.

Because you are a current secondary teacher in the state of North Dakota you are invited to take part in this research project. Your participation is entirely your choice, and you may change your mind or quit participating at any time, with no penalty to you.

There are no expected risks to participation in this study. You are not expected to get any benefit from being in this research study. However, benefits to others and society are likely to include a better understanding of how schools and policies can support teachers in the fostering and development of important skills among secondary students.

It should take about 15-20 minutes to complete the questions about your perceptions of career readiness, instructional intentions, and demographic information. The survey will be completed on Qualtrics from your computer or cell phone and will be submitted online. If you choose, the final page of the survey will include instructions to follow should you desire to be entered into a drawing for an Amazon gift card. Teachers who respond in the first 48 hours will be entered into **a drawing for one of five $100 gift cards**. Those who respond after the first 48 hours will be entered into **a drawing for one of five $50 gift cards**. The identifiable information shared for the drawing will not be linked to your survey responses to maintain anonymity.

This study is anonymous. That means that no one, not even members of the research team, will know that the information you give comes from you.

If you have any questions about this project, please contact me at 701-866-4219 or brooke.thiel@ndsu.edu, or contact my advisor Adam Marx at 701-231-7439 or adam.marx@ndsu.edu.

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8995, toll-free at 1-855-800-6717, by email at ndsu.irb@ndsu.edu, or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050.

Thank you for your taking part in this research. If you wish to receive a copy of the results, please email Brooke.Thiel@ndsu.edu to receive the results of this study.

APPENDIX C. PARTICIPANT QUESTIONNAIRE

NDSU School of Education
Dept 2625/PO Box 6050
Fargo, ND 58108-6050
(701) 231-7921

Fostering Career Readiness Among Secondary Students: Teachers' Perceptions and Instructional Intentions

This study is being conducted by: Dr. Adam Marx (Adam.Marx@ndsu.edu) and Brooke Thiel (Brooke.Thiel@ndsu.edu) in the School of Education at NDSU, 701-231-7921.

Why am I being asked to participate in this study?
You are being asked to participate in this study because you are currently a secondary teacher in North Dakota who is at least 18-years of age.

What is the reason for the study?
The purpose of this study is to examine teachers' perceptions of career readiness as an outcome of secondary education and teachers' instructional intentions related to career readiness skills.

What will I be asked to do?
You will be asked to complete a survey about your perceptions of career readiness as an outcome of secondary schools, your instructional intentions related to career readiness skills, and your demographics. In light of the current coronavirus pandemic, your responses should be based upon your typical classroom experiences (not your current distance education methods).

Where is the study going to take place, and how long will it take?
The study will be taken remotely on Qualtrics. The survey will take approximately 15-20 minutes of your time.

What are the risks and discomforts?
There are no known risks or discomforts expected from your participation in this study. Your participation is voluntary and may end at any time you decide.

What are the benefits to me?
There are no benefits resulting from participation in this study.

What are the benefits to other people?
By participating in this study, you will help contribute to the body of knowledge related to career readiness, including a better understanding of how schools and policies can support teachers in the fostering and development of important skills among secondary students.

Do I have to take part in the study?
Your participation is voluntary. Upon agreeing to participate, you may choose to stop participating at any time.

Who will have access to the information that I give?
The data collected will be completely anonymous. No identifiable information will be collected, with the exception being an email address should you decide to participate in the drawing for a gift card. If you provide your email address, it will be separated immediately from the rest of the survey to maintain your anonymity. Your email address will be destroyed as soon as the gift cards are awarded. All of the survey data will be stored on a password protected computer in a locked office on NDSU campus.

Will I receive any compensation for taking part in this study?
If you choose, the final page of the survey will include instructions to follow should you desire to be entered into a drawing for an Amazon gift card. Teachers who respond in the first 48 hours will be entered into **a drawing for one of five $100 gift cards**. Those who respond after the first 48 hours will be entered into **a drawing for one of five $50 gift cards**. The identifiable information shared for the drawing will not be linked to your survey responses to maintain anonymity.

What are my rights as a research participant?
You have rights as a research participant. All research with human participants is reviewed by a committee called the Institutional Review Board (IRB) which works to protect your rights and welfare. If you have questions about your rights, an unresolved question, concern or complaint about this research you may contact the IRB office at 701.231.8995, toll-free at 855-800-6717 or via email (ndsu.irb@ndsu.edu).

Documentation of Informed Consent:
You are freely choosing to be in this research study. Checking the box below this form means that
1. you have read and understood this consent form,
2. you have had your questions answered, and
3. you have decided to be in the study.

You may save a copy of this consent form to keep for your records. Please email Brooke.Thiel@ndsu.edu for a downloadable copy.

I currently teach middle school or high school classes.

- ○ Yes
- ○ No

I have read the above and agree to participate in this research study

- ○ Yes
- ○ No

Thank you for your time!

Block 1

Section 1 of 4
The following questions are meant to assess your perceptions of career readiness as an outcome of secondary school education. For example, do you believe schools should be responsible for preparing students for their future careers?

You will be asked to answer questions using the scale of Strongly Disagree to Strongly Agree. Please answer the questions with responses that most closely match your level of agreement with each statement.

Please respond to the following statements by selecting the response that most closely matches your level of agreement to the statement.

	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
Secondary schools must play a role in preparing students for their future careers.	○	○	○	○	○
Skills, such as communication, critical thinking, and work ethic, should be assessed by secondary schools.	○	○	○	○	○
It is my job to teach career readiness skills.	○	○	○	○	○
Fostering the development of skills, such as problem solving, critical thinking, and teamwork, are important parts of my job.	○	○	○	○	○
Students must possess basic career readiness skills when they graduate from high school.	○	○	○	○	○
Secondary schools must teach students how to work in teams, solve real-world problems, and communicate.	○	○	○	○	○
	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
It is appropriate for me to spend time during my class(es) to instruct career readiness skills.	○	○	○	○	○
When my students finish my class, I want them to have developed work ethic and professionalism.	○	○	○	○	○
Career readiness should be assessed during middle/high school.	○	○	○	○	○
Schools should value the development of skills such as teamwork, critical thinking skills, and communication more than academic content.	○	○	○	○	○
I am equally responsible for teaching academic content and career readiness skills.	○	○	○	○	○
	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

Section 1 continued

Please respond to the following statements by selecting the response that most closely matches your level of agreement to the statement.

	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
I should play a role in ensuring my students develop communication and teamwork skills before they graduate from high school.	○	○	○	○	○
All students must receive instruction related to career readiness skills during middle/high school.	○	○	○	○	○
The purpose of secondary education is broader than academic standards.	○	○	○	○	○
If my students are career ready when they graduate, I have succeeded at my job.	○	○	○	○	○
It is more important that I teach my students how to work as a team or act professionally than the academic standards I teach.	○	○	○	○	○
It is more important that secondary schools teach career readiness skills than academic standards.	○	○	○	○	○
	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
When students graduate from high school, they should know how to communicate in a wide range of contexts.	○	○	○	○	○
Fostering career readiness is an important part of my job.	○	○	○	○	○
All teachers must foster the development of communication skills, teamwork, and critical thinking skills.	○	○	○	○	○
All students must receive instruction related to problem solving, collaboration, and communication during middle/high school.	○	○	○	○	○
The purpose of education is broader than the instruction of academic content and attainment of standards; it should also include the development of career readiness skills.	○	○	○	○	○

	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

Section 1 continued

Please respond to the following statements by selecting the response that most closely matches your level of agreement to the statement.

	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
All teachers should play a role in preparing students for their future careers.	○	○	○	○	○
Time in school should be dedicated to the instruction of skills such as communication, critical thinking, and professionalism.	○	○	○	○	○
It is my job to teach students to be professional, work successfully in groups, and solve real-world problems.	○	○	○	○	○
Students should be career ready when they finish high school.	○	○	○	○	○
Secondary schools are responsible for fostering the development of skills such as professionalism, problem solving, and communication among graduates.	○	○	○	○	○
I believe it is important to address career readiness development during my class(es).	○	○	○	○	○
	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
It is appropriate for me to dedicate classroom instructional time towards skill development such as teamwork, communication, and problem solving.	○	○	○	○	○
It is my goal to prepare students for their future careers.	○	○	○	○	○
Time in school should be dedicated to the instruction of career readiness skills.	○	○	○	○	○
It is just as important that I foster skill development such as work ethic, critical thinking, and communication skills as it is to teach academic content standards.	○	○	○	○	○
It is the responsibility of secondary schools to foster the development of career readiness skills among graduates.	○	○	○	○	○
	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

Block 8

Thank you for completing Section 1 of the survey! Please continue to Section 2.

Block 3

Section 2 of 4

The following questions are meant to assess your intentions regarding the instruction of skills in your classroom(s). The scale includes the following descriptors: you never intend, rarely intend, occasionally intend, often intend, or intend to daily complete the task in the statement.

Within the context of this scale, rarely accounts for less than 10% of the time in the classroom and often is defined as more than 50% of the time in the classroom.

As a teacher, it is my intent to...

	Never	Rarely	Occasionally	Often	Daily
teach my students how to work effectively in teams.	○	○	○	○	○
have my students practice their presentations to get feedback.	○	○	○	○	○
develop class activities which allow my students to explore how small pieces interact to impact the big picture.	○	○	○	○	○
teach my students what it means to be professional.	○	○	○	○	○
assess my students on their ability to work as part of a team.	○	○	○	○	○

	Never	Rarely	Occasionally	Often	Daily
teach my students how to write effectively in a variety of mediums.	○	○	○	○	○

	Never	Rarely	Occasionally	Often	Daily
assign problems to my students that have multiple right answers.	○	○	○	○	○
explicitly teach time-management strategies to my students so they can better manage their time.	○	○	○	○	○
give my students feedback regarding their teamwork in groups.	○	○	○	○	○
teach my students how to actively listen to others.	○	○	○	○	○
ask questions to encourage students to reflect upon learning experiences and learning processes.	○	○	○	○	○

Section 2 continued

As a teacher, it is my intent to...

	Never	Rarely	Occasionally	Often	Daily
hold my students accountable for their work by setting clear expectations.	○	○	○	○	○
teach my students the critical thinking skills needed to solve problems.	○	○	○	○	○
foster student reflection about their teamwork ability to allow for growth.	○	○	○	○	○
assess my students on their ability to listen.	○	○	○	○	○
explicitly teach my students how to set goals.	○	○	○	○	○

	Never	Rarely	Occasionally	Often	Daily
give students feedback on their ability to evaluate evidence to develop conclusions.	○	○	○	○	○
coach my students' teams to work together to reach a common goal.	○	○	○	○	○
teach my students how to give an effective presentation.	○	○	○	○	○
supervise my students' group work to provide feedback specifically about the effectiveness of their teamwork.	○	○	○	○	○
encourage my students to reflect upon their own ethical behavior.	○	○	○	○	○

Section 2 continued

As a teacher, it is my intent to...

	Never	Rarely	Occasionally	Often	Daily

	Never	Rarely	Occasionally	Often	Daily
explicitly teach my students various types of problem-solving strategies.	○	○	○	○	○
ask questions to my students during group work which encourages them to think about teamwork at a deeper level.	○	○	○	○	○
explicitly teach effective strategies for working with diverse groups of people.	○	○	○	○	○
give feedback to a student who was late (to class/turning in an assignment, etc.) by giving them recommendations for the future.	○	○	○	○	○
instruct students to apply various types of reasoning in different situations.	○	○	○	○	○
	Never	Rarely	Occasionally	Often	Daily
provide feedback to my students regarding their ability to be respectful and open-minded to ideas which may be opposed to their own.	○	○	○	○	○
get my students to think about how effective communication differs based upon purpose (to inform, persuade, instruct, etc.).	○	○	○	○	○
teach my students how to leverage the individual strengths of their group members to achieve the best results as a team.	○	○	○	○	○
provide my students with feedback regarding their problem-solving processes.	○	○	○	○	○
teach my students how to prioritize their responsibilities.	○	○	○	○	○
	Never	Rarely	Occasionally	Often	Daily

Section 2 continued

As a teacher, it is my intent to

	Never	Rarely	Occasionally	Often	Daily
pose reflection questions to my students during a group activity related to the effectiveness of their teamwork.	○	○	○	○	○
foster confidence in my classroom by giving feedback.	○	○	○	○	○
allow my students to choose how they would like to communicate their assignment or project.	○	○	○	○	○
teach my students how to ask questions which clarify the problem to be solved.	○	○	○	○	○
provide my students with strategies to improve their behavior if needed.	○	○	○	○	○
	Never	Rarely	Occasionally	Often	Daily
allow my students to communicate in a variety of ways (blogs, social media posts, periodicals, technical reports, etc.).	○	○	○	○	○
explicitly outline my expectations for effective and healthy teamwork.	○	○	○	○	○
ask my students to reflect upon how effective communication differs in various cultures.	○	○	○	○	○

	Never	Rarely	Occasionally	Often	Daily
assess my students' ability to develop conclusions based upon evidence.	○	○	○	○	○
help my students manage many different tasks at the same time through practice.	○	○	○	○	○
	Never	Rarely	Occasionally	Often	Daily

Block 5

Section 3 of 4
Short Answer

What are your thoughts about the inclusion of career readiness as an outcome of secondary education?

Block 7

Thank you for completing Section 2 and 3! Please continue to the final section.

Demographics

Section 4 of 4
The following questions are meant to collect demographic information.

How many years of teaching experience do you have?

- ○ 0-5 years
- ○ 6-10 years
- ○ 11-15 years
- ○ 16-20 years
- ○ 21-25 years
- ○ 26-30 years
- ○ 31 or more years

What content area(s) do you teach? (select all that apply)

- ☐ English/Language Arts
- ☐ Math
- ☐ Sciences
- ☐ Social Studies
- ☐ Music/Art/Theater
- ☐ Physical Education/Health
- ☐ Foreign Language
- ☐ Special Education
- ☐ Career and Technical Education
- ☐ Other

What other content area(s) do you teach?

Section 4 continued

Please select the option which best describes how you obtained your teaching license.

- ○ I obtained my teaching license through a bachelor's or master's teacher preparation program.
- ○ I alternatively obtained my teaching license through testing, work experience, emergency access, or some other means.

What is your age in years ?

- ○ 20-29
- ○ 30-39
- ○ 40-49
- ○ 50-59
- ○ 60 or older

What is the size of the school in which you teach? (approximate middle school and high school enrollment).

- ○ 1-100 students
- ○ 101-200 students
- ○ 201-399 students
- ○ 400-900 students
- ○ 901 or more students

What percentage of students in your school receive free or reduced-price lunch?

- ○ Fewer than 10% receive free and reduced-price lunch
- ○ Between 11-25% receive free and reduced-price lunch
- ○ Between 26-40% receive free and reduced-price lunch
- ○ Greater than 41% receive free and reduced price lunch
- ○ Unsure

At my current school, **all** teachers are expected to incorporate skill development in the following areas into our instruction (select all that apply):

- ☐ Teamwork/Collaboration
- ☐ Written Communication
- ☐ Oral Communication
- ☐ Creativity
- ☐ Critical Thinking/Problem Solving
- ☐ Flexibility
- ☐ Ethical Decision Making
- ☐ Reliability
- ☐ Integrity/Character
- ☐ Professionalism
- ☐ Work Ethic
- ☐ Interpersonal Skills
- ☐ Responsibility
- ☐ None of the above

At my current school, **some** teachers are expected to incorporate skill development in the following areas into our instruction (select all that apply):

- ☐ Teamwork/Collaboration
- ☐ Written Communication
- ☐ Oral Communication
- ☐ Creativity

- [ ] Critical Thinking/Problem Solving
- [ ] Flexibility
- [ ] Ethical Decision Making
- [ ] Reliability
- [ ] Integrity/Character
- [ ] Professionalism
- [ ] Work Ethic
- [ ] Interpersonal Skills
- [ ] Responsibility
- [ ] None of the above

At my current school, students' skill development is **assessed** in the following area(s) (select all that apply):

- [ ] Teamwork/Collaboration
- [ ] Written Communication
- [ ] Oral Communication
- [ ] Creativity
- [ ] Critical Thinking/Problem Solving
- [ ] Flexibility
- [ ] Ethical Decision Making
- [ ] Reliability
- [ ] Integrity/Character
- [ ] Professionalism
- [ ] Work Ethic
- [ ] Interpersonal Skills
- [ ] Responsibility
- [ ] None of the above

At my current school, students' skill development in the following area(s) are required for graduation (select all that apply):

- [ ] Teamwork/Collaboration
- [ ] Written Communication
- [ ] Oral Communication
- [ ] Creativity
- [ ] Critical Thinking/Problem Solving
- [ ] Flexibility
- [ ] Ethical Decision Making
- [ ] Reliability
- [ ] Integrity/Character
- [ ] Professionalism

- [ ] Work Ethic
- [ ] Interpersonal Skills
- [ ] Responsibility
- [ ] None of the above

How many individual workshops/trainings/etc. have you participated in related to the instruction and development of the above skills?

- ○ 0 workshops/trainings
- ○ 1 workshops/trainings
- ○ 2 to 4 workshops/trainings
- ○ 5 or more workshops/trainings

Of the workshops/trainings you have attended, which of the following describe your reason(s) for attending? (select all that apply):

- [ ] I was required to attend.
- [ ] It was one of several options of workshops to attend.
- [ ] I specifically sought out the opportunity to attend.
- [ ] Other

Describe other:

Block 7

Would you like to be entered into a drawing for an Amazon Gift Card? If so, please enter your email address below. (Your email address will be separated from your responses to maintain your anonymity).

APPENDIX D. INSTRUCTIONAL INTENTIONS QUESTIONNAIRE RESULTS

Table D1

Loading Matrix for the Final Rotated Factor Solution of the Instructional Intentions Questionnaire IIQ

Item #	A Priori Construct	Factor			Communalities
		1	2	3	
31	Prof	.788			.551
8	Prof	.665			.427
36	Prof	.645			.445
16	Prof	.601			.528
21	Prof	.584			.461
25	Prof	.571			.378
27	Team	.567			.383
15	Comm	.455			.419
41	Prof	.426			.421
4	Prof	.394			.262
18	Team		.831		.663
5	Team		.763		.555
9	Team		.751		.574
20	Team		.730		.574
1	Team		.729		.461
14	Team		.598		.592
29	Team		.557		.543
32	Team		.549		.486
38	Team		.450		.393
22	CT/PS			.774	.569
30	CT/PS			.660	.550
13	CT/PS			.655	.398
26	CT/PS			.604	.551
35	CT/PS			.430	.428

Note. Loadings below 0.3 are not shown. The original 31 items can be found in Appendix A. Prof: Professionalism/Work Ethic. Team: Teamwork. CT/PS: Critical Thinking and Problem Solving.

APPENDIX E. SPSS OUTPUTS

Figure E1

Final Pattern Matrix for the Perceptions of Career Readiness Instrument

Pattern Matrix[a]

	Factor		
	1	2	3
1-21_CRBX	.860		
1_20_CRIX	.756		
1_18_CRBX	.720		
1_12_CRIX	.679		
1_25_CRIX	.674		
1_24_CRBX	.668		
1_27_CRBX	.597		
1_29_CRIX	.582		
1_6_CRBX	.580		
1_4_CRIX	.516		
1_14_CRBX	.424		
1_8_CRIX	.376		
1_17_CRB		.835	
1_16_CRIX		.770	
1_10_CRBX		.408	
1_3_CRI			-.933
1_7_CRI			-.791
1_19_CRI			-.638
1_28_CRI			-.592
1_9_CRB			-.578
1_30_CRI			-.558
1_11_CRI			-.538
1_1_CRB			-.512
1_5_CRB			-.481
1_13_CRB			-.467
1_31_CRB			-.365
1_26_CRB			-.300

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 9 iterations.

Figure E2

Final Factor Correlation Matrix for the Perceptions of Career Readiness Instrument

Factor Correlation Matrix

Factor	1	2	3
1	1.000	.381	-.733
2	.381	1.000	-.367
3	-.733	-.367	1.000

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

Figure E3

Final Communalities of the Retained Items for the Perceptions of Career Readiness Instrument

Communalities

	Initial	Extraction
1_1_CRB	.341	.318
1_3_CRI	.576	.634
1_4_CRIX	.407	.371
1_5_CRB	.431	.372
1_6_CRBX	.452	.421
1_7_CRI	.639	.639
1_8_CRIX	.369	.353
1_9_CRB	.463	.460
1_10_CRBX	.409	.382
1_11_CRI	.468	.460
1_12_CRIX	.550	.568
1_13_CRB	.512	.503
1_14_CRBX	.309	.300
1_16_CRIX	.593	.647
1_17_CRB	.592	.719
1_18_CRBX	.432	.448
1_19_CRI	.610	.604
1_20_CRIX	.590	.573
1-21_CRBX	.599	.611
1_24_CRBX	.543	.536
1_25_CRIX	.582	.574
1_26_CRB	.461	.380
1_27_CRBX	.487	.480
1_28_CRI	.610	.590
1_29_CRIX	.575	.556
1_30_CRI	.527	.498
1_31_CRB	.557	.516

Extraction Method: Principal Axis Factoring.

Figure E4

Final Perceptions of Career Readiness Instrument Reliability

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.944	.948	27

Figure E5

Perceptions of Career Readiness Factor 1 Instrument Subscale Reliability

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.911	.911	12

Figure E6

Perceptions of Career Readiness Factor 2 Instrument Subscale Reliability

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.789	.789	3

Figure E7

Perceptions of Career Readiness Factor 3 Instrument Subscale Reliability

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.913	.915	12

Figure E8

Final Pattern Matrix for the Instructional Intentions Questionnaire

Pattern Matrix[a]

	Factor		
	1	2	3
2_31_Prof1	.788		
2_8_Prof1	.665		
2_36_Prof3	.645		
2_16_Prof1	.601		
2_21_Prof2	.584		
2_25_Prof3	.571		
2_27_Team3	.567		
2_15_Com3	.455		
2_41_Prof2	.426		
2_4_Prof1	.394		
2_18_Team2		-.831	
2_5_Team3		-.763	
2_9_Team3		-.751	
2_20_Team3		-.730	
2_1_Team1		-.729	
2_14_Team2		-.598	
2_29_Team1		-.557	
2_32_Team2		-.549	
2_38_Team1		-.450	
2_22_CT1			.774
2_30_CT3			.660
2_13_CT1			.655
2_26_CT1			.604
2_35_CT1			.430

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Figure E9

Final Factor Correlation Matrix for the Instructional Intentions Questionnaire

Factor Correlation Matrix

Factor	1	2	3
1	1.000	-.593	.700
2	-.593	1.000	-.411
3	.700	-.411	1.000

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

Figure E10

Final Communalities of the Retained Items for the Instructional Intentions Questionnaire

Communalities

	Initial	Extraction
2_1_Team1	.461	.461
2_4_Prof1	.286	.262
2_5_Team3	.532	.555
2_8_Prof1	.450	.427
2_9_Team3	.536	.574
2_13_CT1	.369	.398
2_14_Team2	.581	.592
2_15_Com3	.443	.419
2_16_Prof1	.527	.528
2_18_Team2	.612	.663
2_20_Team3	.552	.574
2_21_Prof2	.459	.461
2_22_CT1	.475	.569
2_25_Prof3	.365	.378
2_26_CT1	.493	.551
2_27_Team3	.391	.383
2_29_Team1	.542	.543
2_30_CT3	.489	.550
2_31_Prof1	.508	.551
2_32_Team2	.504	.486
2_35_CT1	.400	.428
2_36_Prof3	.419	.445
2_38_Team1	.407	.393
2_41_Prof2	.414	.421

Extraction Method: Principal Axis Factoring.

Figure E11

Final Instructional Intentions Questionnaire Reliability

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.935	.935	24

Figure E12

Instructional Intentions Questionnaire Factor 1 Professionalism Instrument Subscale Reliability

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.873	.875	10

Figure E13

Instructional Intentions Questionnaire Factor 2 Teamwork Instrument Subscale Reliability

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.906	.906	9

Figure E14

Instructional Intentions Questionnaire Factor 3 Critical Thinking Instrument Subscale Reliability

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.820	.823	5

Figure E15

Professionalism Model Multiple Linear Regression Output

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.386[a]	.149	.147	.55936	.149	70.468	3	1205	.000	1.926

a. Predictors: (Constant), Focus on Career Readiness, Career > Academics, Focus on Skills

b. Dependent Variable: Professionalism

Figure E16

Regression Coefficients of the Professionalism Multiple Linear Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.859	.166		11.207	.000	1.533	2.184					
	Focus on Skills	.147	.061	.105	2.435	.015	.029	.266	.333	.070	.065	.381	2.623
	Career > Academics	.088	.022	.128	4.009	.000	.045	.132	.295	.115	.107	.689	1.451
	Focus on Career Readiness	.239	.051	.211	4.718	.000	.139	.338	.363	.135	.125	.354	2.824

a. Dependent Variable: Professionalism

Figure E17

Teamwork Model Multiple Linear Regression Output

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.422[a]	.178	.176	.60034	.178	86.944	3	1205	.000	1.943

a. Predictors: (Constant), Focus on Career Readiness, Career > Academics, Focus on Skills

b. Dependent Variable: Teamwork

Figure E18

Regression Coefficients of the Teamwork Multiple Linear Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.302	.178		7.314	.000	.953	1.651					
	Focus on Skills	.335	.065	.218	5.151	.000	.207	.462	.364	.147	.135	.381	2.623
	Career > Academics	.177	.024	.235	7.472	.000	.130	.223	.364	.210	.195	.689	1.451
	Focus on Career Readiness	.048	.054	.039	.877	.380	-.059	.154	.338	.025	.023	.354	2.824

a. Dependent Variable: Teamwork

Figure E19

Critical Thinking Model Multiple Linear Regression Output

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.321[a]	.103	.101	.56542	.103	46.033	3	1205	.000	1.906

a. Predictors: (Constant), Focus on Career Readiness, Career > Academics, Focus on Skills

b. Dependent Variable: Critical Thinking

Figure E20

Regression Coefficients of the Critical Thinking Multiple Linear Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2.058	.168		12.274	.000	1.729	2.387					
	Focus on Skills	.337	.061	.244	5.513	.000	.217	.457	.313	.157	.150	.381	2.623
	Career > Academics	.040	.022	.059	1.792	.073	-.004	.084	.208	.052	.049	.689	1.451
	Focus on Career Readiness	.058	.051	.052	1.131	.258	-.042	.158	.275	.033	.031	.354	2.824

a. Dependent Variable: Critical Thinking

Figure E21

Years of Teaching Experience ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	2.788	6	.465	2.523	.020
	Within Groups	221.194	1201	.184		
	Total	223.981	1207			
Career > Academics	Between Groups	25.056	6	4.176	5.526	.000
	Within Groups	907.635	1201	.756		
	Total	932.691	1207			
Focus on Career Readiness	Between Groups	3.567	6	.594	2.088	.052
	Within Groups	341.952	1201	.285		
	Total	345.519	1207			

Figure E22

Content Area Taught ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	3.670	3	1.223	6.690	.000
	Within Groups	220.358	1205	.183		
	Total	224.028	1208			
Career > Academics	Between Groups	42.077	3	14.026	18.960	.000
	Within Groups	891.382	1205	.740		
	Total	933.459	1208			
Focus on Career Readiness	Between Groups	31.489	3	10.496	40.268	.000
	Within Groups	314.100	1205	.261		
	Total	345.589	1208			

Figure E23

Age of Participant ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	1.745	4	.436	2.370	.051
	Within Groups	220.398	1197	.184		
	Total	222.143	1201			
Career > Academics	Between Groups	9.292	4	2.323	3.041	.017
	Within Groups	914.351	1197	.764		
	Total	923.642	1201			
Focus on Career Readiness	Between Groups	.419	4	.105	.367	.833
	Within Groups	342.239	1197	.286		
	Total	342.658	1201			

Figure E24

School Size (Student-enrollment in Grades 6-12) ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	.678	4	.169	.916	.454
	Within Groups	222.000	1200	.185		
	Total	222.678	1204			
Career > Academics	Between Groups	4.237	4	1.059	1.378	.239
	Within Groups	922.209	1200	.769		
	Total	926.446	1204			
Focus on Career Readiness	Between Groups	1.086	4	.272	.952	.433
	Within Groups	342.328	1200	.285		
	Total	343.415	1204			

Figure E25

Socioeconomic Status ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	1.670	4	.417	2.267	.060
	Within Groups	221.008	1200	.184		
	Total	222.678	1204			
Career > Academics	Between Groups	6.269	4	1.567	2.044	.086
	Within Groups	920.177	1200	.767		
	Total	926.446	1204			
Focus on Career Readiness	Between Groups	2.875	4	.719	2.533	.039
	Within Groups	340.540	1200	.284		
	Total	343.415	1204			

Figure E26

School Policies Regarding Teachers Expected to Teach All Skills ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	1.364	3	.455	2.467	.061
	Within Groups	221.314	1201	.184		
	Total	222.678	1204			
Career > Academics	Between Groups	2.940	3	.980	1.275	.282
	Within Groups	923.506	1201	.769		
	Total	926.446	1204			
Focus on Career Readiness	Between Groups	3.754	3	1.251	4.424	.004
	Within Groups	339.661	1201	.283		
	Total	343.415	1204			

Figure E27

School Policies Regarding Teachers Expected to Teach Some Skills ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	2.144	3	.715	3.893	.009
	Within Groups	220.533	1201	.184		
	Total	222.678	1204			
Career > Academics	Between Groups	.088	3	.029	.038	.990
	Within Groups	926.359	1201	.771		
	Total	926.446	1204			
Focus on Career Readiness	Between Groups	2.613	3	.871	3.069	.027
	Within Groups	340.802	1201	.284		
	Total	343.415	1204			

Figure E28

School Policies Regarding Teachers Expected to Assess Skill Development ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	1.331	3	.444	2.408	.066
	Within Groups	221.347	1201	.184		
	Total	222.678	1204			
Career > Academics	Between Groups	8.039	3	2.680	3.504	.015
	Within Groups	918.408	1201	.765		
	Total	926.446	1204			
Focus on Career Readiness	Between Groups	4.654	3	1.551	5.500	.001
	Within Groups	338.761	1201	.282		
	Total	343.415	1204			

Figure E29

School Policies Regarding Skill Development Required for Graduation ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	.648	3	.216	1.169	.320
	Within Groups	222.029	1201	.185		
	Total	222.678	1204			
Career > Academics	Between Groups	13.651	3	4.550	5.987	.000
	Within Groups	912.796	1201	.760		
	Total	926.446	1204			
Focus on Career Readiness	Between Groups	2.458	3	.819	2.886	.035
	Within Groups	340.957	1201	.284		
	Total	343.415	1204			

Figure E30

Participant Workshop Attendance ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	5.499	3	1.833	10.137	.000
	Within Groups	217.178	1201	.181		
	Total	222.678	1204			
Career > Academics	Between Groups	19.229	3	6.410	8.485	.000
	Within Groups	907.217	1201	.755		
	Total	926.446	1204			
Focus on Career Readiness	Between Groups	8.236	3	2.745	9.837	.000
	Within Groups	335.178	1201	.279		
	Total	343.415	1204			

Figure E31

Participants' Reasons for Attending Workshop ANOVA SPSS Output

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Focus on Skills	Between Groups	2.211	3	.737	4.120	.006
	Within Groups	167.595	937	.179		
	Total	169.806	940			
Career > Academics	Between Groups	8.015	3	2.672	3.544	.014
	Within Groups	706.455	937	.754		
	Total	714.471	940			
Focus on Career Readiness	Between Groups	6.054	3	2.018	7.416	.000
	Within Groups	254.973	937	.272		
	Total	261.027	940			