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Online Special Education Teachers' Use of Best Practices in Online Education: Comparisons with General Education Teachers, Supporting Factors, and Barriers to Implementation

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**Online Special Education Teachers' Use of Best Practices in Online Education:
Comparisons with General Education Teachers, Supporting Factors,
and Barriers to Implementation**

by
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Abstract

The purpose of this study was to examine the relationship between the use of best practices for K-12 general education teachers and special education teachers in Minnesota K-12 approved online learning programs. Additionally, the relationships between teachers' use of best practices, personality characteristics, work-life variables, and demographics of teachers were examined. A survey was sent to 97,894 Tier 3 and 4 licensed teachers in Minnesota, from which 4,396 teachers returned the survey. A total of 340 teachers from K-12 approved online learning programs participated in the study, 269 (79%) who were general education teachers and 71 (21%) were special education teachers. Six *t*-test analyses were conducted to identify best practice factors. Multiple linear regression analyses were completed to examine the relationship between personality characteristics, demographics, or work-life variables and teachers' use of the six best teaching practice factors. Findings indicate that there is a statistically significant difference between the use of two best practices among general education and special education teachers. Recommendations for teacher training, the selection of best fit teachers, and school leader strategies to support teachers' use of online best teaching practices are discussed.

Dedication

This dissertation is dedicated to my family, my colleagues, and the champions of Minnesota K-12 online learning. To my parents, forever my heroes. You encouraged me from the very beginning to embrace my passion and channel the drive I was born with into inspiration. Mom, I am proud to follow in your footsteps as the second Dr. Dietrich, seeking what is good and just in this world, and doing things in a kind way. You keep me grounded. Dad, you understand me like no other. When hope seems gone, even when we disagree, you relight the fire and send me soaring like an eagle. You keep me inspired. Thank you both, for always believing in me and for teaching me to do my best the first time.

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designed an online learning program ten years ago, but I am thrilled to find that all of those hunches and your leadership to build a team that people want to be part of, are best practices! Thank you for providing the safe space to learn who I was as a leader - the good, the bad, and the ugly. Erin, you have taught me the softer side of leadership, to embrace community, to be real when I have to be, and to love on my people. You challenge me to be the best me, in every way. I am forever grateful for the support you provide as a leader and as my friend. Thank you for the push I needed to bring this dissertation to fruition, Dr. Wanat. May we always have a seat at the same table. To Dr. Soria, you are brilliant! Thank you for sharing your time with me and for your guidance. God truly blessed me with you as my advisor. Finally, to the many other online teachers and leaders who have been part of my journey, we have forever changed the face of K-12 learning in Minnesota. Countless students have realized their dreams because of the work that you do. I am honored to be part of your pack. Thank you, for being a champion.

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Chapter 1: Introduction

Researchers have developed in-depth knowledge about the instructional and curriculum design practices for in-person, face-to-face teachers (Institute of Education Sciences, 2021). These research-based strategies, considered "best practices," are a framework for effective teaching used by administrators to guide the implementation of classroom instruction, teacher evaluation, and school reform (Council for Exceptional Children and CEEDAR Center, 2017). Ragan (2010) referred to these best practices as time-tested models that incorporate clear, well-defined operating parameters.

Online teachers also need to utilize best practices for instruction, which is particularly true when designing lessons and instruction for K-12 students who are in the greatest need of academic support. While there is much research and varied opinions regarding best practices in special education (Burns & Ysseldyke, 2009) and online learning (Cavanaugh et al., 2004; Revenaugh, 2006; Smart & Cappel, 2006), only a few scholars have focused on online special education and the application of best practices for special education instruction in the online learning setting (Müller, 2009; Rhim & Kowal, 2008). Twenty-five years into online learning, research to guide K-12 online learning on best practices for students with disabilities is still lacking (Barbour, 2014).

Statement of Problem

Applying best practices in special education to online settings requires a unique skill set and lens for the teacher. While we can assume that educators are familiar with the best practices within face-to-face instructional settings, these best practices do not, by design, translate to effective instruction in online settings (Ragan, 2010). The responsibility of teaching online and online course delivery is also not limited to teachers alone, as is often experienced in a seat-

based classroom. Online education requires course designers, support personnel, program coordinators, and teachers in other content areas who share in the creation and implementation of the online learning experience for a given student (Baran et al., 2011). Online special education teachers must also lead special education Individual Education Plan (IEP) due process team meetings online, serve as online instructional designers, be able to efficiently utilize communication tools effective for the specific needs of their students, and be knowledgeable of assistive technologies to increase students' learning in all classrooms (Davis, 2011; Individuals with Disabilities Education Improvement Act, 2004). The online special education teachers' role includes being well versed in what must occur to meet students' needs at a program and school level. Furthermore, online special education teachers also need to integrate program and school resources with instruction as a whole to modify the curriculum in order to accommodate individual students (Quillen, 2011; Repetto et al., 2010). The ability to effectively conduct learning in an online setting for students with specialized needs requires more training than most teachers are prepared with initially.

For the most part, online education studies have focused on post-secondary and workplace training courses (Black et al., 2009). There are limited K-12 online learning studies, specifically those that focus on best practices (Black et al., 2009). Even less research exists examining best practices for students with disabilities in K-12 online learning environments (Repetto et al., 2010; Rhim & Kowal, 2008). Without prior research and data, the result is a gap in evidence based, effective teaching practices for K-12 online students with special education needs—a population of students who present a substantial portion of online enrollments (Glick, 2011). In the United States, the proportion of students in special education programs has nearly doubled from 8.3% to 14% of students from 1976 to 2019 (National Center for Education

Statistics, 2020). Currently, there are 7.1 million students ages 3-21 in the United States who have disabilities (National Center for Education Statistics, 2020). In Minnesota, 16.7% of students are enrolled in special education (148,712 students) (The Annie E. Casey Foundation, 2020).

In December 2019, an outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease (COVID-19), was first reported in China (Huckins et al., 2020). By March 11, 2020, the World Health Organization (WHO) declared COVID-19 a global pandemic; forcing many educational institutions in the United States to switch to remote instruction and other measures to promote students' safety, while continuing to provide mandatory instruction (Ghebreyesus, 2020; MN Executive Order No. 20-02, 2020; MN Executive Order No. 20-82, 2020). Pandemic school closure and the quick shift to distance learning with limited or no planning and training has resulted in academic learning loss for many students (Catalano, 2020; MN Executive Order No. 20-02, 2020; MN Executive Order No. 20-82, 2020). Students with limited access to technology and those with the most significant disabilities are also at a much higher risk of this learning loss (Ewing, 2021).

Bamberger suggested that the impact of the pandemic on the educational system can be a positive one, as educators have the opportunity to reimagine how to deliver instruction and measure student learning (2020). Educators will be able to evaluate, down to an individual student level, why they have chosen a particular learning activity and how that experience can be made accessible (Smith, 2020). Making the shift to competency-based learning and constructivist learning experiences also aligns with the individualization of special education and the unique ability to individualize online learning for students (Garcia Mathewson, 2020; iNACOL, 2018). The success of students with disabilities can be increased through distance learning when their

needs are prioritized and targeted supports are in place for the individual student (Lemons, 2020). Parent partnership, both as support for functional skills and for academic skills has also been paramount to the student success in distance learning during the pandemic, particularly for students with the most significant disabilities (Murray, 2020; Tremmel et al., 2020).

Statement of Purpose

Presently there is a lack of research about special education online teachers' implementation of best practices in teaching, the unique nature of teaching students with disabilities, and the current demands of online education (Black et al., 2009; Glick, 2011; Repetto et al., 2010; Rhim & Kowal, 2008). As a result, this study was designed to understand not only the frequency of special education teachers' use of best practices in Minnesota K-12 approved online learning programs, but also how special education teachers' use of best practices might differ from general education teachers. Furthermore, this study was designed to capture whether some variables—including personality characteristics, demographics, and work-life variables—might facilitate or detract from special education online teachers' ability to implement best practices.

Therefore, the purpose of this quantitative, cross-sectional study is to examine special education teachers' use of best practices in Minnesota K-12 approved online learning programs. In addition, this study targets whether special education online teachers' use of best practices compares with general education online teachers' use of best practices, and whether personality characteristics, demographics, and work-life variables are associated with special education online teachers' implementation of best practices.

Significance of the Study

Online learning was defined by the United States Department of Education (2010) as learning that takes place partially or entirely over the internet. Online learning is not simply the classroom made digital: it is a specific and viable educational school choice for many K-12 students requiring unique and explicit instructional design (Digital Learning Collaborative, 2019; Glass, 2009; Hanover, 2009; United States Department of Education, 2010). For students with disabilities, online learning integrates multiple content delivery modes with the potential for data driven individualized learning (Hashey & Stahl, 2014). Minnesota's first online charter school, Cyber Village Academy, was established in July 1997, opening its doors for students in February 2018, with a hybrid online learning program for students in grades 4-8 (Minnesota Department of Education, 2021). As a public charter school, Cyber Village Academy was required to provide special education and related services, launching Minnesota students with disabilities into online learning (MINN. STAT. 124E., 2020).

The internet has unquestionably brought forth a wealth of educational change and improvement. Online learning is often referred to as virtual learning, digital learning, e-learning, blended learning, hybrid learning, and cyber learning (Hanover, 2009; Russo, 2001). This method of instruction provides students the opportunity to engage in training and coursework outside of the confines of the physical brick and mortar school, while simultaneously allowing for flexibility in course pacing. (Hanover, 2009; Russo, 2001). Furthermore, students benefit from flexible school, in contrast to traditional seat-based programs (Hanover, 2009; Online and Digital Learning Advisory Council, 2014; Russo, 2001). Blended learning, a model that combines face-to-face instruction with online learning, is increasing in popularity (Watson et al., 2013). Online learning transcends the time, space, and place of the traditional face-to-face

learning environment through fully online, hybrid, and blended online learning experiences (Online and Digital Learning Advisory Council, 2014). Students can learn exclusively online and graduate from high school or college without ever having to step foot in a seat-based classroom.

Due to the COVID-19 pandemic, during the 2020-2021 school year, all Minnesota schools were required to prepare for and implement three safe learning models including the full continuum of face-to-face, hybrid, and distance learning for all students in Minnesota in response to the COVID-19 pandemic (Minnesota Department of Education, 2021). However, before the pandemic, online learning and distance education was on the rise.

In 2010, more than 6.1 million students took at least one course online, an increase of over half a million students from the year prior (Allen & Seaman, 2011). During the 2012-2013 school year, there were 338 full-time virtual schools recorded in the United States (Miron et al., 2014). In 2013, Stansbury (2011) predicted that 50% of America's high school classes will be online before 2020. In the 2017-18 school year, 19,000 public schools, or 21% of public schools, offered a fully online course (National Center for Education Statistics, 2019). The International Association for K-12 Online Learning expects that the number of students in K-12 who participate in online learning will continue to grow annually by at least 6% (Digital Learning Collaborative, 2019; Mellon, 2011). With districts continuing to face budget and course cuts, online learning both full- and part-time are maintaining a stronghold in K-12 education (Kirby et al., 2010).

The Minnesota Online and Digital Learning Advisory Council (2014) suggested that Minnesota schools could and should prepare to use online learning in emergency situations. In 2017, Minnesota adopted legislation permitting Minnesota school districts to elect to implement an e-learning day plan, to include up to five e-learning days per school year (MINN. STAT.

120A.414, 2020). In 2017, the Minnesota Department of Education launched an Innovation Research Zone Pilot, a program following the 2014 reauthorization of 2012 Minnesota legislation allowing school districts to deliver unique and creative programs to meet the needs of students. These optional programs have also grown in popularity since their initial legislation (Minnesota Department of Education, 2021).

While online learning has become quite popular, best practices in teaching K-12 students online are still evolving (Edwards et al., 2011). This is particularly true for students with special education needs (Müller, 2009). There are best practices in online course creation and content delivery, most recently identified in online higher education through student satisfaction surveys, though this research has yet to be applied methodically to K-12 online learning (Allen & Seaman, 2014; Watson et al., 2013). As many districts and post-secondary institutions are moving toward online learning as a permanent option for students, the changes taking place in the role of teaching are also causing teachers to rethink the role they take in the classroom (Greer et al., 2014; Wiesenberg & Stacey, 2008). The shift in the way we teach students will certainly change the way teachers develop instruction, leaving teachers in need of best practices and understanding what works for students, in order to implement effective online teaching strategies (Ash, 2010; Ragan, 2010).

Online learning poses a significant challenge to students, particularly those students with disabilities. While many students enroll in online education with the classroom expectations learned in a traditional setting, they find quickly that inquiry and self-advocacy skills are of utmost importance (Allen & Seaman, 2014; Dray et al., 2011). The need to learn through reading also increases, limiting the access to content that students with disabilities have to online learning (Rice & Greer, 2014). Several authors have suggested that effective online learners must

be well aware of learning styles, able to self-regulate and self-advocate, organized, able to adhere to a schedule, and be technically savvy (Fish & Wickersham, 2009; Howland & Moore, 2002; Noor Dayana et al., 2010; Shea & Bidjerano, 2011; Sorensen, 2012). When students are lacking the skills and motivation to be self-directed learners, these students need support or they fail (Garrison, 2009).

Instructional designers and classroom instructors are not well enough equipped to anticipate student needs, nor deliver specialized instruction to those with disabilities (Hanover, 2009). Yet, in the face of public online learning, these students have the right to attend online schools and receive special education services in online education (United States Department of Justice, 2002; United States Department of Education, 2020). In Minnesota, all K-12 students have the right to enroll in and attend public online schools, regardless of ability (Minnesota Department of Education, 2021).

Although many students believe that online learning is the best option, they are ill prepared to be online learners, manage their school day independently, and advocate for assistance (Dray et al., 2011; Hsin-Yuan, 2009). These students, particularly those with disabilities who are unable to learn online effectively on their own, find limited success in the online learning environment as a result (Dray et al., 2011). Additionally, students with disabilities often struggle with receiving equal access to courses and resources in online educational settings, which contributes to the number of students with disabilities who do not complete an online course with a successful grade (Rice & Greer, 2014).

Online teachers and administrators must find new ways to reach out to the students who are not able to ask for help on their own or advocate for their needs. Many K-12 students who are not requesting assistance independently have already been identified as high-risk students and

pose an even greater risk of dropping out when special education needs come into play (Rose & Blomeyer, 2007). Maximizing the success of these students is of utmost importance and requires the application of best practices specific to students with disabilities in the online learning environment (Glick, 2011; iNACOL, 2018).

One method through which online teachers and administrators can impact change to the education system is to examine the selection of teachers. Teachers' personality traits and work life variables play an important role in determining whether candidates exhibit the characteristics necessary to be a successful teacher (Koschmieder et al., 2018). DeJean (2020) suggested that students remember the teachers who interact the most with students—these are also the teachers who influence students' learning. Kim et al. (2017) found that teachers' personality, particularly in three areas (conscientiousness, agreeableness, and neuroticism), contributes to teachers' effectiveness and has an impact on teachers' support to the students as well as students' self-efficacy, which is an area that students with disabilities demonstrate more difficulty in (Costa & McCrae, 1992; Shea & Bidjerano, 2011). In addition, Wang (2007) indicated that the internet can actually increase the quality interaction between students, teachers, and content for online learners; creating an opportunity for deeper learning, when developed by a good fit, well trained instructor.

According to Oliver et al. (2009), there are at least three categories in which online teachers must demonstrate competency—managing the online learning environment, developing online curriculum and resources, and proficiency in online learning tools. To make this switch, teachers must commit to learning and implementing a new pedagogy—one that changes their "stance from 'teacher' to researcher, designer, diagnostician, and expert facilitator" (Aurora Institute, 2018, p. 2). The United States Department of Education (2002) called for schools to

recruit and train highly qualified special education teachers who are able to meet the needs of students with disabilities because there is a link between teachers who have received a significant amount of professional development in what they are expected to teach and effectiveness. Although students with disabilities enroll in K-12 online schools, specific licensure or certification is not required for K-12 online teachers in Minnesota and many other states (Minnesota Professional Educator Licensing and Standards Board, 2021). While online teachers must hold a teaching license to teach in their content area, as they do in other states, the only training most online teachers receive is in the form of professional development from the schools in which they teach (Davis, 2011).

Additionally, No Child Left Behind mandates that school instructional programs are "grounded in scientifically based research" (United States Department of Education, 2012, para. 7). Currently, there is not a globally accepted method by which to develop online courses for K-12 students that is grounded in scientific research. While Section 508 of the Federal Rehabilitation Act requires universal design to make resources accessible to all individuals with disabilities, even federal agencies have been only recently called to make their technologies accessible in an effort to support participation of individuals with disabilities in society (The White House Office of Public Engagement, 2012; United States Department of Education, Office for Civil Rights, 2010).

Federal and state mandates also require that special education teachers are trained and licensed to teach in their specific area of expertise (Individuals with Disabilities Act, 2004; Minnesota Professional Educator Licensing and Standards Board, 2021). A training or certificate program specific to online special education instruction is not in place nationally. Effective methods to teach special education online do not explicitly exist (Glick, 2011), which makes the

task of teaching K-12 students with special education needs not only an arduous one, but one that is also arbitrary.

Of issue, specifically, is the absence of studies and research in the application of special education best practices in the K-12 online learning environment. While high leverage practices (HLPs) in special education are built on four aspects (collaboration, assessment, instruction, social/emotional/behavioral), these practices were designed in reflection of face-to-face instruction and are broad special education teaching frameworks (Council for Exceptional Children and CEEDAR Center, 2017). The HLPs also fall short in defining best practices applicable to individualized instruction. Because instructional practices are often modified to meet student needs, a given strategy based on evidence in one setting does not guarantee universal success (Cook et al., 2008).

Additionally, best practices in a face-to-face setting are not always appropriate in an online setting and cannot be assumed to be as effective when the method of delivery and learning platform changes (Müller, 2009). While the use of technology in instruction has historically had a positive impact on the education of students with disabilities, simply using technology does not equate to increased learning or best teaching practices for students with special education needs (Brunvand & Abadeh, 2010). Thus, strategies and methods must be identified through new research in order to develop a collection of best practices that online teachers and course designers can utilize when working with K-12 online learners who have special education needs.

Purpose of the Study

The purpose of this study is to measure teachers' perceptions about effective instructional strategies for K-12 students with disabilities in the online setting.

Definition of Terms

Asynchronous learning: is a student-centered teaching and learning model in which learning can occur at different times in different places at the student's individual pace; tasks are completed independently with remote teacher interaction (Bryn Mawr College, 2021).

Best teaching practices: are teaching practices with a high degree of effectiveness.

Conscientiousness: is demonstrating the personality traits of being dependable, organized, hard-working, responsible, self-disciplined and thorough, not impulsive (Gosling et al., 2003).

Executive functioning: relates to the ability to utilize working memory, to demonstrate cognitive flexibility, and to manage self-control; executive functioning is reflected in the skills required to plan, organize, initiate and complete tasks, attend, take different points of view, and to regulate emotions, (Understood, 2021; Sorensen, 2012).

Extraverted: refers to being enthusiastic, sociable, assertive, talkative, active and not reserved or shy (Gosling et al., 2003).

High leverage practices: are select practices that improve student outcomes when used frequently and implemented successfully in the classroom (Council for Exceptional Children, 2021).

Openness: is being open to new experiences; openness presents as imaginative, curious, reflective, deep, open-minded and non-conventional (Gosling et al., 2003).

Online learning: is a teaching model, also known as hybrid learning and distance learning, through which learning experiences are provided digitally (ISTE, 2021).

Self-regulation: is the ability to understand and control learning to organize information and the environment (Koc, 2005).

Special education students: are children birth-age 21 with a disability who qualify for and receive specialized instruction and services through the public school district (Minnesota Department of Education, 2021).

Synchronous learning: is a teaching and learning model in which instruction occurs for all students at the same time in the same place; students move through the learning at the same pace (Bryn Mawr College, 2021).

Summary

Chapter one synthesized the K-12 online learning landscape over the course of the last decade, as well as outlining the lack of best practices available for teachers of students with disabilities in K-12. Very little research exists in this area. As an increasing number of K-12 schools offer completely online courses for all students, the instructional strategies that support success for students with disabilities in these online courses must also be interwoven.

Chapter 2: Literature Review

Online course enrollments have increased substantially over the course of the last 10 years (United States Department of Education, 2011). Although the specific number of students receiving special education services in online schools is not available, researchers have indicated that the estimated number of students with special education needs is approximately half as many students as those in seat-based classrooms (Cavanaugh et al., 2004; Glick, 2011; Müller, 2009). K-12 students can now access online learning in 32 states through approved online providers (Digital Learning Collaborative, 2019; Hasey & Stahl, 2014). Currently, in Minnesota, there are 38 approved online learning providers; districts are also able to provide distance and digital learning without online learning provider approval (Minnesota Department of Education, 2021).

During the COVID-19 pandemic all students nationally experienced distance learning. In Minnesota, beginning March 29, 2020 through the end of the 2020-21 school year, students participated in distance learning as the primary mode of learning (Executive Order 20-02, 2020). This order shifted to district-led safe schools plans including hybrid and online learning for all Minnesota students during the 2021-22 school year (Executive Order 20-82, 2020).

The first section of this literature review will address online learning models and course design, including teacher preparation. One simply cannot expect teachers to inherently know how to teach online effectively. Just as teachers received training in curriculum development, instructional design, and classroom management for face-to-face classrooms in their teacher development degree programs, so they must also receive explicit training in K-12 online learning best teaching practices to be most effective in online classrooms. Subsequent sections will examine student acquisition of knowledge and skills in the online setting, best teaching practices in special education and the application of those practices in the online classroom.

Instructional Design

There exists a misconception that if something is online, anyone can access it (Keller & Horney, 2007; Rasseneur-Coffinet et al., 2007). While federal guidelines prohibit the exclusion of persons with disabilities from access to information, simply creating a technology-based resource does not equate to equal access, nor does it remove the barriers that individuals with disabilities may experience. Giving students access to an online course is not enough to educate students or to provide accommodations that encourage success (Keller & Horney, 2007). Further, it is the responsibility of teachers or curriculum designers to ensure that learners' needs are supported and various learning styles are incorporated throughout the course design (Keeler & Horney, 2007).

To design and provide inclusive instruction, teaching in the online setting requires Pedagogy 2.0, a new set of skills and tools that requires teachers not only to learn the technology, but to engage in student-centered, collaborative learning (McLoughlin & Lee, 2008). This student-centered learning, or individualization, is the foundation for serving students with disabilities (CEC, 2021). A framework that accounts for personalization down to the individual level is needed to design online courses that serve all students. Universal design for learning is that framework.

Applying the concepts of universal design for learning is a design approach that supports learners' variability and individualized needs (Gronseth, 2018). Learners' variability, the differences in each learner and the impact of those differences in various situations, must inform instructional design (Pape, 2018). Classroom challenges are not a student problem: they are a design problem that educators need tools to address (Page, 2018). Universal design for learning (UDL) provides a framework that incorporates learners' variability in the design of inclusive

instruction reflective of three tenets: access to multiple means of representation or instruction; multiple means of engagement; and, multiple means of access and expression (CAST, 2021). The use of UDL in the online setting allows teachers to proactively design instruction that accounts for learners' variability, which support students in reaching both personal and course goals (Cohen & Baruth, 2017; Houston, 2018). Integrating the principles of UDL into course design also increases students' motivation, self-regulation, and the individualization of learning, which all students need (Cohen & Baruth, 2017; Gronseth, 2018; Rose, 2000).

A fair amount of research and assistive technology also exists in regard to online course access for students with vision and hearing disabilities, particularly in higher education (Barnard-Brak & Sulak, 2010; Moisey, 2004; Richardson, 2009). Many online learning providers have built-in screen readers. The Voluntary Product Accessibility Template (VPAT) exists to support educators in meeting the expectations set forth by Section 508 in order to share the accessibility features of technologies in a uniform way (Hasley & Stahl, 2014). State and federal technologies exist for those students with vision and hearing disabilities that can be used in both K-12 and higher education courses. However, hidden disabilities, including learning disabilities, health impairments, emotional/behavioral disorders, and others, often go unaddressed during online course development (Bohman, 2004; Brak & Sulak, 2010).

Oliver et al. (2009) examined the expectations of secondary students in an online school. They researched students' expectations in relation to both the content of the course and communication (e.g., student-student, student-teacher). In regard to content, students expect teachers to be familiar with the course content, to provide engaging and interactive lessons, to build relevance and real-world application into the course, and to add resources such as study guides or notes to enhance student understanding of the material (Oliver et al., 2009). To add

meaning to the online content, teacher mentorship and socialization with peers improves the likelihood that the online student will ask questions and utilize critical thinking skills (Burdina et al., 2019).

There are various schools of thought regarding the design of online teaching models. Savery (2005) presented the VOCAL model, suggesting that characteristics of successful online instructors include: visible, organized, compassionate, analytical, and leader-by-example. The focus of VOCAL work is to provide a framework based on teaching best practices combined with learning that incorporates more students' ownership (Savery, 2005). Ragan (2010) suggested that this is established through best practices and teacher expectations for post-secondary which could trickle down to K-12. Ragan's strategies include: show up and teach, proactive course management, utilizing a consistent pattern of design, thoughtful and timely feedback, and being supportive and knowledgeable about both the content and the platform to support students on various levels. Many teaching strategies increase students' success in online settings: group problem-solving and collaboration, problem-based learning, discussion, case-based strategies, simulations or role play, student-generated content, coaching or mentoring, guided learning, exploratory or discovery learning, lecturing or teacher-directed activities, modeling of the solution process, and socratic questioning (Hanover, 2009). Still, this body of research falls short.

Acquisition of Knowledge and Skills

Due to the nature of delivery, online learning requires, at its core, access to and interaction with the internet. A static course, much like a textbook, may not change; however, online text is subject to change in content or format daily (Coiro, 2011). Online texts, unlike traditional texts, tend to be non-linear and generally do not have an order in which they must be

read (Chen, 2009). These factors alone differentiate the skills needed to be an online learner from those in a face-to-face setting.

Students who demonstrate strong executive functioning skills and those who are able to manage a computer also tend to navigate the internet more effectively (Coiro, 2011; Tomlinson & McTighe, 2006). As important, those students who possess strong information gathering skills and can generalize those skills in an online educational setting are likely to experience more satisfaction in an online course (Sherblom, 2010). While the prospect of misunderstanding content and communication online is greater, the opportunity to teach specialized learning strategies to students and practice these skills in an online environment may also be greater (Thomson, 2010).

Cognitive absorption theory is concerned with the level of involvement individuals have with the content, or software, and the notion that the participants lose touch with anything outside of the software (Leong, 2011). Cognitive engagement, wherein much of the foundation for cognitive absorption theory lies, is an important aspect of successfully learning at a distance (Webster & Hackley, 1997). As such, a connection exists between the students' cognitive engagement and absorption with satisfaction in online learning. Romero and Barberà (2011) identified this link as well, in their examination of the quality of the time devoted to learning online. They found that online learners often learn best during the morning hours and when external factors are minimal, suggesting the importance of learning environments that foster higher levels of cognitive absorption (Romero & Barberà, 2011).

The learning style of the individual student also has an impact on students' satisfaction in online courses, as well as overall students' success in online classrooms. Postsecondary online learning students identified as reflective learners had greater levels of academic success

(Battalio, 2009). Learners who thrive in environments in which discovery leads to learning also do well in learning-centered courses that are delivered online (Fish & Wickersham, 2009). Discovery learning, in which students make connections socially and actively in learner-centered curriculum, ties online learning together with the constructivist learning theory (Chang & Smith, 2008; Garrison, 1993).

Online learning as a constructivist learning environment, one requiring a significant amount of teacher and learner interactivity, also requires continuous student-student and student-teacher communication (Chang & Smith, 2008; Howland & Moore, 2002). Garrison (1993) suggested that distance learning takes learning beyond rote memorization through dialogue with others and active involvement of teachers and students in the learning environment. Gül, Gu, and Williams (2008) view this style of constructivist learning as one in which students must interact regularly with each other exploring the environment, while teachers serve as a learning guide.

Senior (2010) captured the essence of constructivist learning theory in the online setting as a one in which students create their own meaning and "learn by doing" while collaborating with teachers and interacting through social networking that takes the learning experience beyond the classroom walls. While this approach offers a wealth of opportunity for many students, these same opportunities can be barriers to students with disabilities when best practices are not in place to include exceptionalities and needs in this independent, active learning approach. Constructivist learning, particularly that in the online setting could potentially hinder learning for students with disabilities who are not able to set goals, create schedules, and interact with the curriculum without appropriate support (Rassenear-Coffinet et al., 2007).

The community of inquiry (CoI) framework further explains the connection between constructivist learning theory and the role of the learning community in an online learning

environment (Anderson et al., 2001; Garrison, 2000). CoI consists of two tenets: cognitive and social presence. Cognitive presence is based on the acquisition of knowledge or an individual's understanding (Anderson et al., 2001). CoI represents the student's ability to "construct meaning through sustained communication" (Anderson et al., 2001, p. 89). Social presence, the connection students have with the instructor and other students as well as the collaboration that occurs through that connection, is likely to strengthen students' learning success as the learners experience a safe space to exchange and confirm what they have learned (Garrison et al., 2000).

Shea and Bidjerano (2011) suggested that the success of online learners relies on and goes beyond cognitive presence and social presence to include teaching presence and self-efficacy. Teaching presence, the way the course is designed and how the teacher leads the student through the course, impacts learners in an online setting even more so than learners in a hybrid setting (Shea & Bidjerano, 2011). Weidlich and Bastiaens (2017) indicated that it is through this combination of self-efficacy and the CoI framework—cognitive, social and teaching presence—that meaningful online learning occurs. Cognitive, social and teaching presence are interrelated, whereas social presence becomes the variable through which teachers facilitate teaching and cognitive presence (Armeli & De Stefani, 2016). Social presence and the space to learn in community with each other is how teachers use discussion to construct meaningful instruction and develop deeper knowledge in their students (Armelli & De Stefani, 2016; Barbera et al., 2013).

Self-efficacy, a belief set defined by the learners' experience of success and the perception of the experiences of others' success on similar tasks, impacts student success equally. Self-efficacy drives learners' motivation to participate and maintain effort, ultimately impacting student satisfaction and success in online learning (Bandura, 1997; Bandura &

Schunk, 1981; Yen et al., 2018). Born in one's academic self-concept, or the perceptions about oneself based on the experiences and interactions in school, self-efficacy in the learning environment has a positive correlation with achievement levels and students' satisfaction (Zhan & Mei, 2013). When students begin an online course with high levels of confidence in their ability to manage the online learning, interact with teachers and classmates, earn good grades, and overcome challenges, the likelihood that students will be successful in the online course and be satisfied with the course are higher (Alquriashi, 2019). All is not lost if students exhibit poor self-efficacy skills, however: teachers can scaffold supports in the online classroom to improve this self-perception for students through increased accomplishment, student observation of others experiencing success, using successful student work as models, authentic feedback, and teacher mentoring (Alqurashi, 2019; Burdina et al., 2019).

Self-efficacy also impacts online students' social presence, based on the ability of the student to feel comfortable interacting socially and emotionally in the online classroom (Zhan & Mei, 2013). Students struggling with self-confidence to succeed also have trouble with social connection to others in online courses and meeting course expectations; they subsequently have lower levels of satisfaction (Kuong, 2015). A collaborative constructivist view of teaching and learning is required for students to interact in ways that activate discussion and knowledge acquisition (Armellini & De Stefani, 2016).

Special Education Best Practices

While evidence-based best practices for special education teachers have been and continue to be identified, there is agreement that regardless of the practice, research is not able to provide unconditional proof that a particular type of instruction or intervention is effective (Cook et al., 2008; Morgan et al., 2008). Specific to students with learning disabilities, it is seemingly

not the curriculum itself, but rather the delivery of the instruction that is specialized which increases the success of special education students (Vaughn & Linan-Thompson, 2003). Additionally, evidence-based practices can be adapted and work in conjunction with the knowledge and experience that teachers already possess to achieve student success (Cook et al., 2008).

The Institute of Education Sciences, an initiative of the United States Department of Education developed the What Works Clearinghouse (WWC), which was created in 2002 and serves as a federal resource containing evidence-based best practices in core content areas. Even this site has limited instructional data and evidence to demonstrate that particular programs—or best practices—in math, reading, language, social/behavioral skill instruction, drop-out prevention and academic achievement work well with students who have learning disabilities or emotional/behavioral disorders (Institute of Education Services, 2012). An example is the Read Naturally program, a reading fluency practice program, which is identified by the WWC as a program used with students with special needs. The evidence presented is limited to one skill - reading fluency, in one school, over three grades, and includes only students who have dyslexia, which is far from being a globally-applicable evidence-based best practice for providing individualized instruction for students with reading disabilities.

Research experiments and evidence-based practices are often not implemented with special education students, making it difficult to discern whether a particular practice will work well when it is altered to fit the unique needs of a child. Special education teachers have to adapt many evidence-based practices that are suggested for use in general education classrooms, including changing the delivery, which could potentially change the practice and skew the results or render the practice ineffective (Cook et al., 2008).

Despite the efforts of special education, significant numbers of students who receive special education instruction continue not to make annual academic gains (Morgan et al., 2008). In 2018, Minnesota's students with disabilities earned four-year high school diplomas at nearly twenty percentage points less (62.3) than the total percentage of Minnesota graduates earning a four-year high school diploma (83.2) (National Center for Educational Statistics, 2021). Nationally, students with disabilities earned a four-year high school diploma at a rate of 67.1 percent, when all national graduates earned a four-year high school diploma at a rate of 85.3 percent (National Center for Educational Statistics, 2021). These rates have not increased since 2018. The shift to an online learning environment may not be enough to positively affect the levels of students' learning and academic achievement alone (Barrett, 2011). Of importance, however, is that the type of instruction is individualized, explicit, intensive, and supportive, particularly when used to teach students with learning disabilities (Vaughn & Linan-Thompson, 2003).

Vaughn and Linan-Thompson (2003) suggested that there is no research-based support for teaching students' particular learning styles or that a multi-sensory approach will enhance the learning for students with learning disabilities. They do, however, recommend a number of instructional approaches that can be individualized and applied to nearly any content area when working with students who have learning disabilities. These approaches include accommodating or modifying the assignment length, time for completion, or difficulty; grouping students to teach different types of learning strategies at various learner levels; and providing students an opportunity to apply skills (Vaughn & Linan-Thompson, 2003). Providing content at the students' reading level rather than instructional level, study guides, and auditory support for

lengthy reading passages also increases students' success in the online classroom (Keeler & Horney, 2007).

Also of limited study are the experiences of special education teachers and students in regard to best practices in K-12 online special education instruction. Boardman et al. (2005) conducted a study to gain perspective on the views that special education teachers had about research-based practices. In accordance with research later conducted by Cook et al. (2008), Boardman et al. (2005) found that while many special educators received training and professional development on various best practices, these teachers still found themselves modifying the practices and needing to "mix and match" to appropriately meet students' individual needs. Special educators used particular practices based upon students' reactions or interest levels, easy implementation in the existing classroom, and whether the practice would be applicable for many years with a variety of students (Boardman et al., 2005). Of equal importance is that the practices are modified and used correctly to increase students' learning. When this is not done, students' learning is negatively impacted regardless of setting (Burns & Ysseldyke, 2009).

Online Learning Special Education

A unique component of the delivery of special education services occurs when students elect to learn online. While some issues present in the seat-based classroom may all but disappear (e.g., problematic peer or teacher interactions, social phobia, school anxiety related to peers) other issues are also present in the online learning classroom. Online learning has become significantly more popular over the course of the last 10 years both in postsecondary and K-12 environments, with researchers also suggesting that online learning can as effectively increase student achievement as seat-based or face-to-face learning (Yen & Abdous, 2011). However, no

rise has been seen in the graduation rates of online learners (Dray et al., 2011; Fish & Wickersham, 2009). Research does not yet exist, which identifies the best teaching practices in K-12 online learning, or the factors that impact student learning in the online setting at a K-12 level. As a result, a noteworthy challenge exists in identifying best practices in special education that can be effectively and efficiently utilized in K-12 online learning.

A challenge not limited to special education is that of students' motivation (Smart & Cappel, 2006). The students' involvement in their learning is paramount in an online setting, a setting that inherently provides a great deal of flexibility and independence (Rasseneur-Coffinet et al., 2007). While many online students in K-12 struggle to manage their learning day and stay on track due to lack of readiness in becoming online students, students with special education needs often experience these difficulties at an increased rate (Berninger & O'Mallay May, 2011; Dray et al., 2007; Rasseneur-Coffinet et al., 2007).

Repetto et al. (2010) discussed the five C's of dropping out (connection, climate, control, curriculum, care) in relation to at-risk students and suggested that virtual schools must change their practices to better serve at-risk learners. Hammond et al. (2007) presented the 5 Cs as a comprehensive overview of the academic, social and emotional needs of students with disabilities at the secondary level. Connecting to students with disabilities through transition planning, creating safe spaces for learning, providing targeted academic and behavioral interventions, using personalized learning models, and building strong teacher-student relationships increases course completion and credit recovery for students with disabilities (Cavanaugh et al., 2013; Delisle, 2012; Repetto et al., 2010).

Highly developed executive functioning skills—being able to plan, organize, initiate and complete tasks—are activities that parents define as the most challenging for students with

disabilities who learn online (Sorensen, 2012). Also referred to as self-regulation skills, the ability to understand and control learning to organize information and environment, are skills found to increase the successfulness of (adult) online learners (Koc, 2005). Shea and Bidjerano (2011) described this self-regulation as an important prerequisite to engaging in online learning. Additionally, Koc found that high levels of anxiety impede executive functioning, by decreasing the ability to access working memory and process information. Serianna and Coy (2014) suggested that supports such as visual organizers, chunking assignments, calendars, checklists and planning for transitions may mitigate the lack of executive functioning skills for students with executive skill deficits, although students with mild to moderate disabilities are often not able to recognize the need for these supports or use them independently.

Basic psychological processing, specifically meta-cognitive skill deficits, also exists in many students with learning disabilities, making the ability to problem solve and apply the skills or knowledge students possess very difficult in new situations (Foley et al., 2011). Coupled with the newfound distance that students experience between home and teachers, meta-cognitive skill deficits can inhibit students' ability to advocate for assistance and realize success in the online learning environment.

A secondary challenge for online learners with disabilities is the need for adult or teacher proximity for immediate needs. In face-to-face classrooms, teachers are available to gauge understanding and provide in person feedback very quickly. While teachers are available for students and parents online, families need to reach out to the school to obtain this assistance when classes are not synchronous (Currie-Rubin & Smith, 2014). Parents' involvement and the level of parental technical savvy and support during the school day in the online learning environment also impacts students' success (Ash, 2010). The role of parent shifts to that of a

learning coach—a role that many parents are not proficient in fulfilling (Currie-Rubin & Smith, 2014). The need to provide the structure of the school day is of particular importance for parents of elementary school learners. Transitions between tasks and spaces that are facilitated by the teacher in a face-to-face setting are transitions that students in online settings must learn to navigate independently (Coy, 2014).

A significant gap exists, however, in the research and literature supporting methods to build motivation in online learners and to instruct special education students in the areas of executive function in an online learning setting. As discussed previously, recent research suggests that teaching to students' particular learning style, or multi-modal teaching, does not increase the instructional effectiveness for students with learning disabilities (Vaughn & Linan-Thompson, 2003). Battalio (2009) completed a study of 120 students enrolled in a post-secondary course to determine whether learning styles and multiple formats of delivery within an online course mattered in regard to student success and satisfaction. Battalio discovered that course satisfaction had more to do with the satisfaction of personal needs such as being able to take courses that were flexible, convenient and didn't require travel. Battalio also found that students who collaborated with each other increased their participation in the course, regardless of learning preference, but that it is advantageous as well to offer students choice in styles of participation.

Adult students exhibit more confidence in an online course compared to a face-to-face course and two-thirds of the students interact more online than they do in seat-based classes (Hugh & Hagie, 2005). While this suggests that student participation may increase as students feel more comfortable in the online setting, questions remain regarding the mode of delivery in online learning that best supports the needs of K-12 students with special education services.

Bolliger and Erichsen (2013) studied post-secondary student satisfaction in online learning based on personality type. Their findings indicate that personality type impacts how online learners prefer different ways to communicate and interact with each other and instructors; and how students engage in learning. Additionally, because preferences for different ways to communicate and interact exist, online educators and curriculum designers should take these differences into account when designing classroom experiences (Bolliger & Erichsen, 2013).

Summary

Chapter two synthesized current literature related to instructional design in online learning, cognitive absorption theory as it is related to the cognitive engagement of learners, constructivist learning theory as a foundation for online learning experiences, the community of inquiry framework, and face-to-face special education best practices. Within K-12 online learning, several challenges present for students with disabilities. Executive functioning skill instruction and supports, as well as the need for teacher or adult proximity for immediate support must be considered in the K-12 online program and integrated into every learning for students with disabilities (Coy, 2014; Currie-Rubin & Smith, 2014; Koc, 2005; Shea & Bidjerano, 2011; Sorensen, 2012). A gap exists, however, in current literature regarding best practices for the instruction of students with disabilities in K-12 online learning. In order to support K-12 online learners with disabilities, additional research is required to identify effective practices for teacher selection and student instruction. Chapter three will detail the methodology employed in this study.

Chapter 3: Research Design

The purpose of this quantitative cross-sectional study was to examine special education teachers' use of best practices in Minnesota K-12 approved online learning programs, whether special education online teachers' use of best practices compares with general education online teachers' use of best practices, and whether personality characteristics, demographics, and work-life variables are associated with special education online teachers' implementation of best practices. The information gleaned from this study can be used to improve K-12 online learning opportunities for students, assist teachers with developing online course frameworks that integrate best practices in online teaching, and provide information to administrators about the factors that may be facilitating or impeding special education online teachers' integration of best practices in online education.

Research Method and Design

This study used a quantitative cross-sectional design to examine 1) whether there was a significant difference between general education teachers and special education teachers' use of best practices in Minnesota K-12 approved online learning programs; and, 2) whether there was a significant relationship between special education online teachers' personality characteristics, demographics, work-life variables and their use of best practices.

Research Questions

1. Is there a significant difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs?

2. Are personality characteristics, demographics, or work-life variables significantly associated with special education teachers' use of best practices in Minnesota K-12 approved online learning programs (i.e., instructional design, community of inquiry)?

Hypotheses

$H_0 1$: There is no significant difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs.

$H_a 1$: There is a significant difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs. The special education teachers will use best practices at significantly higher rates.

$H_0 2$: Personality characteristics, demographics, or work-life variables are not significantly associated with special education teachers' use of best practices in Minnesota K-12 approved online learning programs (i.e., instructional design, community of inquiry).

$H_a 2$: Personality characteristics, demographics, or work-life variables are significantly associated with special education teachers' use of best practices in Minnesota K-12 approved online learning programs (i.e., instructional design, community of inquiry). Specifically, extraverts will be more likely to use best practice.

Sample

In preparation for the survey portion of the study, the researcher requested email contact information for currently licensed and practicing teachers from the office of Minnesota's Professional Educator Licensing and Standards Board (PELSB). After receiving the emails for

all currently licensed and practicing teachers in Minnesota (and after receiving IRB approval), the researcher sent all of the teachers an email with a survey. The first survey question asked participants to identify whether they worked at a public comprehensive Minnesota K-12 approved online learning program that served students in Minnesota. A list of the public comprehensive Minnesota K-12 approved online learning programs was provided to participants when completing the survey to assist the participant with providing accurate responses.

The participants who selected "yes" to the question about their employment in a public comprehensive K-12 approved online learning program that serves students in Minnesota serve as the final sample for this study. Public comprehensive K-12 approved online learning programs may include public charter schools, resident district schools, and magnet schools within a school. Due to the variation in online learning program enrollment types, each participant was currently employed at an Minnesota K-12 approved online learning program. Minnesota online learning programs seeking Minnesota Department of Education approval must complete an application progress, that includes programmatic planning in the areas of mission, governance, leadership and planning, integrity and accountability, curriculum and course design, Minnesota K-12 academic standards, course design, assessment, faculty support, student support including those for students with disabilities, guidance support, organizational support, parent/guardian support, program evaluation, and a continuous program improvement framework. At the time of this research, there were currently 39 K-12 approved online learning providers in Minnesota (Minnesota Department of Education OLL, 2021).

Teachers who indicated that they worked at other types of schools, including private online learning schools, were excluded in the final sample study. Private online learning schools are not required to provide special education services, nor are these programs required to identify

students with special education needs as they are not required by federal or state law to provide a free and appropriate public education to K-12 students. Online learning schools with only part-time programs have been excluded from the study as many students participating in online programs part-time receive special education instruction outside of the part-time online learning program.

Setting

The study was conducted using data from teachers who worked at approved, full-time, public, online learning schools serving Minnesota students in grades K-12. The data collection was conducted during April of 2021 through online surveys. Online surveys provided participants an accessible and convenient way to provide data.

Instrumentation and Measures

Three instruments were used in this study. The first is the SUNY Learning Network survey originally developed by Pickett (2010) (Appendix B). The SUNY Learning Network survey is based on the community of inquiry model as a self-assessment tool for faculty in the SUNY Learning Network in connection with the University of New York. The survey was designed as a quantitative instrument to measure best practices in order to encourage effective online instructional strategies that produce high levels of teaching presence to increase students' satisfaction and online learning (Sloan Consortium, 2010). The survey was modified for use with K-12 online teachers for this study. In addition to demographics added by the researcher, the modified survey consists of 48 items.

While no formal analysis was conducted on the survey's validity or reliability, scholars have found that students who were more likely to report their instructors frequently used the best practices measured in the survey have significantly higher satisfaction and learning (Shea et al.,

2003). Students who reported the highest levels of learning and satisfaction also reported the highest levels and quality of interaction with the instructors and with other students (opportunities to collaborate) (Shea et al., 2001). Students who reported that their instructors provided prompt and high-quality feedback and clear expectations for success also reported the highest levels of satisfaction and learning (Shea et al., 2001). Students who reported high levels of interaction with their classmates and high levels of participation in the courses also reported high levels of learning and satisfaction (Shea et al., 2001). The prior research points to the potential validity of this survey when measuring teachers' use of best online teaching practices— especially some of the social dimensions of learning presence in the survey and included within the Community of Inquiry conceptual framework.

The second instrument, the Ten-Item Personality Inventory (TIPI) survey (Gosling et al., 2003), was used to determine whether teachers' personality characteristics impacted their use of best practices (Appendix C). The ten item TIPI is modeled after the Big Five personality dimensions, with a much shorter construct than most Big Five multi-item measures. The Big Five personality dimensions include: conscientiousness, agreeableness, neuroticism, openness to experience, and extraversion. Conscientiousness is dependable, organized, hard working, responsible, self-disciplined and thorough, not impulsive; agreeableness is described as kind, trusting, generous, sympathetic, not aggressive, not cold; neuroticism, also referred to as emotionally stable or calm, presents as relaxed, self-confident, not anxious or moody; openness to experience presents as imaginative, curious, reflective, deep, open-minded and non-conventional; extraverted refers to being enthusiastic, sociable, assertive, talkative, active and not reserved or shy (Gosling et al., 2003, p. 508).

The TIPI is a reliable tool as their test-retest scores yielded a mean of .72 (Gosling et al., 2003). Given the decreased items on the inventory, the TIPI has lower reliability than other, lengthier measures (Gosling et al., 2003); the following are Chronbach's alpha coefficients for each personality type: extraversion (.68), agreeableness (.40), conscientiousness (.50), emotional stability or neuroticism (.73), and openness (.45) (Gosling et al., 2003).

The final measure, the Areas of Worklife Survey (Leiter & Maslach, 2011), is a 28-item survey designed to measure individuals' relationship with their work (Appendix D). Six scales are examined: workload, control, reward, community fairness, and values. When the individual and the work environment are a good match, engagement increases. When an incongruity exists between what individuals need and their work environment, productivity, including the self-perception of effectiveness decreases (Leiter & Maslach, 2000). The survey will be used to determine whether teachers' relationship with their work environment is associated with the use of best practices. The Areas of Worklife survey has excellent construct and criterion validity, with researchers also noting the high internal consistency of the items ($\alpha > .70$) (Brom et al., 2015).

Data Collection

Prior to conducting the study and data collection, the researcher obtained approval from the dissertation Institutional Review Board (IRB) at Bethel University. The data for this study was collected using the Qualtrics online survey program. The data was collected for 14 days (two weeks) beginning in April of 2021 to increase the participation of teachers prior to the end of the school year.

Participants were sent an email in which the researcher explained the purpose of the study. Once participants clicked on the survey link, they were directed to read and complete a

consent form in Qualtrics (Appendix B). After providing consent, the participant received the

survey. After the survey was live for five days, a reminder to participate in the survey was

prepared, but was not sent to individuals in the sample given the high number of initial

participant responses (Appendix C). All online surveys were completed anonymously.

Participants did not provide any identifying information such as name or other demographic data

that allowed the researcher to identify the participant or the participant's program.

Data Analysis

The analysis for this study was separated into two phases, of which the first phase was to

examine teachers' use of best practices in online learning. The researcher utilized frequency

distributions to provide descriptive statistics on best practices for each group of teachers. The

teacher data was analyzed using two independent samples *t*-test to compare general education

and special education teachers' use of best practices.

Next, to condense the best practices items and identify latent variables, the researcher

used exploratory factor analysis. There researcher used criteria points to evaluate the factors: the

Kaiser-Meyer-Olkin measure to verify the sampling adequacy, Bartlett's test of sphericity to

examine whether the correlations between items are sufficiently large for PCA, a review of the

eigenvalues over Kaiser's criterion of one, and the convergence of a scree plot showed inflexions

that justify retaining the factors. The factor scores were computed using the regression method

and saved as standardized scores with a mean of zero and a standard deviation of one. After the

dependent variables were created, the researcher examined the relationships between

demographic characteristics, personality characteristics, and work-life variables for special

education teachers' use of best online teaching practices. These relationships were examined

using linear regression analyses. Data will be analyzed using SPSS version 26 software (IBM, 2020). All hypotheses will be tested at the 95% confidence interval ($p < .05$).

<div align="center">**Limitation and Delimitations**</div>

The sample for this study represented teachers in grades K-12 at Minnesota approved online learning programs. The research does not generalize to all classrooms of all delivery modes, which represents a limitation in the study. Although the study included a sample of only Minnesota K-12 approved online learning programs, the results may be generalizable to special education teachers in distance learning, private, and part-time online learning programs as well.

A second limitation of the study is participants' contribution. The researcher relied on participants to voluntarily participate in the study. This study only included teachers and the scope was limited to approved online learning programs within Minnesota. Further information about students' experiences in online classes may be useful to examine whether teachers and students report similar experiences in online learning.

Additionally, the cross-sectional survey design limited data collection to one moment in time, which also restricted the study to model suggestions. At the time of the data collection, a global pandemic had caused major disruptions to educational institutions across the nation. As a consequence, some teachers may have been feeling overwhelmed and overburdened with the frequent changes in educational delivery and content. While the pandemic may not have been as disruptive to teachers at approved online educational institutions who were already teaching online courses, the life stress associated with living during a pandemic may mean that teachers have less time or cognitive capacities to respond to a survey.

Ethical Considerations

This study abided by the basic ethical principles, as defined in the Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research (United States Department of Health & Human Services, Office for Human Research Protections, 1979). Basic ethical principles refer to the common guidelines based on morality, generally accepted in our society that underlies values and judgments. These basic ethical principles, respect for the person, beneficence and justice are taken into account when conducting research with human subjects (United States Department of Health & Human Services, Office for Human Research Protections, 1979).

The ethical conduct of respect of persons is that the participant will be an anonymous agent, and that those persons who possess diminished autonomy are entitled to protection (United States Department of Health & Human Services, Office for Human Research Protections, 1979). Participants' identifiers were eliminated from data to preserve anonymity and confidentiality as well. No school names were identified and participants' names were disassociated with email addresses. The participants were informed of the nature and scope of the research when they received the first invitation email from the researcher.

Beneficence refers to the treatment of persons not only through the respect of individual decisions and protecting participants from the risk of harm, but also as an obligation to achieve the maximum benefit with the least amount of harm (United States, 1979). Participation was voluntary. Participants in the study reserved the right to withdraw from the survey at any time. The benefits of participating in the study may include a better understanding of K-12 online teaching best practices for students with disabilities and what variables, if any, facilitate or

impede special education online teachers from implementing best practices. Additionally, the first 50 participants received a $5.00 Amazon gift card.

The ethical justice principle is concerned with the fairness of distribution, in particular the burdens and benefits of the study are distributed and that participants are not unduly denied a benefit without good reason (United States Department of Health & Human Services, Office for Human Research Protections, 1979). Participating teachers were selected fairly to ensure data was gathered from a variety of Minnesota K-12 online teachers in both general and special education. All of the information gathered during this study remains confidential and was used solely by the researcher for the dissertation. The participants' risk was minimal, as information was anonymous, and all survey responses were aggregated.

Chapter Four: Results

Chapter four is organized by the research questions that guided this study. The chapter presents data showing the frequency with which general education teachers and special education teachers use teaching best practices in Minnesota K-12 approved online learning programs. Analyses include demographics of the sample, model and hypotheses testing, correlations, and reporting significant regressions between variables.

Sample

The study population included 97,894 Tier Four Minnesota general education and special education teachers surveyed via Qualtrics on April 20, 2021. In total, 4,396 survey responses were received. Given the number of respondents to the initial survey invitation, a reminder email was not sent to participants. After data cleaning to include only teachers who had ever taught at a MN approved online provider, the sample consisted of 269 general education teachers (79.1%) and 71 special education teachers (20.9%). The sample is reflective of the constitution of proportion of general education versus special education teachers in an educational setting. In terms of teaching experience, the majority of participants taught one year in an online setting (n = 227, 67%), 2-5 years (n = 59, 17%), 6-9 years (n = 22, 7%), ten or more years (n = 30, 9%), and two teachers did not report the number of years spent teaching (n = 2, 0.6%).

Data Analysis

Descriptive statistics were computed first for the variables used in analysis, computing mean values, standard deviations, counts, and percentages. Table 1 reports the mean and standard deviation of Personality Type, Organizational Factors, and Online Teaching Best Practice Variables. Additionally, Table 1 outlines the number and percentage of participants who taught at a 7th grade level or higher; and, those teachers who used curriculum that was developed

by the teacher, developed by an instructional designer, or purchased curriculum with which to teach. Table 2 demonstrates the mean, standard deviation, and counts of teachers' responses to the survey items by the type of teacher.

Table 1

Descriptive Statistics of Personality Type, Organizational Factors, and Online Teaching Best Practice Variables

	M	*sd*
Personality Type Variables		
Extraversion	4.48	1.52
Agreeableness	5.80	1.01
Conscientiousness	6.11	0.93
Emotional Stability	5.25	1.21
Openness to Experiences	5.51	1.00
Organizational Factors		
Workload	2.30	0.82
Control	3.38	0.84
Reward	3.13	0.92
Community	3.60	0.82
Fairness	2.89	0.79
Values	3.49	0.73
Online Teaching Best Practice Variables		
Do you have contact with your students outside of your courses (e.g. email, phone, face-to-face)?	0.85	0.36
Does your school or district employ an instructional designer to assist you or other course instructors with online course development?	0.19	0.39
How many hours of formal instructional design training (e.g., Quality Matters training or formal coursework) did you receive to create your online courses?	1.19	1.32
How many online learning classes have you personally enrolled in and successfully completed as a student before?	2.99	1.52

	n	*%*
Taught 7th Grade or Higher	216	63.5
Use Content Developed by the Teacher	194	57.1
Use Content Developed by Instructional Designer	40	11.8
Use Purchased Curriculum	76	22.4

Table 2

Descriptive Statistics of Online Teaching Best Practices Survey Items, by Type of Teacher

	General Education Teachers			Special Education Teachers		
Item	M	SD	n	M	SD	n
My students feel that it is hard to get my help when they have a question.	3.79	0.96	269	3.87	0.94	71
My students feel that it is hard to get technical support or assistance when they have a problem.	3.12	1.09	269	3.24	1.15	71
I do not feel a spirit of community.	3.21	1.19	269	3.49	1.21	71
I feel that I give timely feedback.	4.17	0.81	269	4.32	0.55	71
I feel that my courses are like a family.	3.23	1.03	269	3.62	1.03	71
I feel that the students in my courses care about each other.	3.67	0.89	269	3.76	0.73	71
My students feel connected to others in this course.	3.30	1.07	269	3.45	0.84	71
My students feel uneasy exposing gaps in their understanding.	2.86	1.02	269	3.11	1.01	71
My students feel isolated in my courses.	3.18	1.02	269	3.48	0.94	71
My students feel reluctant to speak openly.	3.06	1.18	269	3.37	1.07	71
I feel that my courses result in only modest learning.	3.22	1.15	269	3.38	1.09	71
My students feel that they can rely on others in this course.	3.17	0.95	269	3.24	0.93	71
I feel that students do not help other students learn.	3.33	1.08	269	3.54	1.01	71
I feel that my students are given individualized opportunities to learn.	3.94	0.86	269	4.39	0.62	71
Overall, I am helpful in guiding the class towards understanding course topics in a way that assists my students to learn.	4.23	0.59	269	4.31	0.55	71
Overall, I acknowledge student participation in the course (for example, replied in a positive, encouraging manner to student submissions).	4.39	0.62	269	4.34	0.63	71
Overall, I encouraged students to explore new concepts in my courses (for example, encouraged "thinking out loud" or the exploration of new ideas.	4.09	0.76	269	4.13	0.61	71
Overall, I help to keep students engaged and participating in productive dialog.	4.03	0.78	269	4.18	0.59	71
Overall, I help keep students on task in a way that assists them to learn.	4.05	0.72	269	4.18	0.59	71
Overall, I clearly communicate important course goals (for example, provided documentation on course learning objectives) to the student at the beginning of and throughout the course.	4.20	0.73	269	4.13	0.65	71
Overall, I am satisfied with the content of the	3.81	0.88	269	3.65	0.76	71

courses I teach.

Overall, I am satisfied with the delivery methods used in the courses I teach.	3.61	0.93	269	3.61	0.90	71
Overall, I feel my students learn a great deal in the courses I teach.	3.71	0.90	269	3.72	0.86	71
Overall, I clearly communicated important course topics (for example, provided a clear and accurate course overview).	4.12	0.78	269	4.00	0.74	71
Overall, I provided clear instruction on how to participate in course learning activities (for example, clear instructions on how to complete course assignments successfully).	4.25	0.71	269	4.13	0.72	71
Overall, I provided various styles of content delivery to meet various learning needs.	3.87	0.89	269	4.06	0.81	71
Overall, I clearly communicated important due dates/time frames for learning activities that helped my students keep pace with my courses (for example, provided a clear and accurate course schedule, due dates, etc.)	4.24	0.75	269	4.11	0.77	71
Overall, I helped my students take advantage of the online environment to assist their learning (for example, provided clear instructions on how to participate in online discussion forums).	3.96	0.82	269	3.93	0.88	71
Overall, I helped students to understand and practice the kinds of behaviors acceptable in online learning environments (for example, provided documentation on "netiquette" i.e. polite forms of online interaction).	3.85	0.91	269	4.14	0.72	71
Overall, I presented content or questions that helped my students to learn.	4.25	0.57	269	4.21	0.50	71
Overall, I modified instruction to meet the needs of my students.	4.28	0.67	269	4.54	0.63	71
Overall, I helped to focus discussion on relevant issues in a way that assisted my students to learn.	4.03	0.75	269	4.11	0.57	71
Overall, I provided explanatory feedback that assisted my students to learn (for example, responded helpfully to discussion comments or course assignments).	4.13	0.75	269	4.06	0.63	71
Overall, I reached out to and provided reinstruction for students who did not understand a topic.	4.07	0.71	269	4.30	0.68	71
Overall, I helped my students to revise their thinking in a way that helped them to learn (for example, correct misunderstandings).	4.03	0.65	269	4.13	0.70	71
Overall, I provided useful information from a variety of sources that assisted my students to learn (for example, references to articles, textbooks,	4.07	0.78	269	4.03	0.72	71

personal experiences, or links to relevant external websites).

	-0.11	1.10	269	0.12	0.89	71
Learner community	-0.11	1.10	269	0.12	0.89	71
Facilitation discourse	0.22	0.98	269	0.40	0.92	71
Online organization and design	0.18	1.02	269	-0.14	0.96	71
Student engagement	0.08	1.04	269	0.30	0.85	71
Satisfaction	0.22	0.96	269	0.20	0.93	71
Individualization	0.05	1.06	269	0.40	1.01	71

To develop the variables used in this study, a factor analysis was conducted on 33 items. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis (KMO = .939), which is above the recommended value of 0.60. Additionally, Bartlett's test of sphericity, x^2 (582) = 26,220.423, $p < .000$, indicated that correlations between items were sufficiently large for principal component analysis (PCA). Initial analysis to obtain eigenvalues for each component in the data resulted in six components having eigenvalues over Kaiser's criterion of one and explained 55.58% of the variance. The final analysis retained the following factors: learner community, facilitation discourse, online organization and design, student engagement, satisfaction, and individualization.

The results of PCA showed that the 33 items tested reflected six factors: learner community, facilitation discourse, online organization and design, student engagement, satisfaction, and individualization. Learner community includes teacher reports of students in the course being connected to each other, contributing to positive interpersonal relationships and the students' ability to be supportive to each other in the course. Facilitation discourse is the way the teacher creates and facilitates a course that is universally designed to support teacher-student and teacher-content relationships. Facilitation discourse occurs through teacher progress monitoring and the support of all learners through the modification of instruction, meaningful resources that are relevant to learning, and feedback to guide inquiry to increase the student's ability to engage

in the course and master course concepts. Online organization and design refers to the teacher's clear communication of course design and structure to support the student's interaction with the course through well-defined course goals, activities, timelines, and expectations. Student engagement is related to the community of inquiry: teacher feedback, class concept discussion, inquiry into the ideas and concepts of other students, and teacher guidance through concept exploration. Teacher satisfaction is related to the teacher's report of satisfaction with the course content, delivery methods used to teach students, and the level of student learning that occurs in the course. Individualization reflects the student's ability to obtain teacher assistance to bridge gaps in learning or support technical needs, to speak openly, and to engage in individualized opportunities to learn the content.

Table 3 demonstrates the factor loadings after promax rotation in a pattern matrix, with factor loadings over .40 in bold. Of the 33 factor loadings, 14 items showed factor loadings larger than .70, 7 items had factor loadings larger than .60, 7 had factor loadings higher than .50, and 2 items showed factor loading higher than .40. Each of these factors had high reliability: learner community ($\alpha = 0.835$), facilitation discourse ($\alpha = 0.807$), online organization and design ($\alpha = 0.758$), student engagement ($\alpha = 0.822$), satisfaction ($\alpha = 0.737$), and individualization ($\alpha = 0.803$). The construction validity of the measurement model is considered acceptable.

Table 3

Summary of Factor Analysis for Best Practices Use Questionnaire (n = 340)

Items	Learner Community	Facilitation Discourse	Online Organization and Design	Student Engagement	Satisfaction	Individualization
I feel that the students in my courses care about each other.	0.918					
My students feel connected to others in this course.	0.867					
My students feel that they can rely on others in this course.	0.692					
I feel that students do not help other students learn.	0.622					
I feel that my courses are like a family.	0.589					
I do not feel a spirit of community.	0.567					
Overall, I reached out to and provided reinstruction for students who did not understand a topic.		0.798				
Overall, I helped my students to revise their thinking in a way that helped them to learn (for example, correct misunderstandings).		0.777				
Overall, I modified instruction to meet the needs of my students.		0.644				
Overall, I provided explanatory feedback that assisted my students to learn (for example, responded helpfully to discussion comments or course assignments).		0.637				
Overall, I provided useful information from a variety of sources that assisted my students to learn (for example, references to articles, textbooks, personal experiences, or links to relevant external websites).		0.594				

Overall, I helped to focus discussion on relevant issues in a way that assisted my students to learn.	**0.522**		
Overall, I presented content or questions that helped my students to learn.	0.301		
Overall, I clearly communicated important due dates/time frames for learning activities that helped my students keep pace with my courses (for example, provided a clear and accurate course schedule, due dates, etc.)		**0.819**	
Overall, I clearly communicated important course topics (for example, provided a clear and accurate course overview).		**0.759**	
Overall, I provided clear instruction on how to participate in course learning activities (for example, clear instructions on how to complete course assignments successfully).		**0.757**	
Overall, I clearly communicate important course goals (for example, provided documentation on course learning objectives) to the student at the beginning of and throughout the course.		**0.532**	
Overall, I acknowledge student participation in the course (for example, replied in a positive, encouraging manner to student submissions).			**0.829**
Overall, I help to keep students engaged and participating in productive dialogue.			**0.719**
Overall, I am helpful in guiding the class towards understanding course topics in a way that assists my students to learn.			**0.646**

Item				
Overall, I encouraged students to explore new concepts in my courses (for example, encouraged "thinking out loud" or the exploration of new ideas.		**0.629**		
Overall, I help keep students on task in a way that assists them to learn.		**0.587**	0.308	
Overall, I am satisfied with the content of the courses I teach.		**0.878**		
Overall, I am satisfied with the delivery methods used in the courses I teach.		**0.855**		
Overall, I feel my students learn a great deal in the courses I teach.		**0.762**		
I feel that my courses result in only modest learning.		**0.481**	0.346	
My students feel that it is hard to get my help when they have a question.				**0.753**
My students feel that it is hard to get technical support or assistance when they have a problem.				**0.734**
My students feel uneasy exposing gaps in their understanding.				**0.608**
My students feel reluctant to speak openly.	0.332			**0.518**
My students feel isolated in my courses.	0.365			**0.499**
I feel that my students are given individualized opportunities to learn.				0.331
I feel that I give timely feedback.				

I next computed the descriptive statistics for the six factor scores. The factor scores are computed with a mean of zero and a standard deviation of one. General education teachers reported the use of the learner community best practice the least, while facilitation discourse and satisfaction were reported as the best practices utilized most often. Special education teachers

reported online organization as the best practice utilized the least, while facilitation discourse and individualization use were reported most often.

Table 4

Descriptive Statistics of Online Teaching Best Practices Factors, by Type of Teacher

Factor	General Education Teachers			Special Education Teachers		
	M	*SD*	*N*	*M*	*SD*	*n*
Learner Community	-0.11	1.10	269	0.11	0.89	71
Facilitation Discourse	0.22	0.98	269	0.40	0.92	71
Online Organization	0.18	1.02	269	-0.14	0.96	71
Student Engagement	0.08	1.04	269	0.30	0.85	71
Satisfaction	0.22	0.96	269	0.20	0.93	71
Individualization	0.05	1.06	269	0.40	1.01	71

Research Questions and Hypotheses

The following research questions and associated hypotheses provided the focus for this study:

RQ1: Is there a significant difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs?

$H_0 1$: There is no significant difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs.

$H_a 1$: There is a significant difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs. The special education teachers will use best practices at significantly higher rates.

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RQ2: Are personality characteristics, demographics, or work-life variables significantly associated with special education teachers' use of best practices in Minnesota K-12 approved online learning programs (i.e., instructional design, community of inquiry)?

$H_0 2$: Personality characteristics, demographics, or work-life variables are not significantly associated with special education teachers' use of best practices in Minnesota K-12 approved online learning programs (i.e., instructional design, community of inquiry).

$H_a 2$: Personality characteristics, demographics, or work-life variables are significantly associated with special education teachers' use of best practices in Minnesota K-12 approved online learning programs (i.e., instructional design, community of inquiry). Specifically, extraverts will be more likely to use best practice.

To answer RQ1, regarding whether a significant difference existed in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs, I conducted six *t*-tests for each of the teaching best practices factors. I examined assumptions of equality of variances, which were all met where there were statistically significant ($p < .05$) differences between general education teachers and special education teachers (Levene's test was $p > .05$).

I also examined the regression assumptions as a part of my analyses. To answer RQ2, I used multiple linear regression analyses to examine the relationships between personality characteristics, demographics, or work-life variables and teachers' use of six best teaching practices.

Table 5

Hypotheses and Results

Hypothesis	Result	Test	Summary
$H_0 1$: There is no significant difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs.	Reject	*t*-test	A statistically significant relationship exists between the difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs.
$H_a 1$: There is a significant difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs. The special education teachers will use best practices at significantly higher rates.	Failed to reject	*t*-test	A statistically significant relationship exists between the difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs. Specifically, in the areas of: individualization and online organization and design.
$H_0 2$: Personality characteristics, demographics, or work-life variables are not significantly associated with special education teachers' use of best practices in Minnesota K-12 approved online learning programs (i.e., instructional design, community of inquiry).	Reject	Regression	A statistically significant relationship exists between Personality characteristics, demographics, or work-life variables and special education teachers' use of best practices in Minnesota K-12 approved online learning programs.
$H_a 2$: Personality characteristics, demographics, or work-life variables are significantly associated with special education teachers' use of best practices in Minnesota K-12 approved online learning programs (i.e., instructional design, community of inquiry). Specifically, extraverts will be more likely to use best practice.	Failed to reject	Regression	A statistically significant relationship exists between Personality characteristics, demographics, or work-life variables and special education teachers' use of best practices in Minnesota K-12 approved online learning programs in the areas of online organization and design, and individualization.

The researcher examined the variance inflation factors, scatterplots of standardized residuals against the standardized predicted values, and histograms of standardized residuals and discovered the assumptions of multicollinearity (the variance inflation factors were less than 2.0), homoscedasticity, and normality were not violated. The researcher examined the matrix scatterplots and discovered the relationships between the predictor and outcome variables were relatively linear. The researcher also found the residual errors were consistently independent across the model (the Durbin-Watson values were between 1.998 and 2.112 respectively); therefore, the results of these analyses suggest the regression assumptions were not violated.

Results

Differences Between Special Education and General Education Teachers' Use of Best Practices

There is a statistically significant difference between special education and general education teachers' use of online organization and design and individualization best practices. The results suggest that special education teachers were significantly less likely to use online organization best practices ($t = 2.366$, $p < .05$). Additionally, special education teachers were significantly more likely to use individualization best practices (the items were reverse scored; $t = -2.525$, $p < .05$). There were no other significant differences between general education and special education teachers' use of best teaching practices.

Table 6

Significance in the Difference of Online Teaching Best Practices Use, by Type of Teacher

	General Education Teachers	Special Education Teachers		
	M(SD)	M(SD)	t	p
Learner Community	-0.11(1.10)	0.12(0.89)	-1.27	
Facilitation Discourse	0.22(0.98)	0.40(0.92)	-1.406	
Online Organization and Design	0.18(1.02)	-0.14(0.96)	2.366	*
Student Engagement	0.08(1.04)	0.30(0.85)	-1.614	
Satisfaction	0.22(0.96)	0.20(0.93)	0.148	
Individualization	0.05(1.06)	0.40(1.01)	-2.525	*

*Note. * $p < .05$, ** $p < .01$, *** $p < .001$*

Learner Community

The first model predicting special education teachers' use of learner community best teaching practices in Minnesota approved online learning provider schools was statistically significant ($F = 1.740$, $p < .05$). The independent variables explained 42.4% of the variance in teachers' use of learner community practices. The results suggest community is significantly and positively associated with teachers' use of student learner community best practices ($\beta = 0.392$, $p < .05$; Table 7). When special education teachers feel a connection to others in the school community as a member of a supportive work group, where colleague communicate openly, engage in collaboration and feel that they can trust others to carry out their duties, the teachers are more likely to build and provide an online classroom in which students are connected to each other through positive relationships, social engagement and support of each other.

Table 7

Special Education Teachers' Use of Learner Community Best Practice Associated with

Personality, Characteristics, Demographics, or Work-Life Variables

	B	SE	β	Sig.
(Constant)	-2.841	1.477		
Extraversion	0.014	0.086	0.023	
Agreeableness	-0.015	0.155	-0.015	
Conscientiousness	0.021	0.167	0.022	
Emotional Stability	-0.050	0.107	-0.072	
Openness to Experiences	0.155	0.177	0.144	
Workload	0.007	0.178	0.007	
Control	0.193	0.173	0.189	
Reward	0.280	0.174	0.303	
Community	0.468	0.205	0.392	*
Fairness	-0.237	0.219	-0.233	
Values	-0.147	0.275	-0.115	
Do you have contact with your students outside of your courses (e.g. email, phone, face-to-face)?	0.186	0.360	0.071	
Does your school or district employ an instructional designer to assist you or other course instructors with online course development?	0.145	0.295	0.066	
How many hours of formal instructional design training (e.g., Quality Matters training or formal coursework) did you receive to create your online courses?	0.109	0.088	0.174	
How many online learning classes have you personally enrolled in and successfully completed as a student before?	-0.029	0.080	-0.048	
Taught 7th Grade or Higher	-0.032	0.267	-0.016	
Use Content Developed by the Teacher	-0.265	0.509	-0.147	
Use Content Developed by Instructional Designer	0.166	0.549	0.063	
Use Purchased Curriculum	-0.028	0.517	-0.014	

Note. $* p < .05$, $** p < .01$, $*** p < .001$.

Facilitation Discourse

The second model predicting teachers' use of best facilitation discourse teaching practices in MN approved online provider schools was statistically significant ($F = 2.309$, $p <$ .001). The independent variables explained 49.4% of the variance in teachers' use of facilitation

discourse practices. The results suggest conscientiousness is significantly and positively associated with teachers' use of facilitation discourse best practices ($\beta = 0.419$, $p < .05$; Table 8). In other words, teachers who are more dependable, careful, and organized are more likely to use practices including reinstruction, providing help to students to revise their thinking, or the modification of instruction to meet the needs of students.

Fairness was positively associated with teachers' use of facilitation discourse best practice (the items were reverse scored; $\beta = -0.447$, $p < .05$; Table 8). Teachers who perceive that resources are fairly allocated, opportunities are open to all, leaders make unbiased decisions, and that a fair process for resolving conflicts exists, are more likely to create and facilitate courses in which multiple pathways for learning and course engagement are available to all students, they provide meaningful resources relevant to learning for students in their courses, and provide feedback that supports student learning.

Additionally, 7-12th grade teachers were significantly more likely than K-6th grade teachers to use facilitation discourse best practices ($\beta = 0.258$, $p < .05$; Table 8). Those teachers who have contact with students outside of the course demonstrate a positive correlation with facilitation discourse best practices ($\beta = 0.262$, $p < .05$; Table 8). This indicates that teacher-student relationships are strengthened through universally designed coursework that allows for increased interaction through the feedback loop, instruction that meets the needs of the student, and the connection beyond day-to-day assignments.

Table 8

Special Education Teachers' Use of Facilitation Discourse Best Practice Associated with

Personality, Characteristics, Demographics, or Work-Life Variables

	B	SE	β	Sig.
(Constant)	-4.981	1.398		
Extraversion	-0.101	0.082	-0.162	
Agreeableness	0.243	0.146	0.239	
Conscientiousness	0.409	0.158	0.419	*
Emotional Stability	0.013	0.101	0.018	
Openness To Experiences	0.108	0.167	0.100	
Workload	-0.088	0.169	-0.083	
Control	0.188	0.163	0.183	
Reward	0.185	0.165	0.198	
Community	0.049	0.194	0.041	
Fairness	-0.460	0.207	-0.447	*
Values	0.151	0.260	0.117	
Do you have contact with your students outside of your courses (e.g. email, phone, face-to-face)?	0.693	0.341	0.262	*
Does your school or district employ an instructional designer to assist you or other course instructors with online course development?	0.089	0.279	0.040	
How many hours of formal instructional design training (e.g., Quality Matters training or formal coursework) did you receive to create your online courses?	0.024	0.083	0.037	
How many online learning classes have you personally enrolled in and successfully completed as a student before?	-0.004	0.076	-0.007	
Taught 7th Grade or Higher	0.526	0.252	0.258	*
Use Content Developed by the Teacher	-0.136	0.481	-0.074	
Use Content Developed by Instructional Designer	-0.087	0.520	-0.033	
Use Purchased Curriculum	-0.092	0.489	-0.047	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Online Organization and Design

The third model predicting teachers' use of best online organization and design teaching

practices in Minnesota approved online provider schools was statistically significant ($F = 1.822$,

p < .05; Table 9). The independent variables explained 43.5% of the variance in teachers' use of online organization and design practices. Here as well, conscientiousness is significantly and positively associated with teachers' use of best practices related to online organization and course design (β = 0.339, *p* < .05; Table 9). Whether the teacher has contact beyond the course with the student has the highest association with the use of best practices (β = .521, *p* < .000). Teachers who know their students well are more likely to have well-defined course goals, activities, timelines and expectations that meet the needs of the student.

Conversely, teachers who work in districts where the school or district employs an instructional designer to assist with course development are less likely to employ the best practice of utilizing online organization and design practices in their teaching ((β = -0.274, *p* < .05; Table 9). When the organization or design of the course content is developed by a third party or an instructional designer, teachers have little to no control over the content. For example, districts may purchase a turn-key solution in which the course content is already developed and cannot be edited. Or, districts may employ an instructional designer to create content for teachers in a template that is not editable, nor is it developed with particular student needs in mind. In these cases, where the teacher cannot edit the course organization, the design of the modules, or the content, the teacher's ability to utilize best practice is limited.

Table 9

Special Education Teachers' Use of Online Organization and Design Best Practice Associated

with Personality, Characteristics, Demographics, or Work-Life Variables

	B	SE	β	Sig.
(Constant)	-3.679	1.479		*
Extraversion	-0.099	0.086	-0.159	
Agreeableness	-0.065	0.155	-0.064	
Conscientiousness	0.331	0.167	0.339	*
Emotional Stability	-0.052	0.107	-0.074	
Openness To Experiences	0.157	0.177	0.145	
Workload	-0.033	0.179	-0.031	
Control	0.298	0.173	0.289	
Reward	0.091	0.174	0.097	
Community	-0.316	0.205	-0.262	
Fairness	-0.039	0.219	-0.038	
Values	-0.044	0.275	-0.034	
Do you have contact with your students outside of your courses (e.g. email, phone, face-to-face)?	1.382	0.361	0.521	***
Does your school or district employ an instructional designer to assist you or other course instructors with online course development?	-0.609	0.296	-0.274	*
How many hours of formal instructional design training (e.g., Quality Matters training or formal coursework) did you receive to create your online courses?	0.040	0.088	0.064	
How many online learning classes have you personally enrolled in and successfully completed as a student before?	0.070	0.080	0.118	
Taught 7th Grade or Higher	0.454	0.267	0.222	
Use Content Developed by the Teacher	0.177	0.509	0.097	
Use Content Developed by Instructional Designer	0.562	0.550	0.212	
Use Purchased Curriculum	0.513	0.518	0.259	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Student Engagement

The fourth model predicting teachers' use of best student engagement teaching practices

in MN approved online provider schools was statistically significant ($F = 2.095$, $p < .05$; Table

10). The independent variables explained 46.9% of the variance in teachers' use of student engagement practices.

Teachers who exhibit an openness to experiences are positively correlated with the use of student engagement best practices ($\beta = .323$, $p < .05$; Table 10). In other words, teachers who are more creative, unconventional, and complex engage more deeply in the community of inquiry through teacher discussion and guidance, and by encouraging inquiry into the ideas of students to explore concepts.

Fairness was positively associated with teachers' use of facilitation discourse best practice (the items were reverse scored; $\beta = -.545$, $p < .05$; Table 10). Teachers who perceive that resources are fairly allocated, opportunities are open to all, leaders make unbiased decisions, and that a fair process for resolving conflicts exists, are more likely to utilize best practices that capture student engagement through teacher-student, student-student, and student-content connections.

7-12th grade teachers were significantly more likely than K-6th grade teachers to use student engagement best practices ($\beta = 0.374$, $p < .05$; Table 10), as well as those teachers who have contact with students outside of the course ($\beta = 0.260$, $p < .05$; Table 10). Given that student engagement is related to the community of inquiry: teacher feedback, class concept discussion, inquiry into the ideas and concepts of other students, and teacher guidance through concept exploration, the significance that exists for students in higher grades may be attributed to more learners and teachers in online programs at the higher grades, or an increased amount of autonomy in learning that occurs as students get older. This also shows that when teachers have a connection with their students beyond the gradebook, the more likely the teacher is to engage with the student to ignite learning and support exploration in the classroom.

Table 10

Special Education Teachers' Use of Student Engagement Best Practice Associated with

Personality, Characteristics, Demographics, or Work-Life Variables

	B	SE	β	Sig.
(Constant)	-3.948	1.339		*
Extraversion	-0.117	0.078	-0.200	
Agreeableness	0.108	0.140	0.114	
Conscientiousness	0.268	0.152	0.293	
Emotional Stability	0.066	0.097	0.100	
Openness To Experiences	0.327	0.160	0.323	*
Workload	0.041	0.162	0.041	
Control	0.254	0.156	0.264	
Reward	0.294	0.158	0.336	
Community	-0.185	0.186	-0.164	
Fairness	-0.525	0.198	-0.545	*
Values	-0.040	0.249	-0.033	
Do you have contact with your students outside of your courses (e.g. email, phone, face-to-face)?	0.643	0.327	0.260	*
Does your school or district employ an instructional designer to assist you or other course instructors with online course development?	-0.127	0.268	-0.061	
How many hours of formal instructional design training (e.g., Quality Matters training or formal coursework) did you receive to create your online courses?	0.056	0.079	0.095	
How many online learning classes have you personally enrolled in and successfully completed as a student before?	-0.098	0.072	-0.176	
Taught 7th Grade or Higher	0.715	0.242	0.374	**
Use Content Developed by the Teacher	0.017	0.461	0.010	
Use Content Developed by Instructional Designer	0.166	0.498	0.067	
Use Purchased Curriculum	0.086	0.469	0.047	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Satisfaction

The fifth model predicting teachers' satisfaction with the online teaching experience

(satisfaction with the course content, delivery methods used to teach students, and the level of

student learning that occurs in the course) related to the use of best teaching practices in MN

approved online provider schools was not statistically significant ($F = 1.303$, $p > .05$; Table 11).

None of the variables were statistically significant in the model (Table 11).

Table 11

Special Education Teachers' Satisfaction with Course Content and Student Performance

Associated with Personality, Characteristics, Demographics, or Work-Life Variables

	B	SE	β	Sig.
(Constant)	-5.068	1.636		
Extraversion	0.018	0.096	0.028	
Agreeableness	0.303	0.171	0.288	
Conscientiousness	0.263	0.185	0.260	
Emotional Stability	0.034	0.118	0.046	
Openness To Experiences	0.091	0.196	0.082	
Workload	0.307	0.198	0.279	
Control	0.020	0.191	0.019	
Reward	0.147	0.193	0.152	
Community	0.030	0.227	0.024	
Fairness	-0.215	0.242	-0.202	
Values	0.050	0.304	0.037	
Do you have contact with your students outside of your courses (e.g. email, phone, face-to-face)?	0.408	0.399	0.149	
Does your school or district employ an instructional designer to assist you or other course instructors with online course development?	0.135	0.327	0.059	
How many hours of formal instructional design training (e.g., Quality Matters training or formal coursework) did you receive to create your online courses?	-0.009	0.097	-0.014	
How many online learning classes have you personally enrolled in and successfully completed as a student before?	-0.099	0.088	-0.160	
Taught 7th Grade or Higher	0.076	0.295	0.036	
Use Content Developed by the Teacher	-0.033	0.563	-0.017	
Use Content Developed by Instructional Designer	0.451	0.608	0.164	
Use Purchased Curriculum	0.123	0.573	0.060	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Individualization

The sixth model predicting special education teachers' use of individualization best practices in MN approved online provider schools was statistically significant ($F = 2.510$, $p < .05$; Table 12). The independent variables explained 51.5% of the variance in teachers' use of student engagement practices.

Teacher extraversion is significantly and negatively associated with teachers' use of individualization best practices ($\beta = -.278$, $p < .05$; Table 12). Control is significantly and positively associated with teachers' use of individualization best practices ($\beta = .347$, $p < .05$; Table 12). Teachers report they are better able to tailor instruction to the needs of the students, when the teacher has increased control over how the work is done, the equipment and space needed to provide online instruction, and whether the teacher can make decisions about how to meet the needs of students.

7-12th grade teachers were significantly more likely than K-6th grade teachers to use individualization best practices ($\beta = .241$, $p < .05$; Table 12), as well as those teachers who have contact with students outside of the course ($\beta = 0.299$, $p < .05$). Individualization in the course focuses on the student's ability to obtain teacher assistance to bridge gaps in learning or support technical needs, to speak openly, and to engage in individualized opportunities to learn the content. This positive correlation indicates that relationship is inherent in understanding the needs of the student, particularly secondary grade students and that when relationship exists, individualization, or the students' ability to have their needs met is significantly higher.

Table 12

Special Education Teachers' Use of Individualization Best Practice Associated with Personality,

Characteristics, Demographics, or Work-Life Variables

	B	SE	β	Sig.
(Constant)	-0.737	1.481		
Extraversion	-0.187	0.086	-0.278	*
Agreeableness	-0.122	0.155	-0.111	
Conscientiousness	0.194	0.168	0.184	
Emotional Stability	0.018	0.107	0.023	
Openness To Experiences	-0.067	0.177	-0.057	
Workload	0.069	0.179	0.060	
Control	0.386	0.173	0.347	*
Reward	0.160	0.174	0.158	
Community	0.224	0.205	0.171	
Fairness	-0.325	0.219	-0.291	
Values	-0.159	0.275	-0.114	
Do you have contact with your students outside of your courses (e.g., email, phone, face-to-face)?	0.856	0.361	0.299	*
Does your school or district employ an instructional designer to assist you or other course instructors with online course development?	0.102	0.296	0.043	
How many hours of formal instructional design training (e.g., Quality Matters training or formal coursework) did you receive to create your online courses?	0.066	0.088	0.097	
How many online learning classes have you personally enrolled in and successfully completed as a student before?	0.034	0.080	0.054	
Taught 7th Grade or Higher	0.534	0.267	0.241	*
Use Content Developed by the Teacher	-0.914	0.510	-0.462	
Use Content Developed by Instructional Designer	-0.993	0.550	-0.347	
Use Purchased Curriculum	-0.608	0.518	-0.284	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Summary

Special education teachers who more frequently individualize instruction for students than general education teachers, less frequently utilize best practices in online course organization and design. A contributing factor is the modification of the existing course design based on student need or a result of specialized, individualized instructional strategies when delivering special education programming. A limiting factor is the use of curriculum that is not editable by the teacher, such as content from online education companies or that which is developed by someone other than the teacher of the course, such as an instructional designer. Common patterns emerged in the analysis of data, suggesting that strong relationships beyond the course structure, teacher autonomy to individualize the online learning environment, teacher conscientiousness, and the age of the student (grades 7-12) are positively correlated with the use of teaching best practices in Minnesota K-12 approved online learning programs. Teachers who experience a strong connection to the organization, those who perceive fairness as a value and experience fairness in the workplace, those who consider their workload to be reasonable, and those teachers who contribute to a sense of inclusion and community are also more likely to employ the use of these best practices.

Chapter Five: Discussion, Implications, Recommendations

Overview of the Study

The purpose of this study was to measure teachers' perceptions about effective instructional strategies for K-12 students with disabilities in the online setting. The research was conducted through the examination of special education teachers' use of best practices in Minnesota K-12 approved online learning programs, special education online teachers' use of best practices compared with general education online teachers' use of best practices, and whether personality characteristics, demographics, and work-life variables are associated with special education online teachers' implementation of best practices.

Research Questions

There were two research questions that guided this study:

RQ1: Is there a significant difference in the frequency with which general and special education teachers use best teaching practices in Minnesota K-12 approved online learning programs?

RQ2: Are personality characteristics, demographics, or work-life variables significantly associated with special education teachers' use of best practices in Minnesota K-12 approved online learning programs (i.e., instructional design, community of inquiry)?

Research Question One

Six *t*-test analyses were used to determine that significant differences exist between general education teachers' use of best teaching practice factors and special education teachers' use of best teaching practice factors in Minnesota K-12 approved online learning programs. Special education teachers were significantly less likely than general education teachers to use online organization best practices, but significantly more likely than general education teachers

to use individualization best practices. The results did not indicate significant differences between the general education and special education teachers' use of the development of a learner community, facilitation of the course and community, student engagement in the course, satisfaction with the course, and students' engagement or performance in the course.

Research Question Two: Minnesota Online Providers

Multiple linear regression analyses were used to examine the relationships between personality characteristics, demographics, or work-life variables and teachers' use of six best teaching practices. A summary of the key takeaways for each of the six best teaching practices are located below.

Learner Community

When teachers perceive a stronger connection to their workplace community, they are more likely to create learning communities for students where positive relationships, social engagement, and student-teacher as well as student-student support is implemented.

Facilitation Discourse, Online Organization and Design

Teachers who are more conscientious, teachers who perceive that fairness is implemented for them in the workplace, and teachers serving students in grades 7-12, are more likely to utilize facilitation discourse as a best practice. Likewise, teachers who are more conscientious and those who have contact with the students beyond the online course structure are also more likely to utilize online organization and design best practices. These same teachers—those who are more dependable, careful and organized—will pay more attention to students' development, instructional strategies, and efforts to support students' success. Conversely, when instructional designers or course developers are used in online special education classes, teachers are significantly less likely to use online organization and design best practices, suggesting that

instruction developed by a third party limits the teachers' ability to develop and facilitate course structure that meet the needs of the individual learners. In order to utilize the best practice of online organization and design, online teachers need to be able to edit course content in order to organize and design courses to meet the specific needs of the current students.

Student Engagement

Teachers' openness to experiences and perception of fairness in the organization are positively correlated with best practices in students' engagement. Additionally, teachers serving in 7-12 teaching roles are more likely to use best practices in students' engagement. Engaging students through inquiry, exploration of concepts, and relationships with each other (as well as relationships with the teachers) occurs more frequently when the teachers are more creative, unconventional, and complex and when students are learning at the 7-12 grade level. These results suggest that the teachers' willingness to try new things, their access to resources and opportunity, and the age of the students substantially impact the teachers' use of practices to support not only content delivery, but also student-teacher interactions.

Individualization

Teachers report that they are better able to individualize online instruction for students' needs when they have increased control over course decision making, equipment, and how their work is performed; when they have contact with students beyond the course; and, when the students are at the 7-12 grade level. These results suggest that individualization will increase when teachers' autonomy is higher, when the teachers have deeper knowledge about individual students' skills and interests, and when the students are older. Teachers who report extraversion are also less likely to use individualization as an online teaching best practice. These teachers identify as enthusiastic, assertive, talkative, active, and not reserved or shy. Given the focus of

the individualization best practice on the students' ability to get teachers' assistance, speak openly and engage in individualized opportunities to learn, these teachers may be less likely to seek to modify their instruction based on students' input to build the self-determination capacity of the students.

Satisfaction

While not related in a statistically significant manner to the use of teaching best practices, teachers who demonstrate agreeableness and who perceive their workloads as reasonable experience more satisfaction in online teaching, thereby increasing students' outcomes. These teachers demonstrate characteristics of being sympathetic and cooperative, they have warm personalities, seek to connect people, and report more satisfaction with the courses they teach as well as the students' learning that occurs.

Discussion and Implications

This study confirms and further develops research findings related to the selection of teachers for their positions. Koschmieder et al. (2018) found that the personality traits teachers possess coupled with work life variables play a vital role in determining whether the teachers have what is needed to be successful teachers. Further, the teachers' personality in particular areas contribute to the success that students experience (Kim et al., 2017). The present study found that conscientiousness is aligned with teachers' use of facilitation discourse and online organization and design, which expands on the research of Koschmieder et al. (2018) and Kim et al. (2017), suggesting that not only are these teachers dependable, careful, and organized, they are also more likely to use practices that include universal design, they engage in constant monitoring of students' learning, provide reinstruction, and deliver individualized instructional modification. These conscientious teachers also design courses with useful resources, provide

meaningful feedback, and deliver content with clear communication and design. Students in the K-12 environment learning online, particularly those with disabilities, require this type of structure to access and participate in online classrooms (Dray et al., 2011; Garrison, 2009).

DeJean (2020) suggested that teachers who interact the most with students are the teachers who influence student learning. Rasseneur-Coffinet et al. (2007) took this idea one step further, indicating that because the online setting provides for flexibility and independence, students' involvement in relationships and subsequent learning is also motivating. The positive correlation between teacher-student contact outside of the course structure with the use of individualization and online organization and design best practices supports DeJean and Rasseneur-Coffinet et al.'s findings. When teachers and students have established strong relationships and engage in active interaction in and beyond the learning environment, students are more likely to participate in learning, persevere when learning is difficult, and experience success (Garrison, 1993; Garrison et al., 2000).

Shea and Bidjerano (2011) found that student-teacher relationships, coupled with how teachers design the course and lead students through the course, directly impacts students' learning. The universal design for learning (UDL) framework focuses on individualization and provides the foundational design for all students (CEC, 2021). The integration of UDL supports online learning best practices by accounting for learner variability to increase student motivation and individualization of learning (Gronseth, 2012; Rose, 2000). UDL can be applied in all learning environments and plays an important role in both individualization and online organization and design best practices.

This research also suggests that while individualization and online organization and design strategies are best practices, the use of these practices differs between general educators

and special educators. Students with disabilities participate in both general and special education courses. As such, in order to increase the frequency of teachers' use of best practice teaching strategies in K-12 online learning, relationship development techniques, universal design for learning, methods for individualization, and online organization and design strategies emerge as fundamental areas of teachers' development for the online K-12 environment.

Two theories provide the lens through which to further develop teachers' use of best practices in K-12 online teaching. Constructivist learning theory, through which students explore and discover connections socially and actively in student-centered curricula, requires the active involvement of both teachers and students (Chang & Smith, 2008; Garrison, 1993). Discovery or constructivist learning, however, must occur in concert with social interactions to strengthen understanding. The community of inquiry (CoI) framework draws the connection between constructivist learning and the role that the learning community (students and teachers) plays in online learning (Anderson et al., 2001; Garrison, 2000).

CoI is based on both cognitive and social presence (Anderson et al., 2001). First, the students' individual understanding, then the connection and conversation between other students as well as the teachers, to exchange and confirm learning in a safe space (Anderson et al., 2001; Garrison, 2000). The use of teaching best practices by K-12 online teachers not only supports, but facilitates CoI: establishing a learner community, monitoring and supporting all learners, designing instruction to universally meet the needs of all students, providing meaningful resources and feedback, using well-communicated expectations, developing students' and teachers' engagement, implementing effective instructional delivery methods, and ensuring individualization of content. Teachers who exhibit conscientiousness are more likely to engage in this type of complex—and yet important—work.

New findings also emerged from this research. Teachers who embody openness are more likely to utilize students' engagement best practices. These teachers are open to unconventional approaches, are more creative, curious, and reflective. They engage more deeply in the CoI by encouraging exploration and conversation to build understanding, which gives way to using online learning beyond rote memorization, or read and respond, to capture students' interest.

Teachers who serve secondary students in grades 7-12 are more likely to utilize the best practices of facilitation discourse, student engagement, and individualization. While existing research suggests that successful online learners must have developed inquiry, self-advocacy, and motivation, this research suggests that teachers in secondary grades are employing the practices to build these skills more often that teachers in online elementary programs, where parents are sometimes present to provide these structures (Allen & Seaman, 2014; Dray et al., 2001; Garrison, 2009). Secondary online teachers must focus on building courses through the lens of UDL to allow for students to interact in the online classroom in various ways. Monitoring students' progress, providing subsequent opportunities for reteaching, and anticipating the resources the students will require to participate in learning independently impacts whether the students will experience success or not in a course.

Secondary teachers must also focus on building and facilitating community as a way to learn in the online setting. Teachers' feedback and relationships with students are paramount to this work. Creating space for class discussion and the inquiry into the ideas of other students strengthens understanding and the online students' motivation to participate. Students with disabilities, who may not grasp the concept at grade level individually, gain access to higher order thinking strategies through this discussion. Asynchronous learning, while convenient, will

not be enough to support students' engagement and deeper understanding that is gained through conversation.

Individualization focuses not only on instruction that is tailored for the needs of a particular student, but also the students' self-determination, self-advocacy skills, and ability to solve problems. Teachers of students in grades 7-12 must explicitly teach independent learning skills and build structures into the classroom that support student interaction with the course. Teaching students how to ask for assistance, how to look up information, where to find resources, how to send appropriate messages, where to find instructions and expectations, how to use instructional and assistive technologies and how to plan out the learning day is vital for student success. Regularly connecting with students creates opportunities for monitoring these skills and allows the teacher to identify skills that may need to be retaught. Additional student-teacher connections also allow for reteaching just in time to keep students engaged.

A variety of online organization and design models exist in the post-secondary online sector. Some organizations have attempted to retrofit these models in K-12 online learning, resulting in little academic gain for students who require special education instruction (Morgan et al., 2008). In lieu of teacher-developed content, many Minnesota K-12 online learning programs also employ instructional materials created by a third-party curriculum company or an instructional designer (Minnesota Department of Education, 2021). While convenient, the present research study indicates that when teachers serve students in schools where an instructional designer or curriculum developer, such as an instructional coach or teaching and learning coordinator leads the course development, teachers are less likely to employ best practices in online organization and design. Using a prepackaged, purchased curriculum or instructional designers decreases the teachers' ability to create course structures that support

students' independence and substantially limits the teachers' ability to deliver instruction that meets the needs of the individual students. As such, teachers' development in course organization and design, which provides teachers' autonomy to individualize and engage students, will result in increased teachers' use of best practices.

Limitations

It is important to note that there are several limitations to this present study. During the course of this study, the world was experiencing the COVID-19 pandemic. Enrollment in K-12 Minnesota approved online learning programs increased more during the COVID-19 pandemic than prior school years, requiring more teachers to join the field of online learning. This study did not not address factors that impact teachers who were new to online learning to determine whether less training and experience resulted in less frequent use of best teaching practices.

 The researcher also elected not to include the responses of teachers who taught face-to-face pre-pandemic and subsequently provided some lessons through distance learning during the COVID-19 pandemic. While delivery through an online platform occurred during Minnesota distance learning for many students, others received instruction through packet based materials with little or no online delivery. Future research should examine the similarities and differences in the application of teaching best practices and the outcomes for students who participated in K-12 approved online learning programs versus those who participated in district-designed distance learning programs during the COVID-19 pandemic.

This study also did not explore the students' perspective. Shea et al. (2001) found that students experiencing the highest levels of satisfaction and learning received prompt and high quality feedback, as well as clear expectations for success from their instructions. Research examining teacher use of best practice in the K-12 online setting, compared with personality

traits and work life factors, provides teachers and administrators with insight into teachers' selection and teachers' development. However, future research is needed to measure the impact of online teaching best practices use on students' satisfaction and students' achievement in K-12 online learning programs.

An additional limitation regards the random-sampling method used for this study. The random-sampling approach may not be representative enough for a specific population of teachers (Creswell, 2003). The sample for this research consisted primarily of 7-12 grade teachers (71%) who teach in Minnesota K-12 approved online learning programs ($n = 340$, 7.7%). The majority of participants taught one year in an online setting ($n = 227$, 67%). Therefore, researchers should be cautious about generalizing the findings of this study to all K-12 online learning programs. More students should be conducted to determine whether the six best practices factors identified in this student can be generalized across K-12 online learning program delivery models at various grade levels.

Recommendations

Special Education Teachers

The results of this study suggest that teachers who possess the personality characteristics of conscientiousness and openness to experience are a better fit for online teaching. These teachers will experience more success as online teachers, due to their awareness of self and others, their motivation to engage with the student and the online platform, and their willingness to try new things.

Online special education teachers must demonstrate competency in unique areas including managing the online classroom and its technologies, developing individualized instruction, creating safe spaces for learning, and fostering strong teacher-student relationships

(Cavanaugh et al., 2013; Oliver et al., 2009; Repetto et al., 2010). The shift in teaching pedagogy from teachers as disseminators to teachers as researchers, designers, diagnosticians, and facilitators necessitates the development of new teaching skills, which conscientious teachers who are creative thinkers embrace (Aurora Institute, 2018). While these skills can be taught, teachers who enter into online learning without these traits may experience more difficulty and they must embrace change, personal and professional growth to develop these areas.

Conscientious teachers are those who identify as responsible, organized, self-disciplined, thorough, and not impulsive. Online teaching requires a good deal of autonomy and proactive planning. The ability to manage multiple technology platforms and differing types of student interaction directly correlates with student engagement. Anticipating what students might struggle with and planning ahead to provide resources before the students experience the struggle is a skill that successful online teachers must have to successfully individualize and facilitate the online classroom.

These teachers also are curious learners themselves, who practice reflection, seek deeper understanding, are open-minded, and those who tend not to follow the conventional pathway will find a creative outlet in online teaching. Online learning is not the instruction of the last hundred years placed on a website. Online learning requires both the teachers and the learners to challenge what isn't working to invent new pathways to learning. Teachers who regularly engage in the continuous improvement cycle to improve the learning experience will create opportunities for more students' success and experience more satisfaction in teaching online.

Administrators

This study results in four organizational practices that increase teachers' use of best practices in the K-12 online learning environment: community, workload, control, and fairness.

Organizations that foster a sense of community, in which the teachers feel as though they are part of a supportive work group where colleagues collaborate and communicate openly, carry out their own duties, and feel that they can trust others to carry out their duties are more likely to have teachers who use best practices. These teachers more frequently create the same safe spaces to support the learners' community in their classrooms. Fostering community among teachers, builds community among students in K-12 online learning.

Teacher control over how the work is done, the equipment and space they need to deliver online instruction, and teacher control in how they teach the students makes way for increased individualization for the learner. Providing teachers with the autonomy to create unique classrooms that reflect the creativity of the teachers and the needs of the learners not only meets the needs of the students in a more effective manner, it increases teacher satisfaction, and it increases likelihood that the teacher will use online organization and design best practices.

Thus, teacher development in course organization and design benefits the student, the teacher and the organization. Pre-packaged curriculum or courses that are designed by someone other than the teacher are an easy start, though it limits the teacher's ability to individualize and meet the needs of students with disabilities.

Ensuring that teachers have reasonable workloads provides teachers with enough time to develop their own skills and reach students, while also increasing teachers' satisfaction. This aspect of balance between designing and developing instruction to guide students through learning and facilitating the individual student experience is vital. K-12 students need teacher-student and student-student interaction in addition to the student-content interaction to provide them with the opportunities for inquiry and engagement, in order to learn effectively in the K-12 online environment.

As school leaders seek to increase student outcomes and develop teacher leaders, they must also examine teachers' access to resources, supports, and leadership opportunities. Teachers who are more likely to employ best practices in K-12 online teaching seek organizations in which decision-making processes are clear and non-bias, where resolving conflicts has a clear pathway, where opportunities for growth are open to all staff, and where resources are fairly allocated among students and staff. When these structures are in place, teachers are more likely to also use community of inquiry strategies to enhance student engagement (Anderson et al., 2001; Garrison, 2000; Garrison et al., 2000).

When developing hiring strategies, school leaders might also consider the use of the Big-five Personality traits or the Ten-Item Personality Inventory (TIPI) survey as a component of the application process (Gosling et al., 2003; Koschmieder et al., 2018). These types of measures support the hiring process through the candidate's self-identification of personality traits, through which school leaders can identify best fit candidates. Additionally, using the Big-five or a similar measure to identify personality traits during recruitment may resonate with candidates who otherwise would not have thought themselves to be in alignment with the qualities needed to be an effective online teacher. Consequently, both teacher and district could identify a better fit, resulting in higher rates of teacher retention and increased teacher quality in the K-12 online setting.

Policymakers

A predominant theme that emerged from this study was teacher training specific to online learning best practices. Educators cannot assume that best practices in face-to-face classrooms equate to best practices in the online setting (Muller, 2009). A new set of skills is required for

teachers to both engage with the technology and develop student-centered, collaborative learning (CEC, 2021; McLouglin & Lee, 2008).

In March, 2021, Minnesota had 38 approved online learning providers, 21 of which were school districts, the remainder were cooperative districts and charter schools. As of September 9, 2021, there were 61 approved online learning providers, as well as 285 school districts and charter schools who have received provisional approval to provide online learning during the 2021-22 school year in light of the need to provide distance learning in the wake of an outbreak during the COVID-19 pandemic (Minnesota Department of Education, 2021). The Minnesota Department of Education currently requires that districts seeking online learning approval submit an application and pass a program approval process (Minnesota Department of Education, 2021). Such work is done at a programmatic level, but does not require that any particular teacher training take place.

Minnesota's Professional Educator Licensing and Standards Board currently does not require training or student teaching experience in best practices related to online teaching for initial licensure or licensure renewal (Minnesota Professional Educator Licensing and Standards Board, 2021). Current Minnesota Professional Educator Licensing and Standards Board guidelines indicate that online teaching also cannot be included in the consideration of initial teaching licenses (2021). While discretionary variances to allow some of the initial student teaching experience to occur in an online setting has occurred during the COVID-19 pandemic, this exception is short lived. These variances also do not include online best practices training, before engaging in the online student teaching experience.

In 2019, this researcher participated in testimony and the consideration of new rules in collaboration with the Minnesota Board of School Administrators (BOSA). This governing body

determined it appropriate for online teaching to be an assignment sufficient to meet the teaching prerequisite to application for Minnesota administrative licensure. Pre-COVID-19 pandemic, this board sought to demonstrate the unique set of skills required of online teachers and justified this teaching experience as appropriate in its rules. In 2020, BOSA adopted this rule, reflective of the value of the online teaching experience for Minnesota school administrators (MINN. R. 3512.0200, 2020).

Currently in Minnesota, there are no teacher licensure rules that require training in best practices in online learning for Minnesota teachers MINN. R. 8710.2000 (2018). Yet, students' participation in online learning has increased substantially across the nation in the last ten years (United States Department of Education, 2011). In Minnesota, all students participated in some form of online learning in 2020 and 2021 (MN Executive Order No. 20-02, 2020; MN Executive Order No. 20-82, 2020). In order to support the needs of all learners and keep pace with the growing population of students participating in online learning, teachers' training in K-12 online teaching best practices is needed *now* (CEC, 2021; Keeler & Horney, 2007; McLouglin & Lee, 2008). As such, future Minnesota teachers' licensure policy makers should consider adding the requirement for online teaching best practice training for all K-12 initial licensure and teachers' licensure renewal in the six best practices: building learning community online, facilitation discourse, online organization and design, students' engagement, and individualization in addition to training in the use of Universal Design for Learning and Community of Inquiry strategies.

Future Research

K-12 online learning continues to grow across the nation. Since the onset of the COVID-19 pandemic, this growth spans across all states and students with varying abilities. As students

in K-12 continue to seek online learning as a full-time option to attend school, teachers' training in K-12 online learning best practices coupled with administrative teachers' selection, and administrators creating a collaborative, supportive organization climate will prepare online schools for successful instruction for all students.

This study adds a small number of K-12 online teachers' perspectives to the collective conversation about improving the outcomes of online learners. Future researchers should continue to explore the correlation between curriculum developed by instructional designers or companies versus teacher developed content, and student achievement. To dive deeper into the aspect of students' success, the inclusion of new variables including the student perspective about online learning experiences, the severity of the students' disabilities, and whether student satisfaction positively correlates with increased achievement should be considered.

Qualitative research to explore students' satisfaction and to determine the appropriate best practices to scaffold a successful K-12 online learning experience for the most significantly disabled students. Each individual learner experiences the classroom differently. As K-12 online learning enrollment continues to increase for all students, the enrollment of students with more significant disabilities will also increase. Developing best practices for serving students across the continuum of disability is needed.

Future research could also seek to overcome limitations in the study. Researchers might also consider replicating the variables after the COVID-19 pandemic has subsided, outside of Minnesota, and in various K-12 online learning models. Because this research utilized observational and cross-sectional data collection, this limits the ability to draw causal conclusions. Future research should include an experimental perspective, to determine the

effectiveness of K-12 online learning best practices in a comparative study of teachers in both the general and special education settings.

Concluding Comments

This research sought to add meaningful discussion to the limited body of K-12 online learning research, particularly in regard to the use of best practices to serve students with disabilities. This study identifies K-12 online learning best practices that should guide teachers' development: building a learning community online, facilitation discourse, online organization and design, student engagement, and individualization. The Community of Inquiry framework supports these best practices in K-12 online learning classrooms (Anderson et al., 2001; Garrison, 2000; Garrison et al., 2000).

Educational leaders can also support the use of these best practices through teachers' selection and by fostering the culture in the organization that is desired in the classroom. Hiring teachers who exhibit conscientiousness, who are creative, who are open to trying new things, and who desire to build strong relationships with students supports the use of K-12 online learning best practices in the classroom. Building a community of collaboration, opportunities for all to succeed and grow, and where fairly allocated among students and staff supports the likelihood that teachers will develop these same safe and supportive learning environments for their students, in which the use of best practices is embedded.

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Appendix A

Invitation Email

Hello educators,

My name is Kelly Dietrich. I am a doctoral student at Bethel University in St. Paul, MN. I am passionate about providing best fit programs for students and supporting teachers in their work. I am conducting a study to explore teacher best practices in K-12 online learning for my doctoral dissertation. My study has received IRB approval (#SP-21-21) and is supervised by Dr. Krista Soria (krs73996@bethel.edu).

You were selected for this study given your licensure as a Minnesota Tier 4 educator. I received your email address from the Professional Educator Licensing and Standards Board. If you choose to participate in the study, your information will be kept confidential, no one will be able to associate you with your survey responses, no one will have access to your survey responses, and the results of the survey will be aggregated for data analysis.

Fifty randomly drawn participants will receive a $5.00 Amazon gift card via email. To be eligible for this drawing, participants will be asked to share their email address at the end of the survey. This email will not be connected to your survey responses in any way; rather, it will be used for the Amazon gift card lottery drawing conducted by my advisor.

If you are interested in participating in the survey, please click on the link below to begin by reviewing a consent form.

Thank you for your time and contribution.

Sincerely,

Kelly Dietrich

Appendix B

Consent to Participate in Online Research

You are invited to participate in a research study designed to learn more about best practices in K-12 online education, for students with disabilities. The findings of this study will be used to create a framework for teachers based on what works in Minnesota K-12 online education as seen from the teacher perspective. Second, a comparison of whether personality characteristics or work-life variables impacts teacher use of best practice will be studied. The intent of this study is to support educators in their work with students with disabilities served in Minnesota schools.

Risks for consenting participants are minimal. Survey participants are asked to reflect on skills and experiences in their role as teacher. In doing so, you may reflect on both positive and negative characteristics of your work. There are no intentional or unintentional short or long term effects of participating in the survey. If you experience emotional discomfort at any time during survey completion, you may discontinue the survey.

Should you participate in the study, you will have access to the survey via the link below after indicating that you agree to participate. The survey is composed of 86 questions that will take approximately 20 minutes to complete. The survey consists of a combination of three surveys: SUNY Learning Network Online Teaching Survey (Pickett, 2010), Areas of Worklife Survey, and the Ten Item Personality Inventory (Gosling et al., 2003; Leiter & Maslach, 2011; Pickett, 2010).

Your contact information was shared with me through a data request to the Professional Educator Licensing and Standards Board (PELSB). All personal information provided by PELSB for this research will not be retained or stored. Individuals and schools will not be identified.

All data obtained from survey participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). Survey data collected will be stored in the HIPPA-compliant, Qualtrics password secured database until it has been deleted by the researcher. I am the only researcher who will have the authority to access survey data within Qualtrics. Upon completion of the study, I will summarize responses from participants in a dissertation.

Your participation in this research study is voluntary. Your decision to participate has no impact on your employment status, your Minnesota teaching license, your standing with the Professional Educator Licensing and Standards Board (PELSB), or standing with your school. There is no penalty for opting out of the survey. You can withdraw from survey participation at any time by closing the survey browser and emailing the researcher at kelly-dietrich@bethel.edu.

As a token of gratitude for survey participation, 50 random survey participants will be chosen to receive a $5.00 electronic Amazon gift card. In order to provide the gift card to the participant, the participant will share a working email address for distribution at the end of the survey.

This research project has been reviewed and approved by Bethel University in accordance with Bethel University's Levels of Review for Research with Humans. If you have any questions about the research and/or research participants' rights or wish to report a research-related injury, please contact:

Kelly Dietrich at kelly-dietrich@bethel.edu.

If you have questions you do not feel comfortable asking the researcher, you may contact

the Bethel University Dissertation Advisor, Krista Soria at krs73996@bethel.edu or Peter

Jankowski, Bethel IRB Chair, at pjankows@bethel.edu.

Please keep a copy of this email for your records should you engage in the study described

above.

I have read, understood, and printed a copy of, the above consent form and desire of
my own free will to participate in this study.
○ Yes (1)
○ No (2)
If No Is Selected, Then Skip To End of Survey

Appendix C

Participant Reminder Email

Hello,

      I hope this email finds you well. I recently shared a survey invitation with the hope to learn more about teacher use of best practices in online learning settings for students with special education needs. My appreciation to those who have already participated in the survey. If you have not yet participated, please take a moment to learn more about my research and consider participating in this study.

Best,
Kelly Dietrich
Bethel University

Appendix D

Participant Thank You Message

Greetings,

Thank you for completing the survey. I appreciate your participation and time to provide your survey responses.

Should you be interested in a summary of survey data, please contact me at kelly-dietrich@bethel.edu. I anticipate summary data will be available to share in July.

Thank you,

Kelly Dietrich

Bethel University

Appendix E

K-12 Online Teaching Survey SUNY Learning Network (Modified)

This survey is intended to explore the issues of teaching presence and community in online learning environments. The purpose of this questionnaire is to provide you with the opportunity to reflect upon and evaluate your online course and teaching experiences. Please respond to the questions about the online courses that you currently teach and/or support.

The italics refer to new or amended survey items:
1. *Do you currently teach at a Minnesota approved online learning provider? Please review this list of providers).*
   a. *Yes*
   b. *No*
2. What is your online teaching experience? (check one)
   a. I have only taught online classes since the start of the COVID-19 pandemic
   b. I have experience teaching online classes before the COVID-19 pandemic

If 1 = yes or if 2b = selected, then
   3. How long have you been teaching online classes?
      a. I have taught online classes for 1 year or less
      b. I have taught online classes between 2 and 5 years
      c. I have taught online classes between 6 and 9 years
      d. I have taught online classes for over 10 years

Please answer the following on a scale from 1 = strongly disagree to 5 = strongly agree:
   4. *Overall I am satisfied with the content of the online instruction I provide.*
   5. *Overall I am satisfied with the delivery methods used in the online courses I teach.*
   6. *Overall I feel my students learn a great deal in the online courses I teach.*

DIRECTIONS: Below you will see a series of statements concerning the courses you are presently teaching or recently completed teaching. Read each statement carefully and select the choice that comes closest to indicate how you feel about your courses. There are no correct or incorrect responses. If you neither agree nor disagree with a statement or are uncertain, select the neutral choice. Do not spend too much time on any one statement, but give the response that seems to describe how you feel.
CLASS COMMUNITY (COMMUNITY OF INQUIRY)
Scale 1 = strongly disagree to 5 = strongly agree.

   7. I feel that I encourage students to ask questions. (2)
   8. My students feel connected to others in this course. (3)
   9. My students feel that it is hard to get my help when they have a question. (4)
   10. My students feel that it is hard to get technical support or assistance when they have a problem. (5)
   11. I do not feel a spirit of community. (6)
   12. I feel that I give timely feedback. (7)

13. I feel that my courses are like a family. (8)
14. My students feel uneasy exposing gaps in their understanding. (9)
15. My students feel isolated in my courses. (10)
16. My students feel reluctant to speak openly. (11)
17. I feel that my courses result in only modest learning. (13)
18. My students feel that they can rely on others in my courses. (14)
19. I feel that students do not help other students learn. (15)
20. I feel that my students are given individualized opportunities to learn. (16)
21. Do you have contact with your students outside of your courses (e.g., email, phone, face-to-face)?
    ⭕ Yes (1)
    ⭕ No (2)

FACILITATION DISCOURSE (COMMUNITY OF INQUIRY)
Seeking to reach consensus
22. Overall, I was helpful in guiding the class towards understanding course topics in a way that assisted my students to learn. (29)
Reinforce student contributions
23. Overall, I acknowledge student participation in the courses I teach (for example, replied in a positive, encouraging manner to student submissions). (30)
Setting climate for learning
24. Overall, I encourage students to explore new concepts in my courses (for example, encouraging "thinking out loud" or the exploration of new ideas). (31)
Drawing in participants, prompting discussion
25. Overall, I help to keep students engaged and participating in productive dialog. (32)
Assessing the efficacy of the process
26. Overall, I help keep students on task in a way that assists them to learn. (33)
INSTRUCTIONAL DESIGN AND ORGANIZATION
Setting the curriculum
27. Overall, I clearly communicate important course goals (for example, provided documentation on course learning objectives) to the student at the beginning of and throughout the course. (1)
28. Overall, I clearly communicated important course topics (for example, provided a clear and accurate course overview). (2)

Designing Methods
29. Overall, I provide clear instruction on how to participate in course learning activities (for example, provided clear instructions on how to complete course assignments successfully). (1)

30. Overall, I provide various styles of content delivery to meet various learning needs. (2)

Establishing Time Parameters
31. Overall, I clearly communicate important due dates/time frames for learning activities that helped my students keep pace with my courses (for example, provided a clear and accurate course schedule, due dates, etc.) (1)
Utilizing the medium effectively
32. Overall, I help my students take advantage of the online environment to assist their learning

(for example, provide clear instructions on how to participate in online discussion forums, how to access open office hours or paraprofessional supports). (1)

Establishing Netiquette

33. Overall, I help students to understand and practice the kinds of behaviors acceptable in online learning environments (for example, provided documentation on "netiquette" i.e. polite forms of online interaction). (1)

DIRECT INSTRUCTION

Present content/Questions

34. Overall, I present content or questions that help my students to learn. (1)

35. Overall, I modify instruction to meet the needs of my students. (2)

Focus the discussion on specific issues

36. Overall, I helped to focus discussion on relevant issues in a way that assisted my students to learn. (1)

Confirm understanding

37. Overall, I provide explanatory feedback that assisted my students to learn (for example, responded helpfully to discussion comments or course assignments). (1)

38. Overall, I reach out to and provide reinstruction for students who do not understand a topic. (2)

Diagnose misconceptions

39. Overall, I helped my students to revise their thinking in a way that helped them to learn (for example, correct misunderstandings). (1)

Inject knowledge from diverse sources

40. Overall, I provided useful information from a variety of sources that assisted my students to learn (for example, references to articles, textbooks, personal experiences, or links to relevant external websites). (1)

41. How many online learning classes have you successfully completed as the online student before? (Chose one)

○ None (1)
○ 1 to 3 classes (2)
○ 4 to 6 classes (3)
○ 7 to 9 classes (4)
○ More than 9 classes (5)

42. Does your school or district employ an instructional designer to assist you with online course development? (Chose one)

○ Yes (1)
○ No (2)

43. Do you create your own online class content? (Chose one)

○ Yes (1)
○ No (2)

○ I edit existing content for use in my classroom (3)

44. How many hours of formal instructional design training (i.e. Quality matters training, formal coursework such as managing the online learning environment, developing online curriculum and resources, proficiency in online learning tools, etc.) did you receive to create your online courses? (Chose one)
○ Less than one hour (1)
○ Between 1-5 hours (2)
○ Between 6-10 hours (3)
○ Between 11-15 hours (4)
○ More than 15 hours (5)

45. Which grades do you currently teach? (Check all that apply)
❑ Kindergarten (1)
❑ 1 (2)
❑ 2 (3)
❑ 3 (4)
❑ 4 (5)
❑ 5 (6)
❑ 6 (7)
❑ 7 (8)
❑ 8 (9)
❑ 9 (10)
❑ 10 (11)
❑ 11 (12)
❑ 12 (13)
❑ 12+ or transition programming (14)

46. In which content areas do you currently teach? (Check all that apply)
❑ English/Language Arts (1)
❑ Elementary Education (2)
❑ Mathematics (3)
❑ Science (4)
❑ Social Studies (5)
❑ Fine Arts (6)
❑ Health/Physical Education (7)
❑ Foreign Language (8)
❑ Special Education and a General Education Content Area (9)
❑ Special Education Only (10)
❑ Other (11) _____

47. How many years have you taught in K-12 online? (Chose one)
○ This is my first year (1)

○ 2 years (2)
○ 3 years (3)
○ 4 years (4)
○ 5 or more years (5)

48. How many years did you teach in a face-to-face setting? (Chose one)
○ This is my first year (1)
○ 2 years (2)
○ 3 years (3)
○ 4 years (4)
○ 5 or more years (5)

Appendix F

Ten Item Personality Inventory (TIPI)

The survey is a brief measure of the Big-Five personality dimensions (Gosling, S. D., Rentfrow,

P. J, Swann Jr., W.B, 2003). The purpose of this questionnaire is to explore whether there are

particular teacher personality characteristics associated with special education teachers' use of

best practices.

Ten Item Personality Inventory

DIRECTIONS: Below you will see ten pairs of personality traits that may or may not apply to

you. Select the choice that indicates the extent to which you agree or disagree with that

statement. You should rate the extent to which the pair of traits applies to you, even if one

characteristic applies more strongly than the other.

	Disagree Strongly (1)	Dis-agree moder-ately (2)	Dis-agree a little (3)	Neither agree or disagree (4)	Agree a little (5)	Agree moder-ately (6)	Agree strongly (7)
Extraverted, enthusiastic. (1)	O	O	O	O	O	O	O
Critical, quarrelsome. (2)	O	O	O	O	O	O	O
Dependable, self-disciplined. (3)	O	O	O	O	O	O	O
Anxious, easily upset. (4)	O	O	O	O	O	O	O
Open to new experiences, complex. (5)	O	O	O	O	O	O	O
Reserved, quiet.	O	O	O	O	O	O	O

(6)							
Sympathetic, warm. (7)	○	○	○	○	○	○	○
Disorganized, careless. (8)	○	○	○	○	○	○	○
Calm, emotionally stable. (9)	○	○	○	○	○	○	○
Conventional, uncreative. (10)	○	○	○	○	○	○	○

The Ten-Item Personality Inventory (TIPI) was authored by Samuel D. Gosling, Peter J. Rentfrow, and William B., Swann Jr. as a brief version of the Big-Five personality dimensions for use by researchers with limited time (2003). The TIPI is a ten question tool for use when the researcher is not primarily measuring personality.

The TIPI is available for public use. To view a copy of these permissions, visit http://gosling.psy.utexas.edu/scales-weve-developed/ten-item-personality-measure-tipi/

Appendix G

Areas of Worklife Survey: Access Documentation

Areas of Worklife Survey

by Michael P. Leiter & Christina Maslach

Published by Mind Garden, Inc.
www.mindgarden.com

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To Whom It May Concern,

The above-named person has made a license purchase from Mind Garden, Inc. and has permission to administer the following copyrighted instrument up to that quantity purchased:

Areas of Worklife Survey (AWS)

The six sample items only from this instrument as specified below may be included in your thesis or dissertation. Any other use must receive prior written permission from Mind Garden. The entire instrument may not be included or reproduced at any time in any other published material. Please understand that disclosing more than we have authorized will compromise the integrity and value of the test.

Citation of the instrument must include the applicable copyright statement listed below. Sample Items:

I do not have time to do the work that must be done.
I have control over how I do my work.
I receive recognition from others for my work.
Members of my work group communicate openly.
Resources are allocated fairly here.
My values and the Organization's values are alike.

Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

Appendix H

Areas of Worklife Survey

Sample Item	Strongly Disagree (1)	Disagree (2)	Hard to Decide (3)	Agree (4)	Strongly Agree (5)
I do not have time to do the work that must be done.	O	O	O	O	O
I have control over how I do my work.	O	O	O	O	O
I receive recognition from others for my work.	O	O	O	O	O
Members of my work group communicate openly.	O	O	O	O	O
Resources are allocated fairly here.	O	O	O	O	O
My values and the Organization's values are alike.	O	O	O	O	O

Appendix I

Data Request to PELSB

From: Kelly Dietrich <kdietrich@indigoed.org>
Sent: Saturday, March 13, 2021 9:50 PM
To: Bailey, Yelena (PELSB) <Yelena.Bailey@state.mn.us>
Cc: MN_PELSB_Data Request <DataRequest.PELSB@state.mn.us>
Subject: Dissertation Research Data Request

This message may be from an external email source.

Do not select links or open attachments unless verified. Report all suspicious emails to Minnesota IT Services Security Operations Center.

Good evening Yelena,

I am conducting doctoral research as a graduate student of Bethel University. I am writing to request the following information, that I am hoping you are able to assist with:

1 - email addresses and names of licensed and practicing special education teachers in MN

2 - email addresses and names of licensed and practicing general education teachers in MN

My dissertation is related to best practices in online learning for students with disabilities.

Thank you for your help,

Kelly

Kelly Dietrich
Director of Special Education
Pronouns: (she/her/hers)

INDIGO
EDUCATION

Kelly Dietrich <kdietrich@indigoed.org>

RE: Dissertation Research Data Request
1 message

MN_PELSB_Data Request <DataRequest.PELSB@state.mn.us>   Wed, Mar 24, 2021 at 11:09 AM
To: Kelly Dietrich <kdietrich@indigoed.org>

Good afternoon,

I have attached a list with names and emails of all teachers who hold an active license. This data includes licensure areas, so you can sort/select the entries that you need (for special ed, etc.). Please let me know if you have any questions.

Kindest regards,

Yelena Bailey

Director of Education Policy

Professional Educator Licensing and Standards Board

1021 Bandana Blvd. E., Suite 222

Saint Paul, MN 55108-5111

651-539-4196

mn.gov/pelsb

Appendix J

CITI Certification

CITI PROGRAM

Completion Date 08-Apr-2021
Expiration Date 08-Apr-2023
Record ID 11863938

This is to certify that:

Kelly Dietrich

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Doctoral students - Basic/Refresher
(Curriculum Group)
Doctoral students - Basic/Refresher
(Course Learner Group)
2 - Refresher Course
(Stage)

Under requirements set by:

Bethel University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w22d9bf16-06ba-4f49-a997-298e893ae191-11863938

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Kelly Dietrich (ID: 2742211)
- **Institution Affiliation:** Bethel University (ID: 1398)
- **Institution Email:** kelly-dietrich@bethel.edu
- **Phone:** 952-484-1736

- **Curriculum Group:** Doctoral students - Basic/Refresher
- **Course Learner Group:** Same as Curriculum Group
- **Stage:** Stage 2 - Refresher Course

- **Record ID:** 11863938
- **Completion Date:** 08-Apr-2021
- **Expiration Date:** 08-Apr-2023
- **Minimum Passing:** 80
- **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
SBE Refresher 1 - Instructions (ID: 943)	08-Apr-2021	No Quiz
SBE Refresher 1 – Defining Research with Human Subjects (ID: 15029)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Privacy and Confidentiality (ID: 15035)	08-Apr-2021	4/4 (100%)
SBE Refresher 1 – Assessing Risk (ID: 15034)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Research with Children (ID: 15036)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – International Research (ID: 15028)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – History and Ethical Principles (ID: 936)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Federal Regulations for Protecting Research Subjects (ID: 937)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Informed Consent (ID: 938)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Research with Prisoners (ID: 939)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Research in Educational Settings (ID: 940)	08-Apr-2021	2/2 (100%)
Bethel University (ID: 12888)	08-Apr-2021	No Quiz

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k57981c0b-cf8a-492d-8e1a-62f2580d7131-11863938

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Kelly Dietrich (ID: 2742211)
- **Institution Affiliation:** Bethel University (ID: 1398)
- **Institution Email:** kelly-dietrich@bethel.edu
- **Phone:** 952-484-1736

- **Curriculum Group:** Doctoral students - Basic/Refresher
- **Course Learner Group:** Same as Curriculum Group
- **Stage:** Stage 2 - Refresher Course

- **Record ID:** 11863938
- **Report Date:** 08-Apr-2021
- **Current Score**:** 100

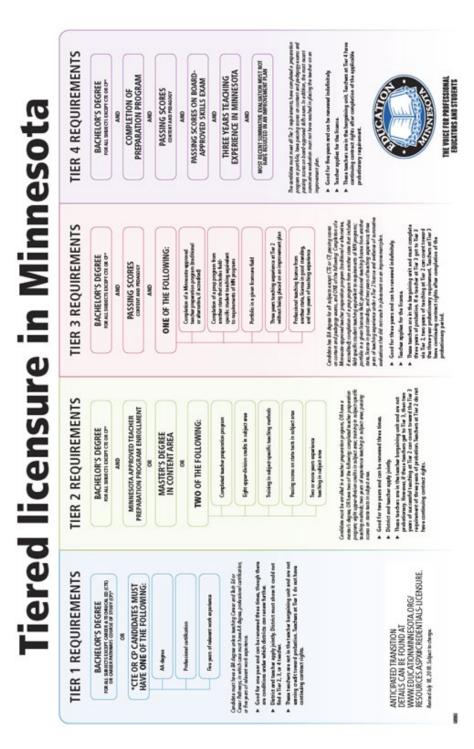| REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
SBE Refresher 1 - Instructions (ID: 943)	08-Apr-2021	No Quiz
SBE Refresher 1 – History and Ethical Principles (ID: 936)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Federal Regulations for Protecting Research Subjects (ID: 937)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Defining Research with Human Subjects (ID: 15029)	08-Apr-2021	2/2 (100%)
Bethel University (ID: 12888)	08-Apr-2021	No Quiz
SBE Refresher 1 – Informed Consent (ID: 938)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Assessing Risk (ID: 15034)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Privacy and Confidentiality (ID: 15035)	08-Apr-2021	4/4 (100%)
SBE Refresher 1 – Research with Prisoners (ID: 939)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Research with Children (ID: 15036)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – Research in Educational Settings (ID: 940)	08-Apr-2021	2/2 (100%)
SBE Refresher 1 – International Research (ID: 15028)	08-Apr-2021	2/2 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k57981c0b-cf8a-492d-8e1a-62f2580d7131-11863938

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

Appendix K

(Education Minnesota, 2018)