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EVALUATING TEACHER IMMEDIACY IN K-12 ONLINE LEARNING ENVIRONMENTS

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A dissertation submitted to the faculty of Bethel University in partial fulfillment of the requirements for the degree of Doctor of Education

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Abstract

Educators who serve students in online classrooms display a unique set of skills necessary to engage students, however little research and no teacher evaluation tools exist to guide K-12 online teachers in the evidence-based practices needed to perfect their craft. The research that does exist focuses on the post-secondary classroom which is assumed to be significantly different from K-12 environments. Using a Delphi study, an expert group of MN K-12 online educators confirmed that the research from the college level related to teacher immediacy and interaction, the teacher behaviors that most impact student engagement, are applicable to the K-12 online classroom. They also identified twelve distinct teacher behaviors that increase student engagement in the K-12 online setting. Through the synthesis of expert teacher practice and post-secondary research, three unique rubrics were developed (Developing Personal Connections, Facilitating Interaction, and Providing Feedback) to provide a strong supplement to other teacher evaluation programs for the evaluation of K-12 online teachers. These rubrics are intended to provide an entry point for further discussion and research.

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Chapter One: Introduction

Background of the Study

Although online learning environments were first introduced in higher education arenas, there is no doubt that online education is no longer just a college level model; online schools are becoming commonplace in the elementary and secondary world. According to the International Association for K-12 Online Learning (iNACOL), in the 2009-2010 school year there were 1.8 million student enrollments in distance-education courses in K-12 schools in the United States and over 310,000 students were enrolled full-time in online programs in 2013-2014 (p. 1).

If all of these students are learning in online settings, it follows that they must have teachers who are serving them, yet little research exists to guide online teachers in the evidence-based practices called for in No Child Left Behind (2001). In addition, the demand for skilled online teachers is growing but few teacher preparation programs exist to train teachers in the unique skills required when teaching online (Picciano, Seaman & Allen, 2010).

In fact, the little research that exists on best practices for online instruction is nearly all focused on the college level, and the pool is much more limited when considering K-12 students. Researchers stand united in stating that very little is currently known about online pedagogy and practitioners are desperate for proven strategies to use with their elementary and secondary online students (Black et al., 2008; Ferdig, 2009; Rice & Dawley, 2007).

Statement of the Problem

Minnesota's Department of Education recently initiated a new measure of teacher effectiveness called the *Collaboration, Growth and Evaluation Model for Teacher Evaluation.* In this plan, teachers are measured on three components: Teacher Practice, Student Engagement, and Student Learning and Achievement. By far, the area of this model that has received the most critical attention is Student Engagement, which by definition involves a student's commitment to learning and is influenced by their family, peers and community – all things that are outside of the control of the teacher.

When considering student engagement in a traditional classroom it is possible to observe students and see their level of participation or activity; are they raising their hands enthusiastically, are they collaborating with their peers about the content, are they connecting the content with information in other areas of their lives, are they comfortable with their teacher? Yet, in an online classroom, that engagement is measured with several screens separating the student and the teacher, as well as the classroom and the evaluator. Because of this, educators who teach online are questioning whether or not the measures established to evaluate engagement in a face-to-face classroom could be used to accurately measure the engagement of students in a virtual classroom.

The following literature review provides evidence that the communication strategies used by the online teacher can impact the engagement of the students and may be a reasonable measure of teacher effectiveness. However, the specific problem is that teachers who educate students online do not currently have a tool to measure

their teaching presence, which can provide them with clear feedback about practices that positively impact student engagement.

Rationale

With the national trend towards mandatory teacher evaluation in K-12 systems, and recent legislative action in Minnesota, a tool is needed to evaluate teacher behaviors that impact student engagement in K-12 online classrooms. Without a strong body of research on which to build an evaluative tool, educators must rely on generalized research from higher education and merge this knowledge with experiential evidence from currently practicing experts in the K-12 online classroom.

Research Questions

Through a review of literature and a Delphi study to identify, describe and reach consensus among expert online educators, this study seeks to answer the following research questions:

1. What evaluative tools exist for measuring the teacher behaviors that impact student engagement in an online classroom?
2. Does online K-12 practitioner pedagogy match with what is found in higher education research for online pedagogy/andragogy?
3. What are the measurable teacher behaviors that increase student engagement in the K-12 online classroom?

Significance of the Study

As stated earlier, the world of online instruction is growing exponentially and the research pool has not been able to match pace. No Child Left Behind (2001),

which has authority over all public K-12 education systems, requires that teachers implement evidence-based practices, yet little evidence exists for the educator who teaches online. While a few instructional practices can be easily generalized between traditional and online settings, many do not. Student engagement is one area that presents itself very uniquely in the online classroom and now that the Minnesota Department of Education has revised the expectations for teacher evaluation to include measures of student engagement, online schools are left scrambling to find tools that will work within their environment.

This study generalized research from higher education and merged this knowledge with practical evidence from currently practicing experts in Minnesota K-12 online classrooms in order to develop a teacher evaluation tool, modeled after the work of Danielson (2013) and Marzano (2013), that could be used as part of a comprehensive teacher evaluation program. Although there are many aspects of best practice in online instruction that could be researched further, this study considered only the research-based measurable behaviors that online teachers use to positively impact student engagement.

Definition of Terms

In order to have understanding of the literature review and Delphi study to follow, it is important to clarify several terms to ensure clarity throughout. The term *online teacher* or *online educator* refers to instructors who participate in the teaching and learning process with students through various technological means. Online teachers would use computer-based systems to communicate with their students from

a distance either during the same time (synchronous) or without synchronous interactions (asynchronous).

This study specifically focused on teacher behaviors that impact student engagement which makes it another critical term to define. *Student engagement* is the sustained involvement of students in academic activities. It is often described through a list of behaviors specific to the educational setting; in online settings student engagement is a controversial topic because observable measures are very different when education happens at a distance. A definition of student engagement is further explored throughout this study.

Immediacy is a term used to explain a set of communication behaviors that makes the interaction closer or brings the two participants together. In the world of online education, immediacy helps to reduce the distance that can be noticeable and isolating for the student. Later in this paper, teacher immediacy is defined and explored in depth in relation to the online classroom.

Assumptions and Limitations

This study is based on the following assumptions. The first is that online education models vary greatly from state to state and therefore in order to streamline the process and confirm that terms are consistent, only online educators from the state of Minnesota are included in the expert pool for the Delphi study.

Secondly, because the Minnesota Department of Education has mandated a teacher evaluation system that includes elements of student engagement, it is assumed that student engagement can be impacted by specific teacher behaviors. Although materials from MDE do not include specific references to online education, it is also

assumed that online educators are to be held to the same expectations as their face-to-face counterparts and as such need tools to measure student engagement within the venue of online schools.

Although limited research is available regarding online teacher best practices for K-12 (Black et al., 2008; Cavanaugh et al., 2004; DiPietro et al., 2008), it is assumed that research from college level online education has more to offer foundationally to this study than research from face-to-face K-12 classrooms. For that reason, existing research from the college online classroom is used as a starting point for the Delphi study on teacher behaviors that promote student engagement in K-12 online classrooms.

It is assumed that online teachers with three years of experience are, through the nature of practice and the retention of their jobs, experts in online instruction. It is also important that the online educators participate in the development of the evaluation tool since they are the ones most aware of the elements of online pedagogy that provide the greatest result in student engagement.

Lastly, it is assumed that an additional expert pool of online administrators or peer evaluators should also be included in the Delphi study to develop an evaluation tool for measuring teacher behaviors that promote student engagement in K-12 online classrooms. Because online administrators and peer evaluators use evaluation rubrics, their input, in addition to the consensus provided by the teacher group, is critical to the ultimate usability of the evaluation tool being developed.

Nature of the Study

The nature of this mixed method Delphi study was to explore, identify, and reach consensus on the measurable teacher behaviors that promote student engagement in the online classroom. Both qualitative and quantitative elements have been chosen in order to bridge the gap between the lack of current evidence-based research for online schools and the growing pool of practical evidence available from experts in the online classroom**.**

Organization of the Remainder of the Study

Chapter two of this study provides a research base from both higher education, and K-12 environments when available, to determine how online education is understood and studied, as well as what best practices are currently accepted as promoting student engagement in online classrooms. Explanation of theoretical frameworks related to online teaching is offered, as well as an overview of online teaching standards and evaluation methods.

Chapter three provides the methodology of the four round Delphi study that will provide the practitioner base on which to compare the literature from Chapter two. All four rounds of the study are explained, including the participant selection process as well as how the data are analyzed.

Chapter four provides the analysis of data from all four rounds of the Delphi study. Results are provided both in expository text and through visual representations; charts and tables include qualitative and quantitative data as space allows.

Lastly, chapter five provides the discussion, implications and recommendations for both the review of literature and the Delphi study. A brief

overview is followed by each research question and the conclusions that can be drawn for application in the K-12 online setting. The researcher has synthesized the top twelve online teacher behaviors that support student engagement and has provided recommendations for future studies.

Chapter Two: Literature Review

Theoretical Frameworks Related to Online Teaching

New teachers are taught that in order to establish new learning for students, it is important to confirm the knowledge their students already have on a topic. This assures that new instruction is not built on misconceptions or merged into schemas where they do not belong. In a study of online pedagogy there are many misconceptions and schemas that need to be explored before new constructs can be established. In order to initiate a discussion that will lead to the development of an evaluative tool to measure the behaviors of K-12 online teachers that contribute to student engagement, several foundational topics must be clarified.

Online instructional design theory. Teaching online requires a different set of skills than those used to teach in a brick and mortar setting and for educators to make the switch from one venue to the next requires some theoretical information which is not included in the typical teacher preparation program. One of the main frameworks for understanding how online instruction works is offered by Garrison, Anderson and Archer (2000) in their Community of Inquiry model.

Community of Inquiry. In 2000, Garrison et al. published the first article detailing a framework for understanding what they believed were the three critical elements of successful online learning in higher education. Their experiences with asynchronous, text-based communication provided a context by which researchers have studied online learning for the last decade. Based on the work of a number of researchers from the 1990s (Gunswarden, 1995; Hiltz & Turoff, 1993; Henri, 1991; Newman et al. 1996, 1997; as cited in Garrison et al., 2010), their Community of

Inquiry (CoI) framework continues to be among the most researched, and respected, constructs of recent distance education theory. Garrison et al. (2000) suggested that effective educational experiences are fostered in a community of inquiry, made up of both students and teachers, and that success in online learning environments is due to the instructor's intentional planning in three distinct areas. These areas are Social Presence, Cognitive Presence and Teaching Presence and although each is distinct from the others, the overlap between each pair, and all three elements together is where the majority of discussion on this framework has occurred (Appendix A). However, through continued validation studies of the CoI framework, it appears clear that all three presences are essential to quality online educational experiences.

Cognitive presence. Cognitive presence is based on the work of John Dewey's notion of reflective thought (Garrison et al., 2010) and the belief that students construct meaning though critical thinking and discourse. For most educators, although somewhat overly simplified, this presence is understood as the content of the course. Explained more thoroughly by Dewey, the cycle of learning within this presence involves a triggering event, exploration, integration and resolution of a learning target. Garrison et al. (2000) explained that when students experience these elements, their work and communication in a course show a sequence of indicators that they are puzzled, exchanging information, connecting ideas and applying new ideas. Garrison et al. further stated that online learning allows potentially more high-level thinking because the intentional communication required when online provides learners and teachers with concrete evidence of this cognitive growth and thus more opportunity for reflective learning.

Teaching presence. Teaching presence includes the design, facilitation and direction of the cognitive and social processes in an online course (Garrison et al., 2000). For most educators, this presence can be summarized as the intentional systems an instructor uses to facilitate both the content and the interactivity of a course. When further defining the categories of teacher influence in the teaching presence construct, Garrison et al. (2000) included design and organization, facilitating discourse, and direct instruction as the main elements. These are evident in a course through the setting of curriculum and instructional methods, sharing of personal meaning, and the teacher's ability to effectively focus discussion. Additionally, online instructors must provide scholarly leadership through sharing their subject matter knowledge, but also through the effective use of assessment and feedback. The overlap between teacher presence and cognitive presence is believed to be what most impacts students' ability to reach higher level thinking in order to integrate new learning and apply it in practice (Garrison & Arbaugh, 2007). This suggests that online teachers hold significant responsibility as to whether or not the learning outcomes of a course are reached; the teacher's influence in establishing constructs by which students delve deeply into course content is critical.

Social presence. Social presence is the last area of the framework, and the portion of the theory that has received the most attention (Garrison et al., 2010). Although many early skeptics of online education believed that interaction among students and teachers was limited at best, continued research and improved technology resources over the past decade has shown that instructors have a significant impact on the success of online learning when they pay particular attention

to building community and creating authentic opportunities for students to interact with each other and with the teacher (Garrison et al., 2010). Garrison et al. (2000) described social presence through the three categories of open communication, group cohesion, and affective expression. These areas are demonstrated when students show risk-free expression, engage in collaboration, and use less formal communication structures like emoticons. Garrison and Arbaugh (2007) described social presence as "the ability of learners to project themselves socially and emotionally in mediated communication" (p. 158). They further explained that instructors can confirm social presence in a course when they see learners developing acquaintances, then conferring with each other and finally developing camaraderie in response to the academic tasks assigned by the instructor. Although some would argue that social presence is not worthy of instructor time because it is not central to academic outcomes, Garrison and Arbaugh (2007) would disagree, stating, "the purpose of social presence in an educational context is to create the conditions for inquiry and quality interaction so that students can achieve worthwhile educational goals both individually and collaboratively" (p. 159).

Although the Community of Inquiry framework has held up to substantial critical review, the model has only been considered in light of higher education contexts and no research was found for this review that included secondary or elementary school online learning models.

Transactional distance theory. In 1973, Moore's Theory of Transactional Distance allowed educators to consider that distance in the classroom was not only defined by geographic location. Although obviously online education allows for the

teacher and the students to participate in the teaching and learning cycle without being physically in the same place, Moore (1973) suggested that distance is also a psychological construct. Moore provided a backdrop for educators to take responsibility for some of the distance that students may perceive especially within an online course when they acknowledge the variables of dialogue, structure and autonomy (Moore, 2013).

Dialogue refers to the ability or ease of which the instructor and student are able to respond to each other. In an online setting, communication can be both hampered and expedited by technology so Moore (2013) encouraged educators to be aware of how responsive and how efficient the communication is between participants.

Structure is expressed through the ability of the online educator to adjust the course content, objectives, teaching/learning strategies and assessments to the needs of the student (Moore, 2013). In many cases, in K-12 environments, the content, objectives and even the assessments can be inflexible and out of the control of the teacher. However, Moore (2013) suggested that online educators still have the responsibility to consider student needs and determine if and when it is possible to make learner-centered adjustments. Structure, as defined by Moore, fits within the instructional design category of the online educators job description.

Lastly, autonomy of the students is the third element to consider when trying to reduce the distance that students feel in an online classroom experience. Moore (2013) stated that students have the opportunity to decide certain factors about their learning experience, such as how they will learn, or how much they will learn.

Depending on the autonomy of the students, more or less distance may be felt – students who have low emotional autonomy will need support and encouragement from their online teachers, while those with high autonomy may find constant reassurance to be bothersome. Students also can display instrumental autonomy, which refers to their ability initiate a learning activity, and problem-solve through any issues, without seeking help (Moore, 2013). The element of autonomy is specific to the student rather than the teacher.

Transformative learning theory. In 1991, Mezirow proposed his Theory of Transformative Learning as a construct for framing learning that "redefines or reframes a problem…and arrives at a transformative insight" (p. 20). When considering the many facets of best practice in teaching, a transformative learning mindset is appropriate in order for current thought to allow for the new perspective required of online teaching pedagogy. Mezirow (1991) suggested that learners must have an essential understanding, critically reflect on those assumptions and then participate in rational discourse in order to experience learning that is transformative. It is this process that is required for a new body of research to develop specific to K-12 online instructional strategy.

Baran, Correia and Thompson (2011) interpreted Transformative Learning Theory as a means to further understand, and potentially influence, the progress of Online Pedagogy. They encouraged the following three lenses when considering the growth of teachers understanding of their own craft, especially in an online model:

1. Viewing online teachers as active adult learners

2. Recognizing that transformative learning occurs through critical reflection
3. Considering that transformation happens as teachers conduct pedagogical inquiry with technology (Baran et al., 2011)

If, in fact, the body of research for K-12 online pedagogy is lacking, as is the opinion of many researchers, then teaching in an online environment, and doing it well, requires that teachers participate in a transformative learning. This transformation may come from adjusting face-to-face practices into those more conducive to online settings, embracing new technologies for better communication and interaction, or challenging current online practices to ensure that they are truly meeting the needs of the learners. It seems reasonable that these considerations would require significant reflection and active engagement by the teacher; this is exactly what Mezirow (1991) described as Transformative Learning.

Constructivism in online environments. Although theories of Behaviorism and Cognitivism are applicable to learning in an online setting, Constructivism has the most application to the teacher-facilitated interaction that is the focus of this literature review. Constructivism is grounded in the theoretical perspective of Vygotsky (1978) whose framework suggested that learning occurs when learners interact personally and socially to make meaning. Knowledge is constructed and understanding is adjusted and tweaked through social engagement with the teacher and other students (Vygotsky, 1978). Constructivist teachers are known for their preference to facilitate learning and provide students with a well-designed arena in which students create their own meaning; this pairs neatly within the instructional

design practices of the virtual classroom (Johnson, 2012). In online settings, teachers provide multiple opportunities for students to interact with content, peers and the teacher with the intent that learning outcomes are achieved. Duffy and Cunningham (1997) described constructivism with the following two assumptions, "Learning is an active process of constructing rather than acquiring knowledge; and instruction is a process of supporting that construction rather than communicating knowledge" (p. 217). Johnson (2013) suggested that in interactive online learning environments teachers anticipate and navigate competing student needs in order to optimize opportunities for students to learn.

Herie (2008) warned that educators need to be aware that there are advantages and disadvantages to taking a constructivist perspective to online learning. Although instructors who teach with a constructivist view tend to provide students with more relevant, real word activities that "promote critical thought and reflection" (p. 48) which suggest a deeper level of student engagement, there are also students who find it difficult to accept this change from traditional stand-and-deliver models and it may be the reason that some online students are not willing to engage at all (Herie, 2008).

Standards for Online Teaching

Cavanaugh et al. (2004) completed a meta-analysis of 14 web-based programs in K-12 education and determined that students could be as successful in online school environments as they could in traditional school settings, putting to rest the arguments over whether or not online schools can be equitable to traditional schools in educating our students. However, the debate now turns to how to evaluate teachers in these unique environments. Since research shows that a significant variable in

school effectiveness is the teacher, it is imperative that online teachers are provided with feedback about their effectiveness. This leads us to ask, what tools exist for measuring teachers in an environment so new and changing? What are the areas of best practice that should be focused on in providing teachers with feedback about their craft?

In 2008, Black, Ferdig, and DiPietro published an article explaining the current state of affairs regarding the evaluation of virtual high schools. They expanded on Cavanaugh et al.'s (2004) analysis of effective online schools and arranged the variables into the following categories: student assessment, teacher assessment, content/curriculum assessment, technological assessment, course instance assessments (which considers how a particular learning management system, a specific teacher or group of students impacts the learning environment) as well as a category labeled "Other" which includes elements such as parent involvement or school-wide supports like guidance counselors.

In the portion of their report specific to teacher assessment, Black et al. (2008) stated that relatively little research has been done to develop accurate tools to measure the online pedagogical skills of an instructor. There are several tools for measuring technology competence noted; the Teacher Technology Survey or the Teacher and Technology, A Snapshot Survey, both by Insight (2006) or the School Observation Measure (SOM) by Ross, Smith and Alberg (1998). Of course, it is likely that there are also multiple tools created by individual school districts to provide feedback on specific educator skill sets, however, Black et al. (2008) confirmed that currently there are very few evaluative tools related to pedagogical

practices for online educators in the K-12 area. Black et al. (2008) recommended that by integrating the research of best practices in online instruction and the existing instruments used to measure face to face classroom instruction, it may be possible to create "valid and reliable measures of teacher quality within online environments in the near future" (p. 33). Recent legislation in Minnesota is in fact requiring that teacher effectiveness be measured despite the lack of available evaluation tools for doing so.

In response to this need, the Southern Regional Education Board (SREB) published their *Standards for Quality Online Teaching* in August of 2006. This document was developed by a collaborative group of "experienced resource persons from K-12 and postsecondary education" (p. 2), and was based on current research regarding effective online teaching practices. The group identified three large topics under which 11 standards were defined (Appendix B). The first is Academic Preparation, which includes a single standard requiring that teachers be licensed by the responsible agency of his/her state. Indicators for this are cut and dried – the teacher needs a license or proof of one being in process. This standard suggests that online teachers are being viewed with the same level of respect as teachers in traditional brick and mortar classrooms. It should be noted however, that very few states currently have licensing expectations specific to teachers who are educating in online environments.

The second area of quality provided by SREB is titled, "Content Knowledge, and Skills for Instructional Technology" (p. 3) and it includes one standard requiring that the teacher have prerequisite technology skills. The indicators that describe this

level focus on various tools, such as Learning Management Systems (LMS), word processing, communication tools, and the ability to troubleshoot basic software and hardware difficulties. Although the list includes mention of synchronous and asynchronous tools commonly used in online classrooms, the list could easily be considered quite basic among digital natives and provides no comment on emerging technologies.

The last area of quality reported by the Southern Regional Education Board (2006) is significantly larger and more complex than the first two areas. It is titled, "Online Teaching and Learning Methodology, Management, Knowledge, Skills and Delivery" and includes nine specific standards, each with multiple indicators attached. The collection of standards listed in this category range in scope from one that requires that teachers have themselves experienced being an online student, to maintaining records of communication and providing prompt feedback based on student assessment data. Each standard taken alone provides a laundry list of duties that online teachers should not find to be challenging, however as a whole, the list of standards proves confusing and muddled.

The SREB standards have qualities that suggest that they are still a work in progress. There is no clear way to discuss the standards as they are not numbered or defined beyond the statements themselves. Also, the standards themselves appear to overlap with each other. Multiple standards have indicators that require interactivity among students, or require that teachers provide prompt responses to either questions or assessment data or to students who are not engaged with the course material. This calls into question the emphasis educators should put on each standard indicator –

should teachers be focused on the promptness of their feedback, or on the type of feedback that is given? This level of structural confusion within the document makes it unlikely that implementing these standards could be successful in improving educational practice or provide teachers with effective feedback.

Regardless of the opinions of this researcher, not one study or editorial piece could be found that suggested that the SREB standards for quality online teaching were anything but solid. In fact, in 2008, the International Association for K-12 Online Learning adopted the SREB standards to replace their own. They reconvened experts in the field of online education to consider new research and in 2011 published a set of revised standards that greatly improved on the structural problems in the SREB standards but made very little adjustment to the content.

The iNACOL *National Standards for Quality Online Teaching* published in 2011 included 10 standards, labeled A-J with the addition of standard K, which is noted as being optional based on the varied roles that teachers have in online settings (Appendix B). Despite this improvement, this version of the standards still has areas of overlap that make it challenging for teachers to determine areas of higher or lesser importance. It also does not include rubric style descriptors to further define each quality. The iNACOL standards are as follows:

a. The online teacher knows the primary concepts and structures of effective online instruction and is able to create learning experiences to enable student success.

b. The online teacher understands and is able to use a range of technologies, both existing and emerging, that effectively support student learning and engagement in the online environment.
c. The online teacher plans, designs, and incorporates strategies to encourage active learning, application, interaction, participation, and collaboration in the online environment.
d. The online teacher promotes student success through clear expectations, prompt responses, and regular feedback.
e. The online teacher models, guides and encourages legal, ethical, and safe behavior related to technology use.
f. The online teacher is cognizant of the diversity of student academic needs and incorporates accommodations into the online environment.
g. The online teacher demonstrates competencies in creating and implementing assessments in online learning environments in ways that ensure validity and reliability of the instruments and procedures.
h. The online teacher develops and delivers assessments, projects, and assignments that meet standards-based learning goals and assesses learning progress by measuring student achievement of the learning goals.
i. The online teacher demonstrates competency in using data from assessments and other data sources to modify content and to guide student learning.
j. The online teacher interacts in a professional, effective manner with colleagues, parents and other members of the community to support students' success.

k. The online teacher arranges media and content to help students and teachers transfer knowledge most effectively in the online environment (iNACOL, 2011, pp. 4-16.)

The Sloan Group, under the name of Quality Matters, has established *Standards for Course Design for 6-12 Online Courses.* Their rubric of nine general and 42 specific standards details what administrators should look for in online courses (Appendix B). The list of standards only relates to course design elements and not to all the other teacher behaviors required when evaluating the skills of online educators. However, an extensive list that focuses only on design elements suggests that the job of online teacher involves a challenging set of expectations prior to even addressing elements of interaction. Still, the lack of online pedagogical elements makes this tool only partially effective in evaluating the practices of online teachers.

The *Standards for Teaching* provided by the International Society for Technology in Education (ISTE) in 2008 provides a global learner context to the use of technology tools in the classroom and although their focus is not exclusive to distance education models, their standards are open enough to include face-to-face and virtual environments (ISTE, 2008). Their five standards include lists of performance indicators (Appendix B) and are listed under the follow succinct headings:

1. Facilitate and inspire student learning and creativity
2. Design and develop digital age learning experiences and assessments
3. Model digital age work and learning
4. Promote and model digital citizenship and responsibility

5. Engage in professional growth and leadership (ISTE, 2008)

These standards provide teachers with a context for high-level technology integration, but that is not always the focus of an online school. Although technology is a significant part of the online learning experience, whether or not students experience strong technology integration may or may not be required as a measure of the quality of instructional practice. Still, this set of standards provides an interesting viewpoint and additional information in the study of standards for online educators and seems to place at least some emphasis on interactive elements of the teaching and learning cycle, as noted by the first standard which expects facilitation and inspiration of student learning (ISTE, 2008).

Natale (2011) wrote a report for the Educational Testing Service (ETS) that looked specifically at the challenges surrounding teacher quality issues in the virtual K-12 environment. Her thorough report considered various facets of online learning and highlighted the issue of teacher quality as critically important and worthy of continued focus. Natale described the K-12 virtual world as the "wild, wild west; that is a largely unregulated, fluid and rapidly changing environment influenced by factors beyond the current jurisdiction of many state departments of education" (p. 6). This explains the lack of quality standards or even a clear framework for the study of K-12 online practices.

Not surprisingly, the National Education Association (NEA) has also made recommendations regarding online education. In their *Guide to Teaching Online Courses* (NEA, n.d.), Section IV is titled "Skills of Online Teachers" and includes descriptions of 19 skills that online teachers should be able to readily demonstrate.

This list contains expectations for teacher knowledge of online language and systems, use of Content Management Systems (CMS) including designing courses and using appropriate assessment tools. What is interesting about this list of skills however is that it also includes expectations related to interaction between students and students as well as between teachers and students. The list includes communication expectations such as using an "appropriate online tone during course delivery" (NEA, n.d., p. 16), which is not included in any of the other evaluation frameworks reviewed.

Evaluating Online Teaching

Black, Ferdig and DiPietro (2008) confirmed that while the number of K-12 virtual school programs has skyrocketed in recent years, the process for evaluating these programs has merely plodded along and few evaluative instruments exist. Black et al. built on the work of Cavanaugh et al. (2004) and defined six assessment categories as definitive for determining the success of a distance education program: student assessment, teacher assessment, content assessment, technology assessment, course instance (individual course) assessment, and other (parents, mentors, school administrators, etc.) (p. 25). They described the specific evaluative tools that currently exist in each of the categories, but struggled to provide tools that would give accurate feedback for online educators regarding their pedagogical strengths and weaknesses. The three teacher assessments they noted all relate to measuring "technological skills, use and self-efficacy" (p. 30) which are not behaviors vitally connected to teacher immediacy or classroom interactivity. As Palloff and Pratt (2000) noted, "technology does not teach students; effective teachers do" (p. 4) so

measuring an online teachers skill with technology is similar to measuring a face-to-face teachers ability to unlock a classroom door or turn on the lights – important maybe, but not indicative of the critical attributes connected to the teaching and learning cycle.

Due to the limited pool of teacher assessments available for online learning environments, Black et al. (2008) recommended several frameworks that identify traits of successful instructors as potential sources for evaluative fodder. They pointed to Bonk's (2001) survey of higher education distance educators which provides a list of recommended training topics: recognition and support, sharing of expertise, online learning policy, research, partnerships for learning tool development, and pedagogy (pp.10-12). Interestingly, this list is not a list of successes, but rather a list of weaknesses – these are all areas that online educators named as topics were support was needed. This hardly provides the beginnings of an evaluative tool.

Black et al. (2008) also suggested that the work for Goodyear, Salmon, Spector, Steeples and Tickner (2001) be used as a starting point for developing an evaluative tool for online teachers. Goodyear et al. provided a summary of results from a collaborative workshop held in June 2000 for members of the International Board of Standards for Training, Performance and Instruction (ibstpi). They started by defining the various roles of the online teacher and agreed to eight different descriptors: Content facilitator, technologist, designer, manager/administrator, adviser/counselor, assessor, researcher and process facilitator (Goodyear et al., 2001) They agreed that the content facilitator role was "concerned directly with facilitating the learners' growing understanding of course content" and further delineated six

main task areas for which online teachers were responsible when fulfilling this role (p. 70). These are:

1. Welcoming: introducing, ice-breaking, helping learners articulate their expectations, familiarizing learners with the environment and expected working practices, demonstrating the value of online activity
2. Establishing ground rules: maintaining rules, creating community, maintaining discourse
3. Creating community: maintaining discourse, creating community, providing positive feedback, ensuring safe environment, allocating roles, maintaining effective groups (sharing moderation)
4. Managing communication: sharing, listening, showing enthusiasm, establishing and maintaining motivation
5. Modeling social behavior
6. Establishing own identity (Goodyear et al., 2001).

As is obvious from the repetition of items within the list, this is a work in progress. The group continued with a brainstorm session and further developed a list of 23 competences associated with the role of the Process Facilitator. This list provides additional definition to the list of six main tasks of the Process Facilitator although it also lacks an intentional hierarchy. A list of 23 competences, although helpful, would need further organization in order to be truly helpful as an evaluative tool.

Idaho Digital Learning (IDL, 2010) is a statewide virtual school provider that offers online and blended classes to students in the state of Idaho. In partnership with professional development provided by Edutopia, the Idaho Digital Learning group

has made a portion of their teaching requirements public. Although this list includes very specific expectations for teachers in this organization, the "standards" they provide are not only practical, but also thorough in helping to describe the job requirements for online teachers. The document provides eight areas to be observed in online teacher practice: Announcements, Course and Curriculum, Asynchronous Communication and Collaboration, Grading/Grade Center Feedback, Communication, Synchronous Instruction, Intervention, and Administrative Requirements. The detailed narrative for each of these areas provides teachers with clear delineation of how their time should be spent. Where teachers in face-to-face classrooms have the school schedule and the bell system to structure their efforts, online teachers are often balancing synchronous class time with a myriad of asynchronous activities with little guidance about what takes precedence. The list from the Idaho Digital Learning group tells their online teachers to "make initial contact within 48 hours of class, and maintain contact with students a minimum of 3 times per week" (p.1). The list provides guidance on the quantity and frequency of asynchronous learning activities as well stating that teachers will, "participate and be present in all asynchronous communication activities (discussion boards, wikis, blogs, and voice boards) and take an active role in creating a dynamic community that further participants' involvement with ideas, concepts an classmates…" (Idaho Digital Learning, 2010, p. 1).

IDL's list of teacher expectations also includes a set of bonus criteria for teachers to demonstrate that they have exceeded expectations in their instructional performance. The checklist of ranked items with accompanied point values states that

teachers who wish to demonstrate additional competency will "collect at least 12 points on bonus criteria" from the list of skills. A sample of these activities includes, "1 pt.: All assignments are consistently graded within 48 hours of submission" and "1 pt.: The instructor has a visible presence and postings are constructive to the discussion: adding information and/or respectfully challenging student posts" (IDL, 2010, p. 1). This list suggests not only assumptions about basic level skills, but also that there are ways for online teachers to exceed expectations and provide even better service to their students. It is also interesting to note that many of the "bonus" skills are ones that can be defined as increasing interaction and decreasing distance, which is the essence of teacher immediacy.

Be VOCAL. Although not a formal list of standards or a validated evaluative tool, several researchers (Ferdig, Cavanaugh, DiPietro & Black, 2009; Palloff & Pratt, 2011;) noted the practical work of an assistant professor at the University of Akron who is a ten-year veteran of various forms of online education. Savery (2005) provided a mnemonic to summarize the behaviors that successful online instructors should demonstrate. It is important to note that although this framework says, "Be VOCAL," the suggestion is not for instructors to speak more or with more volume, instead that letters simply provide a code for remembering the five best practices that Savery suggestions are appropriate for all of the varied degrees of online instructional formats. An effective online instructor should be Visible, Organized, Compassionate, Analytical, and a Leader-by-example. Savery's suggestions are rich with teacher immediacy behaviors that improve student engagement.

Although students in online environments generally do not physically see their instructor, being visible suggests that the presence of the teacher is felt through other means. Similar to the concept of presence by Garrison et al. (2000) discussed in the Community of Inquiry framework, visibility makes the students aware that the instructor is conscious of and attending to their needs. Savery (2005) suggested that this can be demonstrated through both public and private avenues through a shared personal website, comments within a shared discussion forum, announcement emails, a welcome notice at the beginning of a course, a shared calendar update and even through media such a podcasts and video clips. Students can also be made aware of their instructor's presence through private emails or messages that are not shared with the entire class.

Being organized is not a quality unique to online instructors, but the nature of the online environment requires that all pieces of the course be established in advance, fit together well and run in the manner intended. This, said Savery (2005), requires that instructors anticipate their learner's needs and establish schedules, systems and structures that create an easily navigable course. The suggested strategies for being organized include using pre-assessments, having a well-structured syllabus, providing correct due dates as well as expectations for behavior and levels of cognitive work. Savery (2005) suggests that even something as simple as providing students with file formats that are labeled clearly can all contribute to greater student satisfaction in the learning environment.

Savery (2005) stated that "online environments are surprisingly intimate" (p. 146) and so suggested that it is best practice for online instructors to behave

compassionately with their students. Often, online students do not have the technology skills they should and therefore require additional support in order to navigate the course well; it can take a great deal of cheerleading and coaching for that student to gain both the confidence and skills they need. Instructors who show compassion for their students may demonstrate it through discussion forums that provide an icebreaker activity or a means for students to share who they are outside of the coursework they are sharing. Savery suggested that when a students shares personal information, such as a death in the family or the adoption of a new puppy, through a private venue such as email that the instructor asks if it can be shared with the rest of the group. These kindnesses show care and compassion for student.

Being an analytical teacher means that the students can expect that opportunities for meeting the learning outcomes will be provided, that feedback will be swift and that when questioned, the instructor will be able to provide high quality answers. Savvy instructors will utilize tools in the learning management system to track student progress and participation levels so they can determine if their students are participating at the levels necessary to be successful.

Lastly, Savery (2005) suggested that the best online instructors naturally follow the leader-by-example practice and genuinely find that when they model the expectations of the class that students will mirror those behaviors right back. For example, if a teacher wishes to have more questions stated in the discussion forums, then they should be asking some questions to model that behavior.

Although Savery's suggestions are those gathered as a practitioner in the field and supported only by his own anecdotal experiences, they demonstrate the level of

research available to online teachers in K-12 sessions currently. They also mirror the various elements of the CoI framework used in online higher education, which suggests that there may be value in considering CoI as a worthy framework for developing evaluative tools for teachers in K-12 online learning. Additionally, Savery's Be VOCAL framework is overflowing with immediacy behaviors that increase student interactivity, reduce distance and ultimately boost student engagement.

Checklist for online interactive learning (COIL). Through a review of research on best practices in online learning, Sunal, Sunal, Odell and Sundberg (2003) determined a list of classroom pedagogical practices for online teachers. Although not yet validated as an evaluative tool, the researchers suggested that their checklist could form the basis for the evaluation of online courses. Their tool does not specifically state that it is for use in higher education, but the body of research used to create it is entirely from that level.

Sunal et al.'s (2003) checklist of 51 items (Appendix C) divided the practices used in an online learning format into four categories: student behaviors, technology support learning environment, and faculty-student interaction. Items in the Student Behaviors section included, "Actively participate in all online activities," and "Seek assistance in understanding and mastering different learning strategies" (p. 38). At first glance it appeared that these items were measuring the abilities of students in the online course, but it is possible that it was referring instead to the behaviors of students that faculty would model in the course. Although the first category is unclear

about the audience that it is measuring, the second category speaks only to teacher behaviors.

The technology support list included only two benchmarks and they are, "Insure a low level of technological difficulties in accessing website and communication," and "provide adequate, friendly, easy, continuous technical support" (p. 39). Depending on the structure of the learning environment, this list includes items that may or may not be required of all online teachers, depending on their defined roles.

The last two categories on the Checklist for Online Interactive Learning (COIL) were both heftier lists and focused on the planning and behaviors that an instructor brings to the online course. In measuring the category labeled Learning Environment, the checklist included items such as, "Present course content in a manner that hierarchically structures the sequence of information," and "Provide opportunities for students to question instructor to insure accuracy of understanding" (p. 39). There were also items that suggested specific communication tools such as streaming audio and teleconferencing.

The Faculty-Student Interactions category included 16 items that are a mix of instructional design elements and course facilitation behaviors. Some items are considered standard for online instructors: "Closely monitor each student's progress" and "Create opportunities to coach and facilitate student construction of knowledge" (p. 39). However, other items appeared to be more administrative and this researcher would challenge their inclusion in this section. For example, "Give faculty reduced

load and increased support to develop course materials" (p. 38) is not a behavior typically associated with online instructor behaviors.

The Checklist for Online Interactive Learning developed by Sunal et al. (2003) reported that additional validation studies are in progress, yet this researcher could not locate follow up studies to date. Although other researchers reported the checklist as a possibly useful tool, and it appeared to be offered in professional development trainings to assist university administration in evaluating online instructors, it seems that the checklist is still in its draft form. The four categories have overlapping elements and the lists appears to include items not always aligned to the responsibilities of online faculty. However, items on the checklist are clearly supported by a body of research and Sunal et al. (2003) provided this information to their readers, which makes their study extremely valuable in the discussion of best practices for teachers in online learning. Although the study was specific to higher education environments, it provides a strong evidence-based list of practices that could be a starting point for evaluating online teaching in elementary and secondary levels.

Redefining "The Seven Principles" for online instruction. In 1987, Chickering and Gamson published their *Seven Principles for Good Practice in Undergraduate Education,* and it has become a framework for significant research and policy at the college level for improving teacher practice in face-to-face course instruction. Those principles, based on 50 years of higher education research are:

1. Good practice encourages student-faculty contact
2. Good practice encourages cooperation among students

3. Good practice encourages active learning
4. Good practice gives prompt feedback
5. Good practice emphasized time on task (deadlines)
6. Good practice communicates high expectations
7. Good practice respects diverse talents and ways of learning (Graham et al., 2001)

Graham, Cagiltay, Lim, Craner and Duffy (2001) set out to determine if these principles could be applied to the work of online instructors at a large Midwestern university. They analyzed the online course materials, student and instructor discussion-forum postings, and conducted faculty interviews at the joint request of faculty and administration. Using Chickering and Gamson's seven principles, they identified a list of "lessons learned" which translate the original principles into ones that can be identified with online learning. They are:

- Lesson 1: Instructors should provide clear guidelines for interaction with students.
- Lesson 2: Well-designed discussion assignments facilitate meaningful cooperation among students.
- Lesson 3: Students should present course projects.
- Lesson 4: Instructors need to provide two types of feedback: information feedback and acknowledgment feedback.
- Lesson 5: Online courses need deadlines.
- Lesson 6: Challenging tasks, sample cases, and praise for quality work communicate high expectations.

- Lesson 7: Allowing students to choose project topics incorporates diverse views into online courses. (Graham et al., 2001, section 4-11)

Additional examples of how these lessons could be demonstrated in online courses were provided both in Graham et al. (2001) as well as in the full report in Graham et al. (2000). The suggestions are both practical and instructive for demonstrating how online instructors work within their medium and several of the lesson have leanings toward behaviors of teacher immediacy (increasing interaction, facilitating cooperation, providing acknowledgement feedback, etc.) (Graham et al., 2001).

Graham et al. warned that this list should not be used to develop a set of global guidelines because of the limited scope of the study (they evaluated a total of four courses) and because it was more qualitative than quantitative, however it still provides considerable inspiration for further thought. Again, this research is aligned to practices in higher education, but this researcher wonders if there are not reasonable connections to K-12 online instruction.

Rubric for assessing interactive qualities in online courses. An increasing body of research is showing that interaction is a critical element in student success and satisfaction with online coursework. “Increased student involvement by immediate interaction resulted in increased learning as reflected by test performance, grades, and student satisfaction” (Zirkin & Sumler, 1995, p. 97). This suggests that online teachers have a responsibility to insure a high level of interaction in their classes.

Roblyer and Wiencke (2004) developed a detailed rubric to measure the level of interaction present in online courses for higher education (Appendix C). After reviewing the body of research related to online interaction, they developed the *Rubric for Assessing Interactive Qualities in Online Courses* which categories online interaction in five distinct elements:

1. Social and rapport-building designs for interaction
2. Instructional designs for interaction
3. Interactivity of the technologies
4. Evidence of learner engagement
5. Evidence of instructor engagement (Roblyer & Wiencke, 2004)

The rubric provides a scale with point values from 1-5, with Low, Minimum, Moderate, Above Average and High levels of interaction descriptors for each element. Overall scores for the course range from 5-25 points, which are interpreted as <9 points as Low Interactivity, 10-17 points as Moderate Interactivity, and 18-25 points as High Interactivity (Robyler & Wiencke, 2004). The rubric was tested by comparing student post-course evaluations with completed rubrics and it was found to be a valid and reliable tool that is useful in measuring this one important aspect of online instruction.

Current Practices in Teacher Evaluation

In order to develop a new evaluation tool to measure teacher behaviors that increase student engagement in an online setting, it is important to consider the currently accepted effective practices of teacher evaluation in any setting. Charlotte Danielson, creator of the *Framework for Teaching* (2013), is one of the most

renowned experts on teacher evaluation and her rubrics to evaluate effective teacher practice are widely used by teachers, administrators, and policymakers. The *Framework for Teaching* is grounded in a constructivist view of learning and provides teachers and evaluators with a structure for measuring effective teaching in the traditional classroom.

Danielson has divided good teaching into four domains; planning and preparation, classroom environment, instruction, and professional responsibilities. Those four domains are further defined by 22 components that are described with examples of unsatisfactory, basic, proficient and distinguished levels of performance (Danielson, 2013).

In an interview for *School Administrator*, Danielson shared what she believes is essential in current teacher evaluation practices. She initially offers a warning about the recent paradigm shift toward measuring teacher performance entirely by student outcomes. This practice is cause for worry because there is no research that has been able to fairly attribute the work of an individual teacher (Griffin, 2013). Danielson pointed out that a student who does well on an assessment may have done well because of the work of their classroom teacher, but they also may have done well because of the work of last year's teacher who taught them strategies that the student is still employing. Therefore, teachers should be measured instead on the evidence-based practices they employ that are correlated to improved student outcomes (Griffin, 2013). Danielson's rubrics measure behaviors that teachers have control over that establish the best circumstances for student success – related to teacher presence,

these behaviors include establishing a positive classroom climate, knowing students as individuals, providing effective feedback, etc. (Danielson, 2013).

Danielson also suggested that in order to have a strong evaluation process for anything, high-stakes assessment, state academic standards, or teacher effectiveness, a clear standard of practice must be articulated. The *Framework for Teaching* provides significant detail regarding levels of performance for each component with descriptions categories defined by levels (Unsatisfactory, Basic, Proficient and Distinguished) as well as with statements of critical attributes and possible examples for each (Danielson, 2013).

The *Framework for Teaching* was first developed in 1996 and was revised in 2007, 2011, and most recently in 2013. Danielson noted that improvements and refinements were made for each edition, including semantic work to improve the precision of the tool (2013). Noticeably however, varied teaching environments are not included in any of the revisions of the framework. Despite the increase in online teaching, Danielson's framework makes no comment on the skills required to teach from a distance.

Another widely accepted teacher evaluation measure, which makes no mention of online teaching practices, is the *Marzano Teacher Evaluation Model,* designed by Robert Marzano (2013). Based on a synthesis of his prolific research on instructional practice, Marzano's (2013) model also includes four domains:

Domain 1: Classroom Strategies and Behaviors

Domain 2: Planning and Preparing

Domain 3: Reflecting on Teaching

Domain 4: Collegiality and Professionalism

These domains are further broken down into 60 elements "designed to inform the instructional practices of teachers" (p. 5) and surprisingly measures of teacher immediacy are noticeably missing from the lists, except for expectations for providing timely feedback.

The design of Marzano's (2013) evaluation model is unique in that it takes each of the 60 elements and defines not only the specific behavioral target, but also describes the "teacher evidence" and "student evidence" that could be observed as a measure of that element. Each of these tables has a generic scale that ranks teacher performance as "Not Using, Beginning, Developing, Applying and Innovating" (p. 18). This format could be very instructive to online teachers if the structure were applied to behaviors specific to online learning environments.

Weems and Rogers (2010) pointed out that despite advances in teacher preparation – the No Child Left Behind Act of 2001 established high expectations for teacher quality and the increased rigor in licensing standards – students in the United States continue to perform poorly on national assessments. They attributed this to failure in the teacher evaluation systems. They further described what teacher evaluation should ideally be:

> …to provide feedback that will enable teachers to improve their performance and professional growth. This evaluation process encourages dialogue between teachers and evaluators to assist teachers in improvement. The process is a continuous and cooperative efforts on the part of the teachers and

> administration to improve instruction and should be used as an accountability measure for student achievement and professional growth. (p. 22)

Weems and Rogers (2010) described the landscape of current teacher evaluation options and explained that there are generally four processes readily used in the implementation of a performance assessment model for teachers. Observations by principals are readily accepted as the most common and traditional form of teacher evaluation. Through classroom visits, looking at lesson plans and teacher records, evaluators, typically principals, determine if qualities of effective instruction are being demonstrated by the teacher (Weems & Rogers, 2010). These observations are generally summative in nature and are often used to assess contract status or tenure promotions and have little impact on improving teacher practice.

Similarly, Weems and Rogers (2010) stated that a peer/mentor can perform classroom observations as well. This option is successful when observers are trained in the qualities of best practice that they are to note, and when paired with peer coaching this model has a rich research base for improving instructional practice. Particularly peer mentor pairings that connected new teachers with veteran teachers have been proven to provide the most impact on improving classroom practices. Peer/mentor observations are most often used as formative assessment of teacher practice.

Teacher portfolios are another tool used to evaluate teacher performance. Allowing teachers to produce a collection of artifacts to highlight their knowledge and skill in teaching not only provides data for evaluation, but also increases teacher reflection (Weems & Rogers, 2010). This method of teacher evaluation most closely

connects to research on self-assessment, which suggests that increased performance comes through greater engagement with the evaluation process.

Lastly, student evaluation of teachers is growing in popularity. Since students are the end users in the educational equation and are on the receiving end of teacher performance, their perceptions of teacher effectiveness can be valuable in the teacher evaluation process (Weems & Rogers, 2010). However, some argue that students are not qualified to judge teacher performance and that their measure of teachers is unreliable. As such, student evaluations should only be used in collection with other evaluation methods (Weems & Rogers, 2010).

Implementing an evaluative system in an online learning environment appears to follow these same options provided by Weems and Rogers (2010). In an unpublished doctoral dissertation by Farley (2010) the same options for observation and evaluation are noted as being used in cyber schools.

Effective Practice for Online Interaction and Immediacy

As policy now requires that teacher effectiveness will be measured in part through the lens of student engagement, it is necessary to determine those behaviors which teachers can control that most impact increased engagement in an online environment. The two areas which provide the most promise are online interactivity and immediacy.

Online interaction. Professors at Arizona State University examined the nature of online interaction and developed a conceptual framework of major components that are helpful in understanding how students and teacher interact in an online environment (Vrasidas & McIsaac, 1999). Their study began with an

assumption that "good teaching is the intellectually stimulating exchange of ideas, those meaningful interactions that occur between teachers and students and among students themselves" (p. 22). From this, they examined the factors that directly influence interaction in an online course and found four main categories: learner control, transactional distance, feedback and social presence.

The first, learner control, includes the student's perceived independence, power and support. Although teachers cannot be responsible for the individual choices of their students, teachers can, if adhering to a constructivist mindset, provide the circumstances in an online course where students perceive that they have satisfying amounts of independence, power and support (Garrison & Baynton, 1987). Suggestions for promoting learner control include offering choices, clear directions, and student exemplars.

The second, transactional distance is comprised of course structure and dialogue, both of which are fully within the control of the instructor. Obviously, students and teachers are not physically close in an online environment, however the geographical separation may not be as evident when psychological and communication bridges are built through the structure of the course (Moore, 1973). Additionally, increasing authentic dialogue among teachers-students and students-students can reduce transactional distance. This happens when structures are so strong that they become background in a course, reducing structural stress, and then ideas and people become central; discussions are stimulating and organic rather than routine and rhetorical. There are multiple ways that teachers can bridge the distance,

including providing engaging discussion questions, using a consistent rhythm of activities, and providing video and audio introductions or announcements, etc.

Feedback is the third component used by Vrasidas and McIsaac (1999) to understand interaction in on online environment. In face-to-face situations, feedback is both verbal and nonverbal and is exchanged formally and informally. However, in an online course, feedback is rarely nonverbal and therefore all feedback becomes formal and verbal (written) in nature. Although it would seem that this would cause more distance between students and teachers, the researchers found that increased, timely feedback actually provided students with a sense of increased interactivity (Vrasida & McIsaac, 1999).

Lastly, Vrasida and McIsaac (1999) identified social presence as a construct necessary to understanding effective interaction in online courses. Simply put, social presence is the degree to which the students feel the instructor and classmates are socially present and engaged with the other people in the course. This element is consistent with the views and framework provided by Garrison et al. (2000) in their Community of Inquiry model.

Using their four-component framework, Vrasida and McIsaac (1999) measured interactions between students and between teachers and students in a graduate level online course. The course began as a face-to-face course meeting for five sessions and then changed to meeting online. This hybrid model makes it difficult to generalize the findings to fully online courses; however, the researchers believe that the framework used would provide similar results even if the course had not been initiated with face-to-face interactions.

The researchers found that structure influences interaction (Vrasida & McIsaac, 1999). Not surprisingly, activities and assignments that were required, rather than optional, provided the highest levels of interaction and participation. However, students noted specifically that the sequence of the activities also influenced their level of motivation to interact. They stated that activities that were provided after a formal assignment, for example a discussion forum on a similar topic as a research paper already submitted, were considered to be "busy work" and inspired very little interaction among the students.

Vrasida and McIsaac (1999) noted that students found a lack of feedback to be prohibitive to their desires to interact in an online course. Students stated that more feedback from the instructor or their peers would have provided them with a boost of confidence in the content, encouraging them to be more willing to share their knowledge and interact with others more. In their study, Vrasida and McIsaac (1999) noted that it was rare that students commented on another participant's contribution to a discussion. This caused the conversation to be a collection of statements rather than the interactive discussion that it was intended to be.

The final factor from Vrasida and McIsaac's (1999) analysis showed that previous experience with online learning provided students with increased interactivity in the online graduate course from this study. Experienced users provided emoticons and other signals to their readers about tone or context for their written statements. Students who were new to online learning did not provide these supports to their readers and thus the interaction with other students was more stilted and less authentic. Also students with previous experiences with online education

simply engaged in more communication during the course; they used the discussion forums, email, and private chats to discuss course issues while students with no previous online experiences only used the discussion forums provided in the course, which limited their interactions (Vrasida & McIsaac, 1999).

Mary Herring (2004), an assistant professor at the University of Northern Iowa, adds a strong pedagogical discussion to the impact of learner-centered instructional practices in the online classroom. Her study asked a panel of 13 experts on contructivst learning theory and distance education practices to consider what learning environment designs, experiences, or elements were necessary for implementing learner-centered practices in an online setting. They agreed on five guiding principles for the intersection of constructivist and distance education practices (Herring, 2004) all of which have impact on the interactivity of the online course. First, educators need to provide students with experiences that promote "reflexivity" over both content and process (p. 235). When students have power over these things, they increase in self-awareness and self-control which only expands their skill set for learning of any kind, but particularly distance learning where teacher proximity is greatly reduced. Herring states that instructors must develop a culture of support and provide students with challenges appropriate for the student's skill level. Principle 2 requires that teachers are able to coach students, providing support as a guide/facilitator rather than as an expert. This requires teachers to be open to multiple ways of approaching learning because students in a constructivst online classroom would be responsible for determining and utilizing their own learning strategies. The third principle suggests that online teachers serve students best when they provide

authentic learning experiences and assessments. Whenever possible, using real-world contents and current topics of interest to students was noted as increasing student motivation. Principle 4 matches nicely with current research of asynchronous discussions and how teachers can best construct and facilitate them. Providing students with open ended questions, allowing them to provide their own experiences and world views as frameworks to answering problems creates a dynamic environment where students learn from each other. Constructing meaning from their own thinking, combined with the challenges provided from others in the group allows students to evaluate and deepen their understanding in a real learning community. Lastly, the fifth principle requires educators to integrate strong assessment practices in their online classrooms. Creating strong assessment tasks that measure student performance, but also providing students with purposeful feedback were instructional skills seen as critically important by the panel of experts (Herring, 2004).

Herring (2004) also provided a list of 48 training elements that would be helpful to online K-12 educators who wish to implement stronger constructivst practices and boost interactivity in their classes. These 48 are grouped into five main categories:

- Learning guide or facilitator roles for teachers
- Training needs of students to implement learning strategies
- Embedding of assessment within the learning process
- Creation and facilitation of problem-based learning
- Multiple approaches to knowledge development (Herring, 2004)

Administrators in online K-12 schools would benefit from noting this list rather than focusing on classic staff development topics such as time management, technology updates and even operational issues (Herring, 2004).

Gilbert and Moore (1998) defined interactivity in two parts: Social interactivity and Instructional interactivity. They further explained the varied activities, characteristics and example of technologies that would be used to foster each type of interactivity in an online course. This list (Table 1), although by no means complete, and somewhat dated given current technology tools, provides a reasonable buffet of considerations for the online educator.

Table 1

Social and Instructional Interactivity for Online Courses

	Types of Activity	Characteristics	Examples of Technologies
Social Interactivity	• Body Language • Greetings/Socializing • Exchanging personal information • Scheduling • Logistics (e.g., handouts) • Class management	• Usually real time • Immediacy of interaction • Interruptible • Usually bi-directional • Alternation of turns • Mutuality • Learner control usually present • Can be: Teacher to student Student to teacher Student to student Group Whole class	• Face to face contact via audio and/or video • E-mail • Online chat • Electronic bulletin boards • Moderated discussion • Calendaring programs • Message replication • Work flow control • Real-time electronic discussion • Shared whiteboard

Instructional Interactivity	• Communication of content • Setting objectives • Questioning • Answering • Exchanging information • Pacing • Sequencing • Branching • Adapting • Evaluating • Individualizing • Handling responses • Confirmation of learning • Controlling navigation • Elaboration	• Goal/criterion directed • Variable teacher directivity • Variable learner control • Control of sequence • Control of pace • Availability of inquiry options • Evaluation of responses • Synchronous or asynchronous • Immediacy vs. Delay • Variable bi-directionality • Variable individualization • Man or machine provided	• Shared whiteboard • Computer application • Sharing • Lecture • Information query • Responding to query • File distribution • Replication and revision • Database storage and access • Database search • Monitoring responses • Proctoring correct answers • Testing to criterion •

All of the areas noted by Gilbert and Moore (1998) are within the locus of control of the educator, making them a reasonable list to consider in the evaluation of online instructor effectiveness. This list provides a variety of both social and instructional exchanges that occur in online courses and also provides a possible initial continuum of elements since interactivity is a spectrum and not a distinct point. Gilbert and

Moore (1998) also explained that much of the influence that an instructor has on the interactivity of a class is established at the design level. Although interaction is certainly impacted by the facilitation skills of the instructor, Gilbert and Moore (1998) suggested that instructors think carefully about planning for interaction if interaction is their desired result.

Zirkin and Sumler (1995) created an annotated bibliography on the topic of classroom interaction and found that, "increased student involvement by immediate interaction resulted in increased learning as reflected by test performance, grades, and student satisfaction" (p. 101). Despite the fact that their review did not specifically note online environments, the possibility exists that increased interaction in online classes could have a similar effect, which makes it worth consideration.

Roblyer and Ekhaml (2000) developed a rubric for measuring the interactivity of online courses at the college level. They defined four elements on interaction, which include:

1. Social Rapport-building Activities Created by the Instructor
2. Instructional Designs for Learning Created by the Instructor
3. Levels of Interactivity of Technology Resources
4. Impact of Interactive Qualities as Reflected in Learner Response (p. 3).

The first two relate directly to teacher behaviors and the first is specific to behaviors of immediacy. Roblyer and Ekhaml (2000) provided a 5-point scale which is labeled as Few Interactive Qualities, Minimal Interactive Qualities, Moderate interactive Qualities, Above Average Interactive Qualities, and High Level of Interactive Qualities. Additional description of each element at the various levels is provided. Although the rubric has not yet been validated, the researchers encouraged and invited others to use the instrument in their distance classes to help them be more responsive to student needs.

Online immediacy. The concept of immediacy is one that stems from the work of Mehrabian (1969) who studied the communication behaviors that "enhance

closeness to and nonverbal interaction with another" (p. 203). This has spurred on nearly 40 years of study related to how teachers and students communicate and whether or not the perceived closeness of the communication (immediacy) has a beneficial impact on learning. Through a meta-analysis of over 80 research studies, Witt, Wheeless and Allen (2004) found that a relationship exists – student's attitudes and perceptions about learning are impacted by teacher immediacy. The analysis, however, did not isolate online learning environments exclusively.

Teacher's communication behaviors play a strong role in the classroom environment, and this is also true of the online classroom where communication is much more intentional, but no less essential in helping student learn more and feel more satisfied with the course and teacher (Witt et al., 1999).

Witt et al. (1999) found that students who had no previous experience with online learning had lower expectations of their online instructors, assuming that their immediacy would be hampered by the distance of the online classroom. However, once a student had experienced an online course with an instructor who developed strong instructional presence through a high level of immediacy, their expectations of instructors increased. This suggests that although there are initial hurdles to overcome, most students can find satisfaction in online courses once they have experienced strong instructor immediacy.

Extra-class communication, or interactions between teachers and students that are informal or out of the classroom, have been shown to provide a number of positive student outcomes. One of the most frequently used forms of extra-class communication between teachers and students in an online environment is electronic

mail (e-mail); however, very little research has been done on this medium as an instructional tool (Waldeck, Kearney & Plax, 2001). As an efficient, inexpensive and readily available communication form, e-mail interaction is extremely common in both higher education and K-12 online classrooms. Waldeck et al. (2001) set out to provide a research base for the use of e-mail as an instructional tool; they identified strategies that teachers can use to increase positive instructional outcomes.

Although e-mail can be seen as business-like and impersonal, Waldeck et al. (2001) found that teachers who use the same immediacy strategies that are successful in the face-to-face classroom with their students through e-mail find increased interactivity with their students. They suggest that online teachers use student names, invite student participation, individualize their messages, disclose appropriate personal information and use the pronouns "we" and "our" when discussing class activities in their e-mail communication. Waldeck et al. also noted that because this medium allows teachers to provide more thoughtful responses, it is likely that teachers who are not naturally immediate in a face-to-face setting are able to improve their immediacy status with students through well-crafted e-mail messages.

Waldeck et al. (2001) also determined that when instructors follow standard e-mail norms in their messages that student perceive them as more warm and approachable. Current netiquette suggests that messages should be brief, use correct mechanics, and avoid all upper case letters, which suggest that the writer is yelling. It is also acceptable in e-mail communication by instructors to use acronyms and emoticons, even though these are generally considered to be very informal. Students

rate instructors who follow these rules as having higher levels of immediacy and as being more personable.

Although Waldeck et al.'s (2001) research suggests many benefits to using e-mail as a means of connecting with students for online classes, there are a few areas that require a warning. Students who regularly use e-mail for communication, not just for online coursework, were more apt to be positive about increased email communication with an instructor. However, if the student was not an active e-mail user, the added communication was seen as annoying and was sometimes ignored. Waldeck et al. suggest that educators be cognizant of the students who are responsive to e-mail communication and continue to use it, and for students who are non-responsive, the educator should determine other means of connecting or sharing information. Because of this potential for e-mails to remain unopened, all pertinent class content should still be shared through the learning management system or more formal means, and e-mail should be reserved for extra-class communication (Waldeck et al., 2001).

Baker (2004) found that the immediacy of an online instructor impacts the level of perceived cognitive learning attained by the student. In a survey of 145 undergraduate students participating in online courses, the researcher found a positive correlation between both perceived satisfaction with the instructor and course, but also with perceived learning.

Students completed a survey that included a verbal immediacy scale, an affective learning scale and a cognitive learning scale. While the results are based on self-reported data, the results suggest that there is a strong correlation between

instructor immediacy and the level of learning students experience in an online course. This supports the original immediacy concept (Mehrabian, 1969) that suggests that when students feel close to their instructors then they are more positive about a course, which makes them more open to learning.

This study also confirms that instructors have significant opportunity in an online course to affect the cognitive outcomes for their students through intentional immediacy-producing behaviors (Baker, 2004). In fact, due to the geographical distance that students experience in an online course, reducing the transactional distance that students experience may be one of the most effective ways to establish a climate for learning.

Baker (2004) suggested several teacher behaviors that instructors can employ to enhance immediacy and foster a productive learning environment. Providing personal information and a photo of the instructor at the beginning of the course allows students to see the instructor as more than a talking head. Providing more personal, and even quirky, biographical information, beyond what might be found in a resume or the course catalog is also helpful is establishing the instructor as a three-dimensional person. Baker (2004) also advised that instructors must provide students with fresh content and frequent updates or commentaries to show that he/she is engaged with the content right along with the students.

Baker (2004) suggested that timely responses to online content, such as forum discussions, as well as to e-mail communication, are necessary when building immediacy. Pointing out student contributions, using inclusive words such as “we,” and responding to students by their names fosters and models interpersonal

connection, which can impact the overall social presence of an online course. Lastly, Baker (2004) reminded educators that voice communication continues to be a helpful way to communicate a supportive tone to students who may find written communication to be sterile. Providing audio or video communication early in a course can promote instructor immediacy because that communication becomes the filter through which all future communication is filtered.

Ni and Aust (2008) also measured teacher immediacy in the online classroom, but focused exclusively on the impact of verbal characteristics perceived by 214 graduate and undergraduate students in online courses. Ni and Aust based their work, in part, on Holmberg's Guided Didactic Conversation theory which suggestions that "if the typical traits of conversation are felt by the students, learning will occur," (p. 479) even when the conversation is text-based asynchronous communication. Ni and Aust explained that Holmberg's theory emphasized that "learning pleasure will be promoted if personal relations, study pleasure, and empathy exist between students and teachers. Because of the personal learning atmosphere, language, and conversation, students will be able to learn to make decisions, construct meaning, and solve problems" (p. 480).

Through a survey used to measure student perceptions of their teacher's verbal immediacy (e.g., using humor, using personal examples, addressing students by name, and providing and inviting feedback) results showed that as verbal immediacy increased, so did student satisfaction and perceived learning. Additionally, a correlation was noted between teacher verbal immediacy and increased posting

frequency among students. This suggests to online teachers that one way to increase student engagement may be to increase verbal immediacy behaviors.

Swan (2001) evaluated student-teacher interaction and considered its relationship to student satisfaction and levels of learning. Students voluntarily completed an online survey of questions with Likert style answers. Not surprisingly, students who reported either a "great deal" or "sufficient" interaction with their instructor also reported that they were "very satisfied" or "satisfied" with the course and had perceived learning that was "more than expected" or "as much as expected" (p. 314). Swan (2001) encouraged instructors to provide ample interaction time with students and suggested they actively invite student communication.

Rovai (2001) identified several factors that encourage the development of community in an online course. Although several are not related to teacher behaviors, such as student- instructor ratio, several were well within the control of the teacher. Some of the factors that Rovai promoted were related to instructional design and the cognitive presence of the instructor, (collaborative learning and self-directed learning) while others fit into the way that an instructor facilitates the course and shape the interaction (immediacy and group facilitation) that clearly fit into the overall category of immediacy.

Although some online instructors believe that once they have effectively designed a course and placed it in the learning management system for students that their work is essentially done. Rovai (2001) strongly warned against this mindset and encourages teachers to recognize that their involvement is still critical to the learning process for their students. Since social cues are fewer in an online setting, the

instructor's facilitation of the course is significant for students to engage productively with content and each other. Rovai (2001) reminded online teachers that manifesting immediate behaviors, like acknowledging receipt of work, or providing qualitative feedback quickly can reduce anxiety and provide students with the assurance that they are learning. Replying to forum discussion, whether in corporate summaries or by responding to individuals, provides students with confirmation that the instructor is working alongside of them and is not absent from class.

Facilitating group discussion is another skill that Rovai (2001) noted as being critical for the online teacher to master in order to promote effective online learning. Facilitating a group discussion, while not overtaking the group, or interjecting too early so as to eliminate additional student participates is a skill that requires much intention and practice. Rovai (2001) suggested that teachers remember that they should only intervene when discursive discussions are stagnant or students are reporting frustration. Often beginning online teachers will intervene too early and establish the expectation that the teacher will manage challenging situations rather than expecting student groups to do their own problem solving. Rovai warned that when instructors make themselves central to the discussion or work that students begin to only listen to the teacher rather than each other; once this happens it becomes very difficult to get the group to value each other's input and discussions typically become sterile and lack interaction.

Wolcott (1996) suggested that if online instructors wish to decrease the psychological distance that students experience in online coursework they should take a learner-centered approach. She stated that when the instructor functions as a learner

first, working parallel to students, and a content expert second, student experience greater satisfaction and growth. Using observation, research and personal experiences, Wolcott offered online educators a conceptualization of the teaching process that were elaborated with specific strategies that can be used to build rapport, decrease isolation and enhance interaction. In her table of Strategies for Learner-Centered Distance Teaching, she provided teachers with ideas on how to improve instruction at the pre-active, interactive and post-active levels (Table 2).

Table 2

Strategies for Learning Centered Distance Teaching

	Build Rapport	Decrease Isolation	Enhance Interaction
Pre-Active	• Distribute information about the course prior to the first class meeting. • Gather information about enrolled students – their goals, expectations, and previous experiences; create student profiles. • Write course objectives to define what students will do not what you will do. • Provide students with choices in objectives and activities. • Plan instructional activities that require students to collaborate.	• Plan collaborative activities. • Use small groups; vary group configurations to include students from different sites. • Assign responsibility for specific activities/content to group or individual. • Think visually; provide students with common graphics and visual images. • When feasible, plan a general in-person meeting or visit and/or originate from different sites. • Design activities and supporting materials which help student learn how to learn.	• Incorporate active learning techniques such as role-playing, discussion groups, and case studies. • Plan a variety of activities which included listening, reflecting, and discussing. • Build in time for questions and answers. • Design activities that address higher order objectives such as application, synthesis and problem solving.

Interactive	• Use icebreaker or get acquainted activities such as introductions. • Learn and use students' names. • Listen; be respectful and open to students' opinions and concerns. • Present an approachable demeanor i.e., smile and make "eye contact." • Show enthusiasm for teaching/learning, for content, and the method of delivery. • Play up commonalities among students and between you and students. • Emphasize personal responsibility for learning.	• Have students share their experiences and use students' experiences to draw individuals into discussions. • Try to address each student or site at least once during each class session. • Make connections between various aspects of the content and between the content and students' goals and expectations. • Encourage students to talk to each other both informally and through cross-group discussions.	• Assume student participation. • Brief students on the use of the telecommunications equipment. • Minimize "teacher talk"; alternate lecture with student activity. • Ask questions; make it easy for students to answer and to ask questions of their own. • Pause to allow students to think and to formulate questions.
Post-Active	• Communicate with students outside of class e.g., initiate calls to check on student progress. • Engage in informal conversations before/after class and during breaks. • Share class lists, student profiles and/or photos of students.	• Work with the library staff to facilitate access to resources. • Provide information about support services such as advising and counseling. • Encourage study groups. • Make it easy for student to contact you outside of class e.g., through office hours, home phone number, voice mail or electronic mail.	• Provide timely feedback; respond to questions and "turn-around" assignments promptly. • Provide airtime before and after class for questions.

Wolcott (1996) provided little research support for the suggestions in her chart, however, nearly all of the ideas she offered are validated by other distance education researchers. Her suggestions match nicely with the research of Rovai (2001) and Baker (2004) related to how teachers can increase their immediacy and facilitate greater student engagement. The list also provides fodder for rubrics to measure the effectiveness of online teachers skills in developing interactivity and engagement.

Summary of the Literature

Evaluation tools. This literature review sought to determine if evaluation tools exist for measuring the teacher behaviors that impact student engagement in an online classroom. The body of literature on evaluating online teaching shows that the field is yet in its infancy stage with many studies reporting tools that have not yet been validated or providing unpolished lists of suggestions as a starting point for the discussion (Black et al., 2008; Ferdig et al., 2009; Goodyear et al., 2001; Palloff & Pratt, 2000). Multiple researchers commented that relatively little research had been done to develop accurate tools to measure the online pedagogical skills of teachers (Black et al., 2008; Cavanaugh et al., 2004; DiPietro et al., 2008).

Since 2006, several sets of standards for online teaching have been published, including the *Standards for Quality Online Teaching* by the Southern Regional Education Board (SREB), the *National Standards for Quality Online Teaching* by the International Association for K-12 Online Learning, *Guide to Teaching Online Courses* by the National Educational Association, and *Standards for Course Design for 6-12 Online Course* by the Sloan Group. These standards and guides, each with

their strengths and weaknesses, could provide structure and consistent language to an evaluation tool for online teachers and all have elements to contribute to measures of teacher immediacy.

The *Checklist for Online Interactive Learning* (Sunal et al., 2003) provides a more complex listing of 51 evidence-based practices that benefit students in the online setting, and Graham et al. (2001) suggest a list of seven lessons converted from the work of Chickering and Gamson's (1987) *Seven Principles for Good Practice in Undergraduate Education* to ones that can be identified with online learning. Roblyer and Wiencke (2004) contribute a detailed rubric to measure the levels of interaction present in online courses. Grounded in research, these could be three strong resources in the development of specific tools to evaluate teacher effectiveness in online settings.

Learning from higher education. This literature review also sought to determine if research from post-secondary classrooms could be applied to elementary and secondary settings. When considering pedagogy for increasing student engagement, K-12 teachers must borrow insight from face-to-face or higher education classrooms. Research from both suggests that increased interactivity (Gilbert & Moore, 1998; Roblyer & Ekhaml, 2000; Vrasida & McIsaac, 1999; Zirkin & Sumler, 1995) and teacher immediacy (Baker, 2004; Herring, 2004; Ni, 2008; Rovai, 2001; Swan, 2001; Waldeck et al., 2001; Whitt et al., 2004; Whitt & Wheeless, 1999; Wolcott, 1996) are influential in boosting student engagement when teaching online.

However, most of the research between interactivity and immediacy overlaps which makes it challenging for online educators to determine a working

understanding that can be remembered and implemented. Through analysis of the literature reviewed, measurable behaviors that are within a teacher's locus of control and relate specifically to increased student engagement, appear to fall into three distinct categories: Developing Personal Connection, Facilitating Interaction, and Providing Feedback.

Developing personal connections. When online educators develop personal connections with students, students respond with higher levels of interaction (Roblyer & Wiencke, 2004; Savery, 2005; Swan, 2001). Ni (2008) and Whitt and Wheeless (1999) encourage online teachers to practice their immediate communication skills in order to increase their effectiveness with students. Building rapport through using student names (Ni, 2008; Savery, 2005; Waldeck et al., 2001; Wolcott, 1996), using the pronouns "we" and "our" (Baker, 2004; Waldeck et al., 2001), providing appropriate personal information and examples (Baker, 2004; Ni, 2008; Savery, 2005; Waldeck et al., 2004; Wolcott, 1996) or using humor (Ni, 2008; Waldeck et al., 2001; Wolcott, 1996) help students to feel less psychological distance in the online classroom. Modeling an appropriate level of self-disclosure through online biographic information (Baker, 2004; Ni, 2008; Savery, 2005; Waldeck et al., 2004; Wolcott, 1996) or using video or audio clips for initial introductions or announcements (Baker, 2004; Ni, 2008, Savery, 2005; Vrasidas & McIsaac, 1999) also increase the ability of students to connect with their instructor. Lastly, several researchers recommend the teachers use extra class communication to develop professional relationships with students (Baker, 2004; Savery, 2005; Wolcott, 1996; Waldeck et al., 2001;) – a personal email, phone call or instant message outside of class can help both the

student and the teacher to be perceived as whole people rather than just name on a screen.

Facilitating interaction. Online educators who follow evidence-based methods for facilitating interaction have students who respond with higher levels of perceived learning and satisfaction (Herring, 2004; Roblyer & Wiencke, 2004; Swan, 2001; Vrasidas & McIsaac, 1999; Zirkin & Sumler, 1995). When teachers invite student participation in class activities (Baker, 2004; Herring, 2004; Graham et al., 2001; Rovai, 2001; Swan, 2001; Waldeck et al., 2001; Wolcott, 1996), provide opportunities for students to work in small groups (Graham et al., 2001; Wolcott, 1996) or acknowledge student contributions (Baker, 2004; Herring, 2004; Rovai, 2001; Savery, 2005), students feel connected not only to the teacher but to the other students in the class. When determining how to facilitate online discussion forums, it is important that teachers participate, but they should refrain from engaging too early in the discussion and from controlling the conversation (Rovai, 2001; Savery, 2005). Allowing students to participate first, and then assisting through corporate summaries or noting specific student contributions are shown to be less intrusive methods for teachers to show that they are present without impeding the interaction of students (Gilbert & Moore, 1998; Rovai, 2001; Savery, 2005; Vrasidas & McIsaac, 1999).

Providing feedback. Lastly, online teachers who provide effective and timely feedback to their students (Baker, 2004; Graham et al., 2001; Herring, 2004; Ni, 2008; Rovai, 2001; Savery, 2005; Wolcott, 1996), answer questions readily (Baker, 2004; Herring, 2004; Savery, 2005; Wolcott, 1996), or show enthusiasm for course content (Baker, 2004; Herring, 2004; Wolcott, 1996) are demonstrating interactivity

and immediacy behaviors which also improve students' perceived satisfaction with online learning experiences (Swan, 2001). Herring (2004) encourages online teachers to provide authentic learner-centered assessments, which encourage student engagement, but also provide teachers with the opportunity to give personalized information and feedback about learning that students crave. The importance of timely feedback cannot be overstated and was repeated by several researchers as critical to maintaining student engagement in online courses (Baker, 2004; Herring, 2004; Ni, 2008; Rovai, 2001; Savery, 2005; Wolcott, 1996).

Chapter Three: Methodology

The Delphi Model

The Delphi Model was first introduced in the 1950s by Norman Dalkey as part of a U.S. military project established to predict strategic behaviors of the leaders of the Soviet Union (Dalkey & Helmer, 1963). Since that time, the Delphi model has become an accepted research methodology in various industries, including the world of education (Skulmoski, Harman & Krahn, 2007). Skulmoski et al. (2007) describe the Delphi method as "an iterative process to collect and distill the anonymous judgments of experts using a series of data collection and analysis techniques interspersed with feedback" (p. 1). Hsu and Sandford (2007) explain that the Delphi technique is a quality research methodology used to "gather information from those who are immersed and imbedded in the topic of interest and can provide real-time and real-world knowledge" (p. 1). This model is especially successful in shedding light on topics where evidence-based research has not yet provided the answer (Skulmoski et al., 2007).

Through an iterative process that begins with open-ended questions, study participants, typically experts in their field, offer their insight and opinions related to a specific topic. While initial rounds of the study are open-ended, subsequent rounds

allow the participants to confirm and rate information shared in previous rounds with the intention of finding consensus among participant answers (Skulmoski et al., 2007; Hsu & Sandford, 2007). Although the classic Delphi model begins with only ideas shared by participants, an accepted modification is to use a structured questionnaire that is based on an extensive review of the literature (Hsu & Sandford, 2007). Kerlinger (1973, as cited by Hsu & Sandford , 2007) states that this is especially appropriate if basic information concerning the research question is available but does not provide complete enough evidence to provide a solid answer (p. 2).

The selection of the expert group in a Delphi model is critical. Hsu and Sandford (2007) state that selecting participants is the "most important step in the entire process because it directly relates to the quality of the results generated" (p. 3). Researchers need to establish careful criteria for selecting or inviting their study participants, and Skulmoski et al. (2007) suggest that participants should be judged according to their expertise, willingness to participate for the length of the study, as well as their ability to communicate clearly (p. 3-4).

Most Delphi studies include between three and five rounds intended to further develop and clarify answers to the research questions. The actual number of iterations depends on the level of variation of initial answers and on the level of consensus desired by the researcher (Hsu & Sandford, 2007; Skulmoski et al., 2007). A typical progression is for Round 1 to collect brainstorming and initial opinions of the research group. Round 2 provides the group with an organized analysis of the Round 1 answers and requests that participants rank or verify the new list. Revisions are made based on Round 2 responses and Round 3 is used to further confirm the

results. Rounds 4 and 5 continue in the same way if variation continues to be shown through each confirmation and revision cycle (Hsu & Sandford, 2007; Skulmoski et al., 2007). Communication of these various rounds was once completed through face to face interviews or through the mailing of questionnaires, however the advent of secure and reliable web-based survey tools has greatly changed the way most researchers collect responses from their participants (Hsu & Sandford, 2007; Skulmoski et al., 2007).

Defining the problem and research questions. Although online schools are considered a cutting-edge segment of the educational world, they continue to lag behind their brick and mortar counterparts in the areas of evidence-based practices and teacher evaluation tools. The specific problem is that K-12 teachers who educate students online do not currently have a tool to measure their teaching presence that can provide them with clear feedback about practices that positively impact student engagement.

The Delphi method was used to identify, describe and reach consensus among expert online educators, in order to answer the following research questions:

1. What evaluative tools exist for measuring the teacher behaviors that impact student engagement in an online classroom?
2. Does online K-12 practitioner pedagogy match with what is found in higher education research for online pedagogy/andragogy?
3. What are the measurable teacher behaviors that increase student engagement in K-12 online classes?

With the national trend towards mandatory teacher evaluation in K-12 systems, and legislative action in Minnesota to be implemented in the 2014-2015 school year, this study was used to develop a tool to evaluate teacher behaviors that impact student engagement in K-12 online classrooms. This study generalized research from higher education and merged this knowledge with practical evidence from currently practicing experts in Minnesota K-12 online classrooms in order to develop a teacher evaluation tool, modeled after the work of Danielson (2013) and Marzano (2013), that could be used as *part* of a comprehensive teacher evaluation program.

Identifying experts. As of August 2014, the MDE website reports that there are 27 learning providers who are registered to provide online learning for K-12 student in Minnesota (http://education.state.mn.us) and there are 15 schools with memberships in the MINNESOTA Online Learning Alliance (MNOLA). From this pool of practicing online educators, participants for the first three rounds of the study (Teacher Rounds) were invited to participate based on the following criteria:

- Three years of consecutive online teaching experience
- Currently employed as a teacher at a Minnesota online K-12 school
- Meeting expectations or proficient in teaching skill level according to most recent summative teacher evaluation
- Agree to participate in all three rounds of the study

Twelve online educators met the criteria and volunteered to participate after being sent the initial screener email through their school principal (Appendix E).

The Round 4 participants (Administrators Round) were solicited from the same Minnesota online K-12 providers list and from MNOLA, but participation were isolated to those in administrative roles who evaluate teachers and who have been working in an online school for the past three consecutive years. Five administrators volunteered to participate in the study. Additionally, participation was offered to specific Minnesota legislators who have participated in education subcommittees or were vocal in the development of Minnesota's new teacher evaluation expectations.

Round one purpose. The first round served to establish the qualified pool of experts and provided the initial information for the rounds that followed. Using a semi-structured questionnaire (Appendix A), participants were asked to respond to open-ended questions regarding student engagement in online classes as well as measurable teacher behaviors that increase or support student engagement. Following those questions designed to solicit a broad range of practical opinions, they were asked to rank the importance of multiple teacher behaviors proven to be helpful in supporting student engagement in online classroom according to the review of literature.

Round two purpose. Information collected in Round 1 was analyzed for themes and structured in order for the expert group to evaluate and respond to the answers generated by others in the group. A Likert scale was used for the expert group to rank the importance of each teacher behavior and this was the main focus of Round 2 although open-ended questions were also provided to allow for additional responses not considered previously.

Round three purpose. For the final round for the Teacher Group, a rubric similar to the evaluation tools used by Danielson (2013) was offered based on the responses generated in Rounds 1 and 2. Participants rated elements of the rubrics using a Likert scale and offered final suggestions regarding their thoughts on the effectiveness of the rubric to measure the online teacher behaviors that positively impact student engagement. Additionally, this expert group was asked if they would be willing to be evaluated using these rubrics.

Round four purpose. Round 4 was designed to determine if the rubric developed in the three previous rounds by the Teacher Group would be an effective tool to be used by administrators in evaluative roles. This expert group was asked to provide open-ended feedback regarding their opinion of the effectiveness of the rubric, and share any comments regarding additional revisions that may be needed.

Data gathering procedures. The data for the Delphi study was gathered entirely through web-based means. Email was used initially to contact principals listed on the MDE list of approved online schools. They were asked to forward an email request to recruit participation in the study.

Once the Teacher Group of experts was established, a web-based tool called Qualtrics was used to collect responses from the participants during Rounds 1 through 3. Follow up email communication was used to allow for clarification of responses when necessary.

For Round 4, the same initial principal group was contacted to offer an opportunity to review the final rubric draft. Emails were sent to Minnesota legislators

who have participated in education subcommittees or who were active in the recent changes to the Minnesota teacher evaluation system.

Analysis of data. A mixed method of analysis was used to interpret the data provided through all four rounds of the Delphi study. Initially qualitative methods were used to interpret shared meanings and categories for information provided through the open-ended questions in Round 1. However further iterations provided quantitative results and measures of central tendency (mean and mode) and levels of dispersion. In determining the convergence of opinion and the intended development of consensus, Hsu and Sandford (2007) confirm that simple methods such as median work well when using data resulting from the use of Likert scales.

Chapter Four: Results

Teachers who educate students online do not currently have a tool to measure their teaching presence, which can provide them with clear feedback about practices that positively impact student engagement. Although research exists to identify the teacher behaviors that support student engagement in online settings, the majority of this work is focused on the college and graduate level with a significant void in the research that ignores the growing world of K-12 online instruction. Despite the lack of literature with a K-12 focus, there are teachers working with students in online settings who are finding success with their students; they are the best source of information at this time. In order to begin to fill the void in research, the Delphi method was used to identify, describe and reach consensus among expert online educators in the K-12 setting, to answer the following research questions:

1. What evaluative tools exist for measuring the teacher behaviors that impact student engagement in an online classroom?
2. Does online K-12 practitioner pedagogy match with what is found in higher education research for online pedagogy/andragogy?
3. What are the measurable teacher behaviors that increase student engagement in K-12 online classes?

Participant Selection

Based on the list of approved online learning providers available on the Minnesota Department of Education website and the member list on the Minnesota Online Learning Association (MNOLA) website, an email (Appendix L) was sent out to 32 online administrators requesting their participation in this research study. Twenty-one responses were gathered from the Participant Screener (Appendix M) through a web-based survey tool called Qualtrics. Seventeen educators completed the Participant Screener and agreed to participate in the teacher group (Rounds 1-3) and four agreed to participate in the administrator group (Round 4).

Choosing the appropriate subjects may be the most important step in the Delphi process because the expert group drives the content of each round of the study (Hsu & Sandford, 2007). Of the 17 respondents who volunteered to participate in Rounds 1-3 of the study, five did not meet the study criteria for expert status. All were employed as online educators in Minnesota schools, however, four had been teaching less than three years and one was rated as less than proficient on a recent teaching evaluation. This excluded them from the study and established an expert teacher group of 12 participants.

Although a larger participant group was preferred, Delphi studies using homogeneous sample groups are typically smaller than those of heterogeneous groups and other styles of research methodology (Skulmoski et al., 2007). Because online educators (although a growing population) are still relatively few compared to traditional face to face teachers, finding educators who met the study criteria and were willing to participate in three rounds of the study proved challenging. Since

Skulmoski et al. (p. 10) recommend that "between ten to fifteen people may yield sufficient results" and suggest that expertise requirements can cause the sample size of groups to be reduced, this researcher chose to continue with an expert group of 12 participants. However, Skulmoski et al. (2007) suggest that caution be used in generalizing the results when using a small sample group.

The Round 4 participants were selected by soliciting administrators from the MDE Online providers list as well as the MNOLA membership roster available online. Five administrators responded to the request to participate and all met the expert criteria of 1) currently working as a Minnesota K-12 administrator for at least three years and 2) function as a teacher evaluator. Interestingly, the participates each represented a different category of online instruction in Minnesota – one is a middle school assistant principal at a fully online school, one is an elementary principal at a fully online school, one is a program director as a blended online high school, one is a director at a distance learning charter school, and one is the director of an online learning cooperative.

Data Analysis

The Delphi study is best used when the purpose of the study is to determine consensus of opinion on a given topic. Although the Delphi approach is considered reputable and reliable, there is significant discussion about how best to analyze data collected through Likert scales that are typically used with this research method. According to Hsu and Sandford (2007) it is appropriate to use central tendency (mean, median and mode) when discussing Likert-type data. The small sample size of 12 participants for Rounds 1-3 made it simple to use mode to determine the level of

consensus; the number of participants responding with the same (or similar) answer compared to the total number of participants provided a percentage score for that rating on the Likert scale. Using this type of percentage score also provided accessible data for responses that dissented from the group opinion.

The level of agreement used to quantify consensus in Delphi studies varies greatly. Von der Gracht (2012, p. 1529) provides a review of recent Delphi studies and notes that often the chosen levels "seem arbitrary." Consensus can be stated as any number between 51%-100% in agreement among respondents, or put simply, as a level predetermined by the researcher (von der Gracht, 2012). For this study, consensus will be defined significant at 75% or greater. Additionally when more than one answer suggests agreement, such as on a 5-Point Likert scale where the top two measures (Very Important/Extremely Important) or the bottom two measures (Extremely Unimportant, Very Unimportant) are considered similar, they were combined in analysis for consensus measures.

Round 1 results. The initial survey (Appendix M) and the Round 1 Email (Appendix O) were sent to the 12 participants with a request to complete their responses within two weeks. Eleven of the respondents completed all of the survey questions within the time allowed.

The first content question (Question 8: What are the behaviors you would expect to see in a student who is positively engaged in an online class?) was asked in order to help the respondents connect with their expectations of what students in online settings need to demonstrate in order to appear engaged. Since the focus of this study was to measure teacher behaviors that positively impact student engagement,

this question provided a context for questions posed later in the survey. Responses indicate that 63% of participants believe that engaged students show consistent login behavior, meaning that they are regularly connecting to the online learning platform used by their school, and they also complete assignments thoroughly and on time. Forty-five percent of the teachers reported that being communicative with teachers and peers would demonstrate that a student was engaged, while participating in forum discussion/synchronous class sessions and keeping pace with online progress expectations were two behaviors that were noted by 36% of the participants as indicative behavior of engaged online students. Additional behaviors such as readily asking for help (27%) and asking questions about content (9%) were noted but with lower levels of consensus within the group.

Table 3

Round 1 Data Analysis Results from Question 8

Question 8: What are the behaviors you would expect to see in a student who is positively engage in online class?

Responses	*N*	Consensus Percentage
1. Consistent login behavior as defined by school policy	7	63
2. Assignments completed thoroughly and on time	7	63
3. Communicative with teachers and peers	5	45
4. High level of participation in discussion forums and/or synchronous class sessions	4	36
5. Pacing of progress within course materials is consistent	4	36
6. Readily asks for help when needed	3	27
7. Demonstrates interest in subject by asking questions	1	9

When the group was asked "What are the teacher behaviors that you have seen or personally used to increase or support student engagement in an online setting?" the group provided a total of 40 behaviors that were then thematically grouped into 16 distinct elements by the researcher. The two behaviors with the highest levels of consensus were "Provides grades and feedback in a timely manner" with 63% agreement and "Communicates with students" with 54% agreement. The other behaviors showed little consensus with two or fewer participants noting each behavior as supportive of student engagement.

Table 4

Round 1 Data Analysis Results from Question 9

Question 9: What are the teacher behaviors that you have seen or personally used to increase or support student engagement in an online setting?

Responses	*N*	Consensus Percentage
1. Provides grades and feedback in a timely manner	7	63
2. Communicates with students	6	54
3. Builds rapport with individual students	2	18
4. Answers questions promptly	2	18
5. Displays positive and fun attitude	2	18
6. Demonstrates a willingness to help and support students	2	18
7. Communicates with parents	2	18
8. Uses various methods to communicate	2	18
9. Provides personalized feedback	2	18
10. Provides supportive feedback	2	18
11. Offers 1:1 interventions	1	9
12. Listens to students	1	9
13. Shows enthusiasm for content	1	9

14. Teaches and models organizational skills and strategies	1	9
15. Teaches and models effective time management skills and strategies	1	9
16. Plans for students to connect with each other (i.e. in class or through extra activities)	1	9

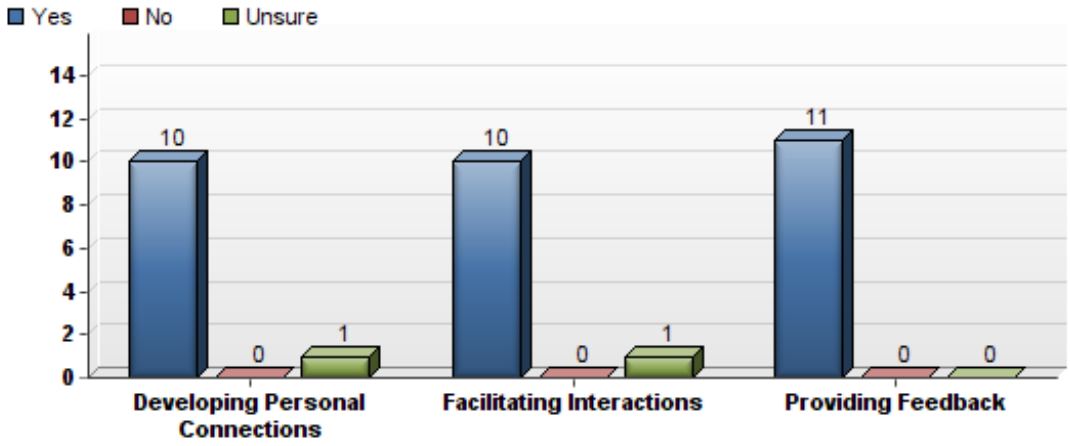
Following these open-ended questions, the participants were asked to provide their opinions about the effectiveness of teacher behaviors noted in current research as supporting the engagement of students in higher education online settings. The question was intended to determine if these K-12 educators believe, based on their experience, that research from college and graduate level populations was applicable to K-12 settings. Initially, the research was provided in categories and then the individual behaviors were also rated.

Research from the literature review conducted in Chapter II was defined by three distinct categories; developing personal connections, facilitating interactions, and providing feedback. The research reviewed indicated that these three areas were supportive of student engagement in online higher education settings. When asked, (Question 10: Researchers from higher education suggest that students are more engaged when teachers are intentional with developing personal connections, facilitating interaction, and providing feedback. Are these areas also significant for students at the K-12 level?) the teachers agreed 100% that providing feedback was effective in supporting student engagement in K-12 online classrooms. Ten out of the 11 respondents (90%) said that developing personal relationships and facilitating interactions were significant. The lone respondent who was an outlier from the group reported that they were unsure as to whether or not these two areas applied to K-12

student engagement. It should be noted that none of teachers responded with a "No" answer to any of the three areas identified by research.

Table 5

Round 1 Data Analysis Results from Question 10



Question 10: Researchers *from higher education suggest that students are more engaged when teachers are intentional with developing personal connections, facilitating interaction, and providing feedback. Are these areas also significant for students at the K-12 level?*

When asked to respond to the 17 specific behaviors noted in the research as supporting student engagement in higher education, the K-12 teachers rated the items using a Likert scale (Not at all Important, Very Unimportant, Neither Important or Unimportant, Very Important, Extremely Important). Only one item was identified as "Not at all Important" by one of the teachers and it was "Discussion Forums: allow students to participate first." The other 16 behaviors ranged in scores from "Neither Important nor Unimportant" to "Extremely Important."

Four of the specific behaviors noted in the research were rated by nine of the 11 (81%) teachers as "Extremely Important." These behaviors are "Personalize feedback," "Answer questions readily," "Show enthusiasm for course content," and "Provide timely feedback on assessments."

"Use extra class communication (email, phone calls or instant messaging, etc.)" was rated by seven of the teachers (63%) as "Extremely Important" with the four remaining teachers giving it a "Very Important" rating.

Table 6

Round 1 Data Analysis Results from Question 11

Question 11: How important are the following teacher behaviors in impacting student engagement in an online setting?

#	Question	Neither Important nor Unimportant	Very Important	Extremely Important	Mean	Consensus Percentage
16	Personalize feedback	0	2	9	4.82	100
13	Answer questions readily	0	2	9	4.82	100
14	Show enthusiasm for course content	0	2	9	4.82	100
17	Provide timely feedback on assessments	0	2	9	4.82	100
7	Use extra class communication (email, phone calls or instant messaging, etc.)	0	4	7	4.64	100
1	Use student names	0	6	5	4.45	100
10	Acknowledge specific student contributions	0	7	4	4.36	100

3	Provide appropriate personal information and examples	0	8	3	4.27	100
5	Use humor	1	4	6	4.45	90
8	Invite student participation in class activities	1	5	5	4.36	90
4	Model appropriate levels of self disclosure for the class	1	7	3	4.18	90
15	Provide authentic learner-centered assessments	1	7	3	4.18	90
2	Use pronouns "we" and "our"	5	5	1	3.64	54
12	Discussion Forums: provide corporate summaries or note specific student contributions	5	5	1	3.64	54
9	Provide small group opportunities	5	6	0	3.55	54
11	Discussion Forums: allow students to participate first	4	4	2	3.55	54
6	Use video or audio clips for introductions or announcements	6	5	0	3.45	45

The last question for Round 1 provided the teachers with another open-ended opportunity to share "other online teacher behaviors that are critical to increasing student engagement" that were not previously mentioned in the survey. Seven of the teachers chose to provide additional comments; only two of which were determined to be different from those previously reported by the research; "Not assuming they [students] know how to navigate or even know the different kinds of online activities and assignments" and "Staying on top of the class – being an active participant."

Round 2 results. The Round 2 survey was emailed to 12 participants with a request to complete their responses within two weeks. All of the respondents completed all of the survey questions within the time allowed.

The Round 2 survey was developed based on the answers and opinions provided by the teachers in Round 1. This round was designed to determine consensus on some previous items, as well as to collect specific behavioral indicators in order to build a rubric for use in online teacher evaluations.

Table 7

Round 2 Data Analysis Results from Question 4

Question 4: The participant group identified the following descriptors of student engagement. Please identify and rank the statements that most accurately define student engagement:

#	Question	Very Un-important	Neither Important nor Un-important	Very Important	Extremely Important	Mean	Consensus Percentage
7	Readily asks for help when needed	0	0	4	8	4.67	100
1	Consistent login behaviors as defined by	0	0	5	7	4.58	100

	school policy						
4	Communicative with teachers and peers	0	1	4	7	4.50	91
2	Assignments completed thoroughly and on time	0	1	7	4	4.25	91
5	Pacing of progress within course materials is consistent	0	3	5	4	4.08	75
6	Demonstrates interest in subject by asking questions	0	2	8	2	4.00	83
3	High level of participation in discussion forums and/or synchronous class sessions	1	3	5	3	3.83	66

In order to determine the consensus of the group, the teachers were asked to rate the descriptors of student engagement that were identified by individuals in Round 1. Seven descriptors were identified and the teachers were asked to rate them on a Likert scale (Not at all important, Very important, Neither important nor Unimportant, Very important, Extremely important). All but one of the descriptors was rated by the group as "Very important." None of the descriptors were rated by anyone as "Not at all important," but the statement "High level of participation in

discussion forums and/or synchronous class sessions" was rated as "Very unimportant" by one teacher which was likely due to the type of online school they teach in (i.e., a 1:1 setting with no discussions or synchronous sessions).

Table 8

Round 2 Data Analysis Results from Question 5

Question 5: The participant group identified the following teacher behaviors as being supportive of student engagement in an online setting. How important are the following behaviors in impacting student engagement in an online setting?

#	Question	Neither Important nor Unimportant	Very Important	Extremely Important	Mean	Consensus Percentage
7	Demonstrates a willingness to help and support students	0	2	10	4.83	100
5	Shows enthusiasm for content	0	2	10	4.83	100
9	Communicates with students	0	3	9	4.75	100
2	Answers questions promptly	0	3	9	4.75	100
4	Listens to students	0	4	8	4.67	100
12	Provides grades and feedback in a timely manner	0	4	8	4.67	100
11	Provides personalized feedback	0	4	8	4.67	100
6	Displays positive and fun attitude	1	3	8	4.58	91
13	Provides supportive feedback (i.e. separates the person from the work/skill)	0	6	6	4.50	100
1	Builds rapport with individual	0	7	5	4.42	100

	students					
3	Offers 1:1 interventions	1	6	5	4.33	91
18	Teaches the skills necessary to navigate the online classroom (i.e. technology)	1	9	2	4.08	91
10	Uses various methods to communicate	2	7	3	4.08	83
15	Teaches and models organizational skills and strategies	3	5	4	4.08	75
8	Communicates with parents	3	6	3	4.00	75
14	Participates in class activities alongside of students	5	6	1	3.67	58
17	Plans for students to connect with each other (i.e. in class or through extra activities)	5	6	1	3.67	58

Next the teachers were asked to rate the teacher behaviors that were identified by individuals in Round 1. Sixteen descriptors were stated in the first iteration of the question and then at the end of the survey, when asked if any other suggestions could be made, two additional teacher behaviors were noted. Again, none of the descriptors were rated as "Not at all important" or "Very unimportant." The two behaviors with

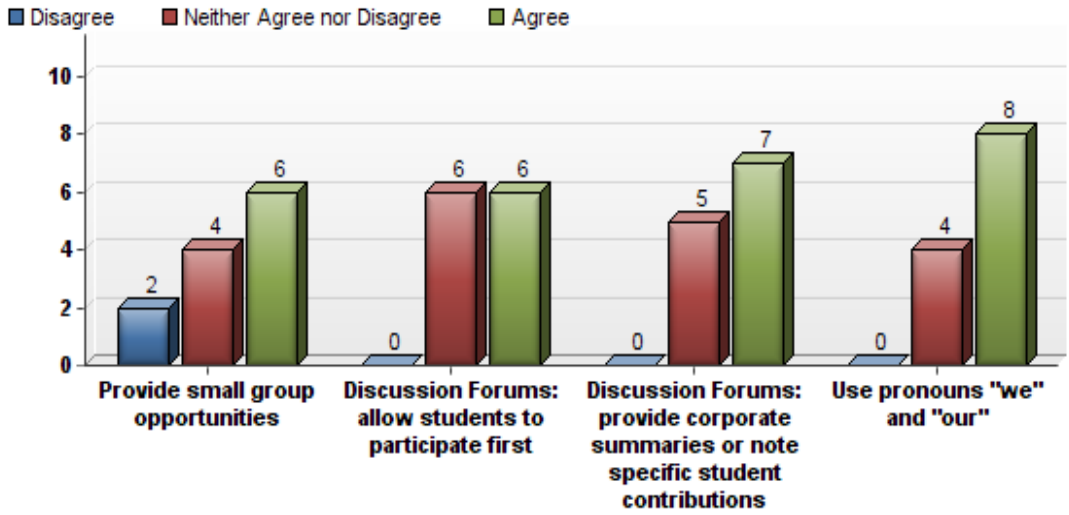
the highest level of agreement were "Demonstrates a willingness to help and support students" and "Shows enthusiasm for content" which both had 83% of the respondents rating them as "Extremely Important." The next most highly rated behaviors were "Communicates with students" and "Answers questions promptly" which both had nine respondents (75%) rating them as "Extremely Important." All but two of the behaviors (Participates in class activities alongside of students and Plans for student to connect with each other) were rated with a mean score of 4.0 or better, which converts to a minimum rating of "Very important."

The next set of questions asked the teachers to agree or disagree with the ratings provided by the group in Round 1 regarding the teacher behaviors noted in research studies measuring college and graduate level online settings. It should be noted that this series of questions could be confusing for participants as they are being asked to agree or disagree with the groups' overall rating from the previous round of questions, not to actually rate the behaviors as they had done previously.

The first question in this set asked the group to confirm the accuracy of the group's identification of four behaviors as "Neither important or Unimportant." Those behaviors were "Provides small group opportunities," "Discussion Forums: Allow students to participate first," "Discussion Forums: Provide corporate summaries or note specific student contributions," and "Use pronouns 'we' and 'our'." The group generally agreed that these were rated correctly, although two respondents disagreed with the statement that "Providing small group opportunities" was neither important nor unimportant.

Table 9

Round 2 Data Analysis Results from Question 6



Question 6: The participant group identified the following teacher behaviors as Neither Important or Unimportant. Please confirm whether or not you agree that these statements are Neither Important or Unimportant to student engagement in an online environment.

The next question in Round 2 asked the teachers to confirm that the seven behaviors the group identified in Round 1 as "Very Important" were behaviors that they agreed should be labeled as such. The group unanimously (100%) rated "Use student names" as "Very Important," and they had 91% agreement on the rating for "Acknowledge specific student contributions" and "Invite student participation in class activities." There were two behaviors that were rated as "Disagree" by one member of the group and they were "Use Humor" and "Model appropriate levels of self-disclosure for the class."

Table 10

Round 2 Data Analysis Results from Question 7

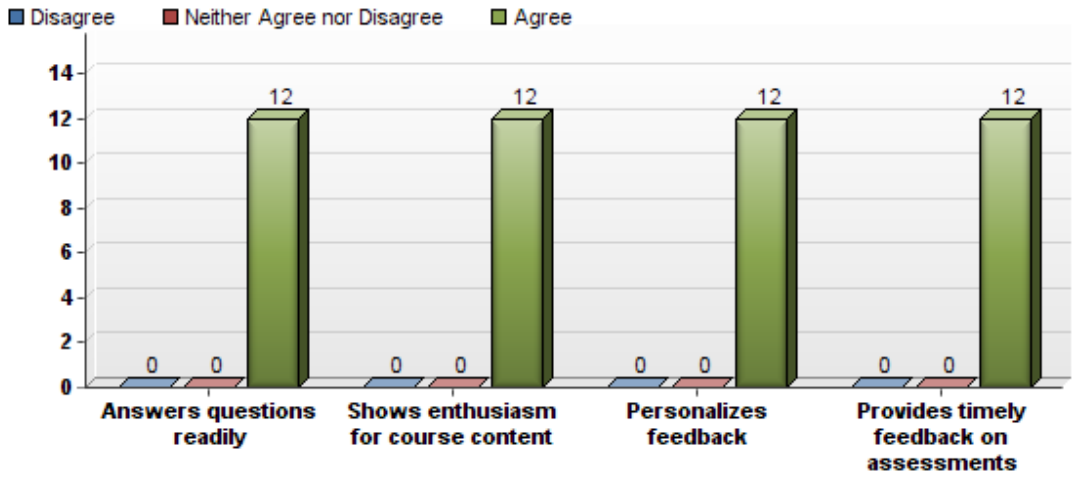
Question 7: The participant group identified the following teacher behaviors as Very Important. Please confirm whether or not you agree that these statements are Very Important to student engagement in an online environment:						
#	Question	Disagree	Neither Agree nor Disagree	Agree	Mean	Consensus Percentage
1	Use student names	0	0	12	3.00	100
5	Invite student participation in class activities	0	1	11	2.92	91
6	Acknowledge specific student contributions	0	1	11	2.92	91
2	Provide appropriate personal information and examples	0	2	10	2.83	83
4	Use humor	1	1	10	2.75	83
7	Provide authentic learner-centered assessments	0	3	9	2.75	75
3	Model appropriate levels of self-disclosure for the class	1	2	9	2.67	75

The third question in this set asked the group to confirm the accuracy of the group's identification of four behaviors as "Extremely Important." "Answers questions readily," "Shows enthusiasm for course content," "Personalizes feedback," and "Provides timely feedback on assessments" all received unanimous (100%)

ratings of "Agree" from the expert group which indicates full consensus on these items.

Table 11

Round 2 Data Analysis Results from Question 8

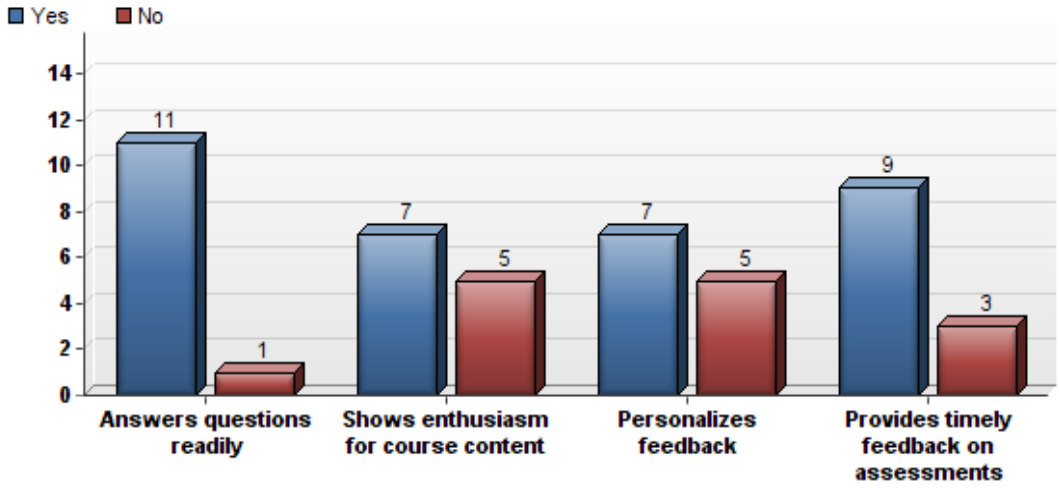


Question 8: The participant group identified the following teacher behaviors as Extremely Important. Please confirm whether or not you agree that these statements are Extremely Important to student engagement in an online environment.

When asked then if online teachers should be evaluated on their ability to perform these behaviors that were identified as "Extremely Important," respondents offered mixed ratings. The response options were limited to only "Yes" or "No" in order to provide a clear distinction of opinions on this specific item. "Answers questions readily" had 91% of the teachers reporting that they would agree to be evaluated using this rubric and 75% rated "Yes" for "Provides timely feedback on assessments." The other behaviors were rated at only 58% "Yes" for "Shows enthusiasm for course content" and "Personalizes feedback."

Table 12

Round 2 Data Analysis Results from Question 9



Question 9: Should teachers be evaluated on their ability to perform these behaviors that have been identified as Extremely Important?

Round 3 results. The Round 3 survey was emailed to 12 participants with a request to complete their responses within two weeks. All of the respondents completed all of the survey questions within the time allowed.

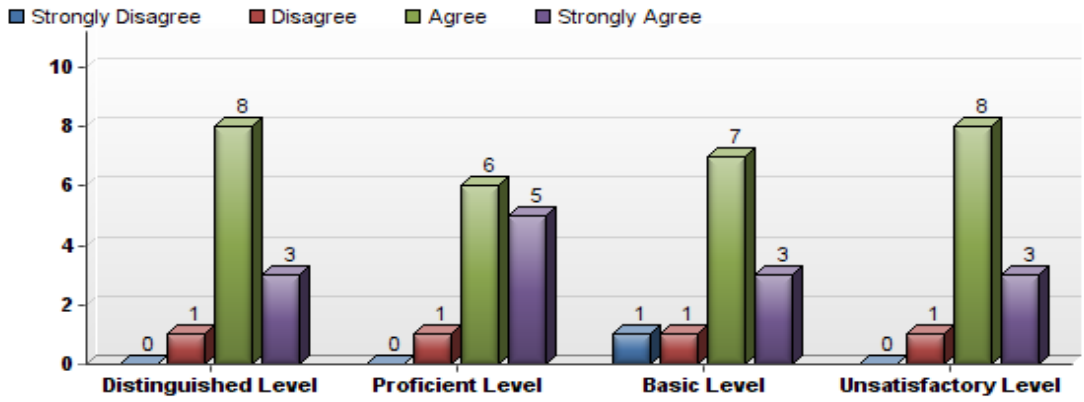
The Round 3 survey was developed based on the answers and opinions provided by the teachers in Round 1 and Round 2. This round was designed to determine consensus, as well as to collect specific feedback on the teacher evaluation rubrics developed from the marriage of behaviors identified in the review of literature and the behaviors identified by the teacher group in Round 1 and Round 2. The survey included three rubrics, designed to mimic the structure provided by Charlotte Danielson in her *Framework for Teaching* (Danielson Group, 2013).

The first rubric was titled "Developing Personal Connections" (Appendix U) and was provided to the participants both within the survey and in a separate email

for ease in viewing while answering the questions. The teachers were asked to rate their level of agreement with the definition and critical attributes provided for each level of the rubric using a Likert scale (Strongly Disagree, Disagree, Agree, Strongly Agree). For the Distinguished, Proficient and Unsatisfactory Levels of the "Developing Personal Connections" rubric, 11 of the participants rated them as either "Agree" or "Strongly Agree" which indicates a high level of consensus (91%) among the group. The Basic Level was rated as "Agree" or "Strongly Agree" by 10 of the participants, which is 83% agreement among the group. Each of the levels however, had at least one participant who disagreed with it; the basic level had two negative responses with a teacher rating it as "Disagree" and another as "Strongly Disagree."

Table 13

Round 3 Data Analysis Results from Question 3



Question 3: After reviewing the Developing Personal Connections rubric, rate your level of agreement with the definition and critical attributes provided or each level:

A follow up question was asked of those who responded with "Disagree" or "Strongly Disagree" ratings and the two teachers who provided those ratings offered additional comments to explain their disagreement.

Table 14

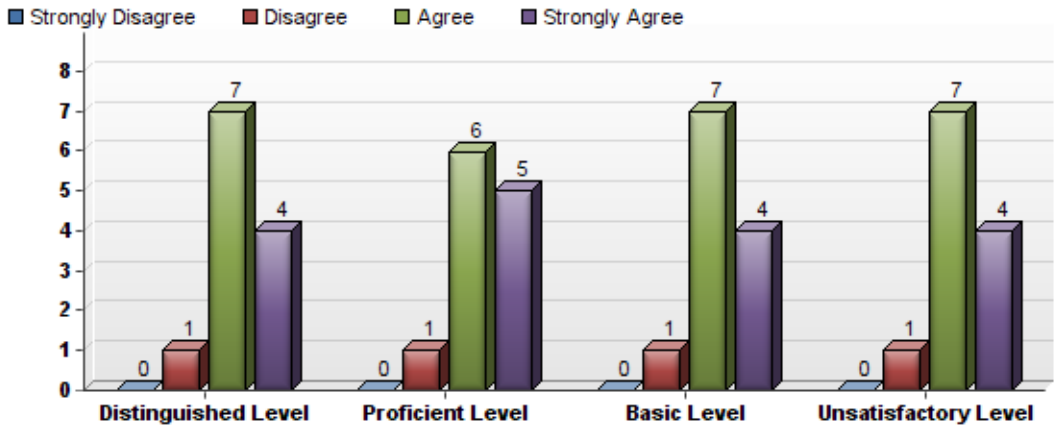
Round 3 Data Analysis Results from Question 4

Question 4: If you chose Strongly Disagree or Disagree, please provide suggestions for how the definition or critical attributes could be revised to allow you to agree with the statements:
• Inclusion in the basic level of the language where the teacher is being evaluated and the students aren't responding is ridiculous. The teacher has no control over this. Yes - building rapport MAY help in getting the student to respond. But in an online environment to evaluate the teacher on something they have no control over is wrong. It illustrates the inherent problem with rubrics that are to cut and dried. Also, the language about personal information is a loaded bomb. What do you mean by personal info?
• This rubric does not adequately reflect the unique environment of online learning

The second rubric was titled "Facilitating Interactions" (Appendix V) and was provided to the participants both within the survey and in a separate email for ease in viewing while answering the questions. The teachers were asked to rate their level of agreement with the definition and critical attributes provided for each level of the rubric using a Likert scale (Strongly Disagree, Disagree, Agree, Strongly Agree) just as they had done with the previous rubric. For all of the levels (Distinguished, Proficient, Basic and Unsatisfactory) of the rubric, 11 of the participants rated them as either "Agree" or "Strongly Agree" which indicates a high level of consensus (91%) among the group. One participant rated all 4 levels as "Disagree" and provided this comment as follow up: "Online learning is still largely individualized and self-paced making it difficult for group interaction as a whole on the content."

Table 15

Round 3 Data Analysis Results from Question 5



Question 5: After reviewing the Facilitating Interaction rubric, rate your level of agreement with the definition and critical attributes provided or each level:

The third rubric was titled "Providing Feedback" (Appendix W) and was provided to the participants both within the survey and in a separate email for ease in viewing while answering the questions. The teachers were again asked to rate their level of agreement with the definition and critical attributes provided for each level of the rubric using a Likert scale (Strongly Disagree, Disagree, Agree, Strongly Agree). For the Distinguished and Proficient Levels, 11 participants rated them as "Agree" and "Strongly Agree" which is again a high level of consensus (91%) among the group. For these two levels, one teacher rated them as "Strongly Disagree" and provided these additional comments:

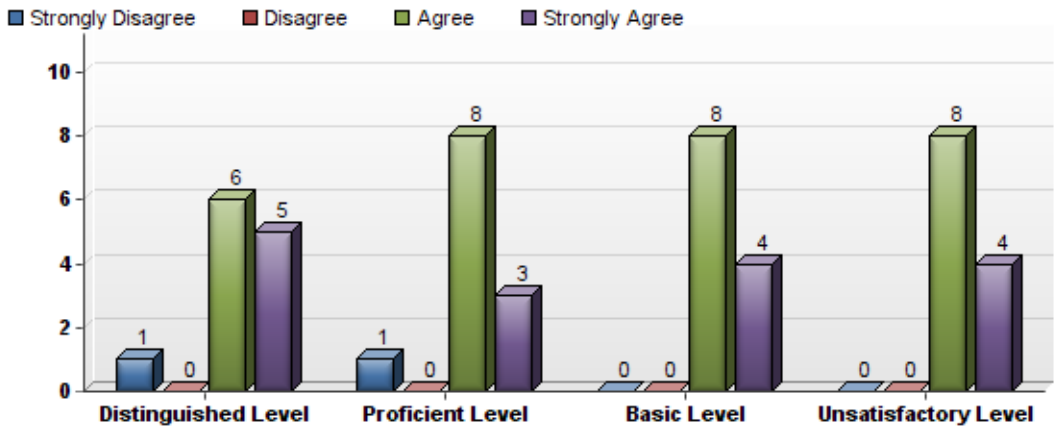
> I find it hilarious that the teacher is being evaluated on the fact that they MUST have work graded within 24 hours but the nature of the online environment is that the student can do the work whenever they feel like it. The

assumption that the teacher must evaluate within 24 hours means the teacher will constantly be online checking for work that is turned in. Quick feedback is good and should be something that is a priority. But there is an inherent double standard when the students don't have deadlines but the teachers do. Poor language. Putting a time limit on it is unreasonable and would not work in the real world.

Despite these thoughts, all 12 of the teachers rated the Basic and Unsatisfactory levels of the "Providing Feedback" rubric as either "Agree" or "Strongly Agree" which is 100% consensus among the expert group.

Table 16

Round 3 Data Analysis Results from Question 7



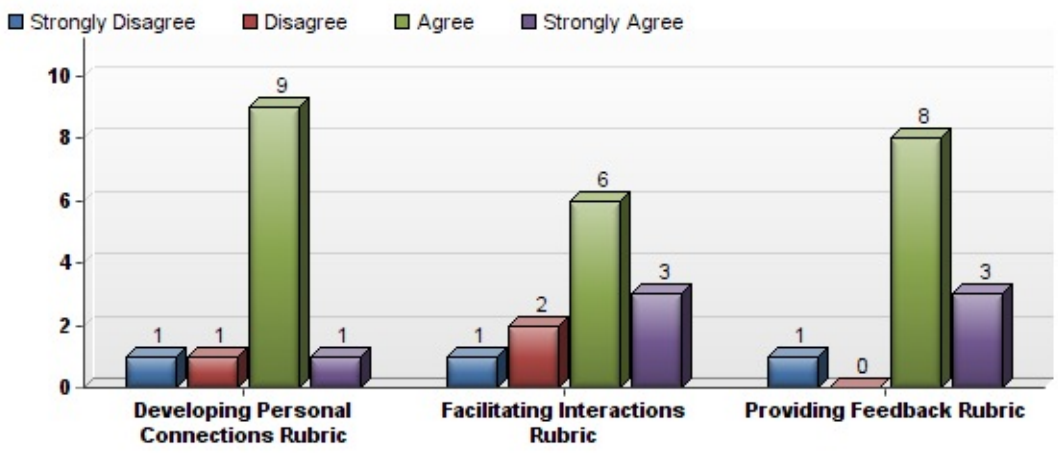
Question 7: After reviewing the Providing Feedback rubric, rate your level of agreement with the definition and critical attributes provided or each level:

In order to determine whether or not this expert group of online teachers would hold themselves to the standards they created in these rubrics, a question was

included in the survey which asked, “If it was mandated that online teachers be evaluated based on their behaviors in these three areas, would you want administrators to use these rubrics to evaluate you?” Three of the participants reported ratings of “Disagree” or “Strongly Disagree” to at least one of the rubrics. However, a majority of teachers provided a rating of “Agree” or “Strongly Agree” for all three of the rubrics: nine (75%) for the Facilitating Interactions rubric, ten (83%) for the Developing Personal Connections rubric, and eleven (91%) for the Providing Feedback Rubric.

Table 17

Round 3 Data Analysis Results from Question 9



Question 9: If it was mandated that online teachers be evaluated based on their behaviors in these three areas, would you want administrators use these rubrics to evaluate you?

Table 18

Round 3 Data Analysis Results from Question 10

Question 10: If you chose Strongly Disagree or Disagree to show that you would not want the rubrics used to evaluate your teaching, please explain why and how the rubric could be improved to allow you to agree to its use.
• Classes may include only 1 student in some cases, therefore making peer/group interaction impossible.
• I teach students from all over the state. Which administrator does the eval? Evaluating online teachers illustrates the overall problem with teacher evaluation. No one knows what we mean by this or how to do it. I think that the attempts at a rubric here are a good start, but are flawed. I would not want to be evaluated by these rubrics and I have received high marks in my evals for my regular classroom teaching.
• The Developing Personal Connections Rubric needs to evaluate that the teacher has tried to make a connection with the student one-one. My experience has been that if the student is comfortable with you, they will increase their participation in the course. I accomplish this by constantly checking in with them and giving daily feedback on work completed, asking how I can help, posting additional resources and writing lengthy explanations. I anticipate areas where there will be difficulty with the content and explain that difficulty to students.

For the teachers who indicated that they would not wish to have these rubrics used in their evaluations, they provided explanations related to concerns about either how the evaluation process would be implemented, or challenged how their unique version of online instruction did not fit with the expectations in the rubric.

Table 19

Round 3 Data Analysis Results from Question 11

Question 11: Please provide any other comments you have for the researcher. Text Response
• I think the personal connections [are] much easier to attain in smaller groups, but with my current groups being 55+ students with a goal of 30 minutes long for lessons, it's hard to foster strong connections with all students in that time, especially if it is a more reserved student or one that doesn't readily participate in CC's.
• If you would like to talk about my responses contact me at [*email removed for confidentiality*].
• I am really not sure what the best method to evaluate online teachers is with the broad range of tasks in our regular day. With that, I do feel this is a great step in the right direction and hope we can move forward with it!
• I am wondering how these rubrics will be used. Are they for self evaluation or evaluation by an administrator. If by administrator, will the administrator have sufficient time to read through all the messages and feedback comments made in a particular course? I see that as very time consuming for the administrator.
• The majority of my students are high school Ojibwe language students. Culturally they are quiet and timid with elders and do not want to make mistakes. It could be easy to blame an instructor for basically normal culturally based non-participation. That was my only thought. Seems good otherwise. Thanks.

When asked in the final question of Round 3 to offer any other comments for the researcher, several insightful thoughts were shared by five of the participants. One questioned how to best connect with many students in an online setting while holding short synchronous sessions. Another asked if the rubrics would be used as a self-assessment tool or if administrators would use them. One teacher shared concerns over cultural differences and wondered how this might impact how the teacher evaluation process would work.

Round 4 results. The Round 4 survey was emailed to potential participants identified by MDE and MNOLA as administrators in online K-12 schools. Five

participants responded to the survey and each of them met the criteria as those in administrative roles who evaluate teachers and who have been working in an online school for the past three consecutive years.

The Round 4 survey was designed to solicit the opinions of online administrators regarding the utility of the three teacher evaluation rubrics developed through Rounds 1-3 among the teacher expert group. Because evaluations of online teachers are completed by online administrators, and because no research could be found regarding online evaluation tools for Minnesota online teachers, the opinions of administrators who evaluate online teachers was critical to determining the true value of the evaluation rubrics developed in this study.

In order to determine the consensus of the group, the administrators were asked to first review the rubrics (Appendix U, V and W) and then rate their level of agreement with definition and critical attributes provided for each level. The rubric was designed to mimic the Danielson *Framework for Teaching* rubrics and therefore included 4 levels of performance (Distinguished, Proficient, Basic and Unsatisfactory) with explanations of the definition of each level as well as a list of critical attributes that one might see when observing an online teacher in each quality level. The administrators were asked to rate the definition and the critical attributes on a Likert scale (Strongly Disagree, Disagree, Agree, Strongly Agree).

The first rubric that was reviewed in Round 4 was the Developing Personal Connections rubric. The Distinguished, Proficient and Unsatisfactory levels all reached consensus at 80% of the group rating these levels as either "Agree" or "Strongly Agree." The Basic level did not reach consensus (60%) with two of the five

participants rating it as "Disagree." Comments provided by the participants indicate that the rationale for their ratings were each very different. Although one participant (the one who rated all levels as "Strongly Agree") felt that the definitions were accurate and clear, the others each noted an area or two where they have further questions or concerns about the emphasis of elements of the Developing Personal Connections rubric.

Table 20

Round 4 Data Analysis Results from Question 6

Question 6: After reviewing the Developing Personal Connections rubric, rate your level of agreement with the definition and critical attributes provided for each level

#	Question	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Consensus Percentage
1	Distinguished Level	0	1	3	1	4.5	80
2	Proficient Level	0	1	3	1	4.5	80
3	Basic Level	0	2	2	1	3.0	60
4	Un-satisfactory Level	0	1	3	1	3.75	80

Table 21

Round 4 Data Analysis Results from Question 7

Question 7: Please explain your rationale for your answers to the Developing Personal Connections rubric
• I think not pronouncing students names correctly should be unsatisfactory not basic level. I also believe that when students don't want to share, it is not always a "teacher issue". (Regarding "offer little response"). Also define "outside of class" - most online "classes" are asynchronous therefore class [is] ubiquitous and open 24/7.
• The rubric looks good, but is more applicable to face-to-face teaching, or a Blended model. Certain attributes would work, but not others.
• I generally agree with the criteria. However, I often think that too much significance is placed on tying content to 'student interests' and that rapport is defined as knowing and sharing of personal information. There are many, many instructional areas where it is very challenging to tie to a student's interest, yet as the rubric is written, the teacher would be required to. Likewise, rapport can be established without either knowing one another personally, but having a professional rapport established through how they each interact with one another within the classroom.
• The definitions were explained clearly, thoroughly, and in my opinion accurately as well.

The second rubric that was reviewed in Round 4 was the Facilitating Interaction rubric. The only level that reached consensus (80%) was the Unsatisfactory level with a mean score of 3.75. However, despite some participants selecting “Disagree” for the Distinguished, Proficient and Basic levels, there were still enough participants who rated these levels as “Agree” and “Strongly Agree” to establish mean scores ≥3.0. Comments provided by the participants indicate that the rationale for their ratings comes from very different viewpoints. One participant reports concerns over terminology they find hard to define in the rubric, another states that they disagree with the emphasis placed on interaction between students in an

online classroom, and another states that interaction does not match with the 1:1 program system that they follow in their online setting.

Table 22

Round 4 Data Analysis Results from Question 8

Question 8: After reviewing the Facilitating Interaction rubric, rate your level of agreement with the definition and critical attributes provided for each level

#	Question	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Consensus Percentage
1	Distinguished Level	0	3	1	1	3.25	40
2	Proficient Level	0	3	1	1	3.25	40
3	Basic Level	0	2	2	1	3.5	60
4	Un-satisfactory Level	0	1	3	1	3.75	80

Table 23

Round 4 Data Analysis Results from Question 9

Question 9: Please explain your rationale for your answers to the Facilitating Interaction rubric.

- It is a good situation when teachers relate to each student individually - why is that listed under unsatisfactory? Define "over involved" and "stilted" - very subjective. Studies have shown that even teachers who consider themselves "learner centered" have little self-perception of how much they "take the stage". Why is waiting to offer assistance a bad thing? If we are encouraging interaction, then waiting becomes part of allowing learner centeredness to take place. As a teacher being a "fellow learner" sometimes this comes off as gratuitous when the teacher really is sitting on the "correct answer."
- Our program is self-paced with rolling enrollment so students may not all be at the same place at the same time. This makes group interaction more difficult.
- As an elementary online principal, I feel that too much weighting is also placed on student interaction with one another. It's very hard to get true interaction

amongst kindergarten students, for example. I often review other criteria when [determining] how engaged a student is within a classroom.

- Same as my previous answer... I wouldn't change a thing.

The final rubric that was reviewed in Round 4 was the Providing Feedback rubric. All five participants rated all four levels of this rubric with an "Agree" or "Strong Agree" rating; the Distinguished, Proficient, Basic and Unsatisfactory levels all reached 100% consensus. Comments provided by the participants include a few minor suggestions, but show no significant concerns with the definitions or critical attributes defined in the rubric.

Table 24

Round 4 Data Analysis Results from Question 10

Question 10: After reviewing the Providing Feedback rubric, rate your level of agreement with the definition and critical attributes provided for each level

#	Question	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Consensus Percentage
1	Distinguished Level	0	0	3	2	4.25	100
2	Proficient Level	0	0	4	1	4.0	100
3	Basic Level	0	0	4	1	4.0	100
4	Un-satisfactory Level	0	0	4	1	4.0	100

Table 25

Round 4 Data Analysis Results from Question 11

Question 11: Please explain your rationale for your answers to the Providing Feedback rubric.
• Define "generic feedback" - if the math problem is solved incorrectly, the teacher may know and have the same response to help guide the student to the correct process to solve it correctly.
• Feedback is critical and the rubric looks very good.
• Generally agree. However, I think it's also important to note that online instruction also means that feedback should be given outside of the actual classroom instructional sessions. Yet our observational style evals don't allow for that.

Summary of Results

In order to begin to fill the void in research, the Delphi method was used to identify, describe and reach consensus among expert online educators and administrators in the K-12 setting, to answer the following two research questions:

2. Does online K-12 practitioner pedagogy match with what is found in higher education research for online pedagogy/andragogy?
3. What are the measurable teacher behaviors that increase student engagement in K-12 online classes?

Participants in the study were 12 experienced educators and five experienced administrators from Minnesota online schools. Through three rounds of surveys using Qualtrics, an online survey tool, the teacher participants used their own experiences and research-based practices from higher education to identify teacher behaviors that impact student engagement in online settings. From their responses the researcher developed three evaluation style rubrics that could be used to measure the level of

effective practice demonstrated by a teacher in an online setting. In the final round of the study, five administrators from Minnesota K-12 online schools rated the rubrics to determine their potential effectiveness in evaluating online teachers related to student engagement expectations required by the Minnesota Department of Education.

Round 1 of the study provided an answer to research question 2 which asked if research from higher education matched with what K-12 educators experience in their online classrooms. The teacher expert group identified the following 12 research-based behaviors from higher education as being either "Very Important" or "Extremely Important" with 90-100% consensus levels:

- Personalize feedback
- Answer questions readily
- Show enthusiasm for course content
- Provide timely feedback on assessments
- Use extra class communication (email, phone calls or instant messaging, etc.)
- Use student names
- Acknowledge specific student contributions
- Provide appropriate personal information and examples
- Use humor
- Invite student participation in class activities
- Model appropriate levels of self disclosure for the class
- Provide authentic learner-centered assessments

They also agreed with higher education research that indicates that students are more engaged in online courses when teachers are intentional with developing personal connections (90% consensus), facilitating interaction (90% consensus), and providing feedback (100% consensus).

Round 2 provided further confirmation that the teacher behaviors noted in Round 1 were indeed considered important by the collective expert group. They identified with ≥75% consensus, the following 16 teacher behaviors generated from their online classroom experiences that were either very important or extremely important to positively impacting student engagement:

- Demonstrates a willingness to help and support students
- Shows enthusiasm for content
- Communicates with students
- Answers questions promptly
- Listens to students
- Provides grades and feedback in a timely manner
- Provides personalized feedback
- Displays positive and fun attitude
- Provides supportive feedback (i.e. separates the person from the work/skill)
- Builds rapport with individual students
- Offers 1:1 interventions
- Teaches and models effective time management skills and strategies
- Teaches and models organizational skills and strategies

- Teaches the skills necessary to navigate the online classroom (i.e. technology)
- Uses various methods to communicate
- Communicates with parents

As a follow up to the higher education research that was evaluated in Round 1, the Round 2 surveys asked participants to confirm the ratings established by the group. Notably, the expert teacher group identified four behaviors from the higher education research as "Extremely Important" with 100% consensus. Those behaviors are, answers questions readily, shows enthusiasm for course content, personalizes feedback and provides timely feedback on assessment.

It was during the second round that the group came to consensus on six behaviors that are indicative of positive student engagement in an online setting. These student behaviors were rated with ≥75% agreement:

- Readily asks for help when needed
- Consistent login behaviors as defined by school policy
- Communicative with teachers and peers
- Assignments completed thoroughly and on time
- Pacing of progress within course materials is consistent
- Demonstrates interest in subject by asking questions

Although student engagement behaviors were not a focus of this study, the ideas suggested by the teacher expert group could be helpful in further defining what is meant by student engagement in an online setting, since very little is identified in research regarding this topic.

Round 3 asked the expert teacher group to identify their level of agreement with three rubrics that were developed from their responses in Rounds 1 and 2. The three rubrics mimicked the structure provided by Danielson's *Framework for Teaching* which is widely used in the evaluation of teachers in traditional settings. The rubrics defined the four levels of expertise (Distinguished, Proficient, Basic and Unsatisfactory) and provided critical attributes that could be observed for each level.

Among the teacher experts, the rubrics were seen in a very favorable light with a high level of consensus for all. The Developing Personal Connections rubric and the Facilitating Interaction rubric both had 91% consensus for all four levels. The Providing Feedback rubric had 91% agreement on the Distinguished and Proficient levels, and 100% consensus on the Basic and Unsatisfactory levels. These scores indicate that the expert group found these rubrics to be good descriptors of online teacher behaviors. When asked if they would be willing to be evaluated using these rubrics, the teacher participants agreed (Developing Personal Connections 83%, Facilitating Interaction 75%, Providing Feedback, 91%).

Round 4 asked an expert group of five online administrators to evaluate the three rubrics developed in the previous three rounds of the Delphi study. The administrators gave a mixed review of the Developing Personal Connections rubric with 80% consensus for the Distinguished, Proficient and Unsatisfactory levels but only 60% agreement for the Basic level. The Facilitating Interaction rubric was approved for the Unsatisfactory level only (80%) while the other levels were rated as ≤60% consensus. The final rubric, Providing Feedback, was rated as "Agree" or

"Strongly Agree" by the group, which gave it a consensus rating of 100% on all four levels.

Chapter Five: Discussion, Implications, Recommendations

Overview of the Study

Through a review of literature and a Delphi study to identify, describe and reach consensus among expert online educators, this study sought to answer the following research questions:

1. What evaluative tools exist for measuring the teacher behaviors that impact student engagement in an online classroom?
2. Does online K-12 practitioner pedagogy match with what is found in higher education research for online pedagogy/andragogy?
3. What are the measurable teacher behaviors that increase student engagement in the K-12 online classroom?

This study generalized research from higher education and merged this knowledge with practical evidence from currently practicing experts in Minnesota K-12 online classrooms in order to develop a teacher evaluation tool, modeled after the work of Danielson (2013) or Marzano (2013), that could be used as part of a comprehensive teacher evaluation program. Although there are many aspects of best practice in online instruction that could be researched further, this study considered only the research-based measurable behaviors that online teachers use to positively impact student engagement.

The Delphi study used two expert groups; Minnesota K-12 online educators and Minnesota K-12 online administrators. The educator group of twelve participated in three rounds of surveys in order to determine consensus of the group on the match between the research found in higher education and the practices found to be most effective in Minnesota K-12 online classrooms. The educator group also identified the measurable teacher behaviors that increased student engagement in K-12 online classrooms. These behaviors were used to develop evaluation style rubrics that are titled Developing Personal Connections, Facilitating Interaction and Providing Feedback. The group of five Minnesota K-12 online administrators participated in a single survey round to provide their expert opinion on the viability of these rubrics for use in evaluating online teachers.

Research Question 1: Conclusions and Implications

The first research question asked, "What evaluative tools exist for measuring the teacher behaviors that impact student engagement in an online classroom?" This question was necessary to determine if a reasonable tool already existed to meet the expectation of current Minnesota teacher evaluation practices.

Multiple researchers commented that relatively little research had been done to develop accurate tools to measure the skills of online teachers (Black et al., 2008; Cavanaugh et al., 2004; DiPietro et al., 2008). Charlotte Danielson (personal communication, February 16, 2015) confirmed that the evaluation of online teachers is an area where there is "a hole that we've been trying to think about how to fill." Although various standards exist for online programs and for teaching online specifically, none mirror the evaluation tools currently used in face-to-face practice,

such as Danielson's (2013) *Framework for Teaching.* The body of literature on evaluating online teaching shows that although having an accepted pedagogy is highly regarded, many studies report on tools that have not yet been validated or provide unpolished lists of suggestions as a starting point for the discussion (Black et al., 2008; Goodyear et al., 2001; Ferdig et al., 2009; Palloff & Pratt, 2000). An evaluative tool for measuring the teacher behaviors that impact student engagement in the online classroom is desperately needed.

If online educators in Minnesota are to meet the expectation of the mandated teacher evaluation process, they currently have two choices. They can develop their own tool specific to the parameters of their online setting; this is no easy task because currently no models exist and the research base, as noted earlier, is shallow at best. The other option is the one that many online schools have chosen – they use a teacher evaluation tool designed for the traditional teacher in a face-to-face classroom and they do their best to make it fit. However, traditional teaching and online teaching are not the same in all areas and inevitably the evaluation tool falls short. Online teachers deserve an evaluation tool that measures the unique skills necessary to provide students with quality experiences online.

Research Question 2: Conclusions and Implications

The second research question asked, "Does online K-12 practitioner pedagogy match with what is found in higher education research for online pedagogy/andragogy?" This question was asked in order to determine if an adequate research base already existed for determining the teacher behaviors that impact students in online settings. The assumption was made that since little research could

be found to provide evidence-based practices for K-12 online learning, that using college and graduate level online learning research was more appropriate than research from K-12 traditional classrooms.

Through analysis of the literature reviewed in Chapter Two, measurable behaviors that were within a teacher's locus of control and related specifically to increased student engagement fell into three distinct categories: Developing Personal Connection, Facilitating Interaction, and Providing Feedback. When online educators at the college level developed personal connections with students, students responded with higher levels of interaction (Roblyer & Wiencke, 2004; Savery, 2005; Swan, 2001). Online professors who followed evidence-based methods for facilitating interaction had students who responded with higher levels of perceived learning and satisfaction (Herring, 2004; Roblyer & Wiencke, 2004 Swan, 2001; Vrasidas & McIsaac, 1999; Zirkin & Sumler, 1995). Lastly, online teachers in higher education who provided effective and timely feedback to their students (Baker, 2004; Graham et al., 2001; Herring, 2004; Ni, 2008; Rovai, 2001; Savery, 2005; Wolcott, 1996) had increased students' satisfaction with online learning experiences.

The expert group of Minnesota teachers confirmed that these categories and behaviors were also significant in K-12 online settings. When asked if students were more engaged when teachers were intentional with developing personal connections, facilitating interactions and providing feedback, the answer was a resounding "Yes." Consensus was reached on all three categories: Developing Personal Connections (90%), Facilitating Interactions (90%), and Providing Feedback (100%). This demonstrates that there is a pool of research in higher education regarding online

instruction that could be considered when making decisions about K-12 instructional methods.

The expert group of teachers confirmed that 12 specific teacher behaviors noted in the higher education research had an impact on student engagement in a K-12 online setting (Table 26). These behaviors include many common practices from K-12 traditional school settings such as using student names, acknowledging student contributions, inviting student participation, and using humor. Interestingly, the four behaviors from higher education research that received the highest mean scores (4.82) from the K-12 teacher experts were, "Personalize feedback," "Answer questions readily," "Show enthusiasm for course content" and "Provide timely feedback on assessments," which are also all teacher behaviors common in traditional schools. This suggests what many online teachers anecdotally report – some effective teacher practices from face-to-face classrooms do transfer to online settings.

Table 26

Teacher Behaviors from Higher Education Research that Impact Student Engagement in K-12 Online Settings

K-12 Online Teacher Behaviors	Consensus Rating
Answers questions readily	100%
Shows enthusiasm for course content	100%
Provides personalized feedback	100%
Provides timely feedback	100%
Uses student names	100%
Uses extra class communication (email, phone or instant message, etc.)	100%
Invites student participation in class activities	91%

Acknowledges specific student contributions	91%
Provides appropriate personal information and examples	83%
Uses humor; displays positive and fun attitude	83%
Provides authentic learner-centered assessments	75%
Models appropriate levels of self-disclosure for the class	75%

Surprisingly however, the behaviors from the higher education research that are often considered most characteristic of online settings were not seen as important by the K-12 online educator group. Two behaviors from the higher education research related to online discussion forums, a staple of online learning, returned mixed reviews and were rated as important by only 54% of the group. This may suggest that online discussion forums are not as essential for K-12 instruction as they are at the college level and possibly, the research related to discussion forums may not apply to K-12 online schools. It is also possible, based on direct comments from the K-12 educators, that online instructional models vary so greatly in the K-12 arena, that it is difficult to find consensus.

Research Question 3: Conclusions and Implications

The last research question asked, "What are the measurable teacher behaviors that increase student engagement in the K-12 online classroom?" This question required the marriage of both the body of literature and the expert opinions of the Minnesota K-12 online educators and administrators. The question was necessary in order to determine if, in fact, a set of behaviors could be agreed upon and then used as the measure for an evaluation tool specific to online teachers.

In order to answer this question, it was first necessary to determine if student engagement could be defined for the K-12 online classroom. When the expert online teacher group was asked to identify the behaviors they would expect to see in a student who is positively engaged in an online class, the responses had consensus percentages ranging from 9% to 63%. However, when the participants were asked to rank the behaviors offered by the group, they identified five descriptors with consensus percentages of 80% or greater (Table 27). All of the behaviors relate to asking for help, completing assignments, and logging in to the online classroom (similar to attendance in a face to face setting). It is interesting that all of these are seemingly behaviors that would also be expected of students engaged in traditional classrooms.

Table 27

Descriptors of Student Engagement in K-12 Online Settings

Descriptor	Mean	Consensus Percentage
Readily asks for help when needed	4.67	100
Consistent login behaviors as defined by school policy	4.58	100
Communicative with teachers and peers	4.50	91
Assignments completed thoroughly and on time	4.25	91
Demonstrates interest in subject by asking questions	4.00	83

Through multiple questions in Rounds 1 and 2 of the Delphi study, the teacher participants eventually identified 12 distinct teacher behaviors that increase student engagement in K-12 online classrooms. These behaviors were identified by the literature, by the practitioners, or by both sources; they all had initials ratings of either

"Extremely Important" or "Very Important" and were confirmed with consensus ratings of ≥75% (Table 28).

Table 28

Synthesis of K-12 Online Teacher Behaviors by Rank, Source and Rubric

Teacher Behavior	Rating by Delphi Group	Consensus Rating	Source (Literature or Delphi Study)	Included in Evaluation Rubric
Answers questions readily	Extremely Important	100%	Both	Providing Feedback
Shows enthusiasm for course content	Extremely Important	100%	Both	Not measurable
Provides personalized feedback	Extremely Important	100%	Both	Providing Feedback
Provides timely feedback	Extremely Important	100%	Both	Providing Feedback
Uses student names	Very Important	100%	Literature	Developing Personal Connections
Uses extra class communication (email, phone or instant message, etc.)	Very Important	100%	Both	Developing Personal Connections
Invites student participation in class activities	Very Important	91%	Literature	Facilitating Interaction
Acknowledges specific student contributions	Very Important	91%	Both	Facilitating Interaction
Provides appropriate personal information and examples	Very Important	83%	Literature	Developing Personal Connections
Uses humor; displays positive and	Very Important	83%	Both	Not measurable

fun attitude

Provides authentic learner-centered assessments	Very Important	75%	Literature	Facilitating Interaction
Models appropriate levels of self-disclosure for the class	Very Important	75%	Literature	Developing Personal Connections

Of these behaviors, 10 were considered to be measurable for teacher evaluation purposes. The behaviors of "Shows enthusiasm for course content" and "Uses humor; displays positive and fun attitude" were identified as important and impactful for increasing student engagement, but when the teacher group was asked for specific behaviors that would demonstrate a proficient level in these areas, the responses lacked definition and the levels of quality necessary for an evaluation rubric (Appendix Q) therefore they were not included. However, the remaining ten behaviors were integrated into the three evaluation rubrics titled *Developing Personal Connections*, *Facilitating Interactions* and *Providing Feedback*.

The three rubrics developed through the Delphi study were created using the Danielson *Framework for Teaching* (2013) as a model. Each of the rubrics provided definitions for Unsatisfactory, Basic, Proficient and Distinguished levels followed by an explanation of the critical attributes that would be seen when a teacher of that level was being observed. The rubrics were shared with the expert teacher group and they rated their level of agreement with the definitions and critical attributes provided at each level. The *Developing Personal Connections* rubric was agreed to by the group for all four levels (Distinguished, 91%, Proficient, 91%, Basic, 83%, Unsatisfactory, 91%), the *Facilitating Interaction* rubric was agreed to by the group for all four levels

((Distinguished, 91%, Proficient, 91%, Basic, 91%, Unsatisfactory, 91%), and the Providing Feedback rubric was agreed to by the group for all four levels (Distinguished, 91%, Proficient, 91%, Basic, 100%, Unsatisfactory, 100%). This suggests that the definitions and critical attributes for all three rubrics are accurate for measuring online teacher behaviors. Additionally, a majority of the expert online teacher group reported that they would in fact, be willing to be personally evaluated using these rubrics (75% for the Facilitating Interactions rubric, 83% for the Developing Personal Connections rubric, and 91% for the Providing Feedback Rubric) which suggests that they could provide a reasonable method of evaluating K-12 online teachers.

Table 29

Consensus Agreement for Evaluation Rubrics by Teacher Expert Group

Rubric or Level	Consensus Percentage for each Rubric Level	Consensus Percentage for use as an evaluation tool
Developing Personal Connections		83%
Distinguished	91	
Proficient	91	
Basic	83	
Unsatisfactory	91	
Facilitating Interaction		75%
Distinguished	91	
Proficient	91	
Basic	91	
Unsatisfactory	91	
Providing Feedback		91%
Distinguished	91	
Proficient	91	
Basic	100	
Unsatisfactory	100	

For the few teachers in the expert group who noted that they would not be willingly evaluated using these rubrics, they noted concerns that lie outside of the edges of the rubrics. They reported concerns over implementation of an evaluation system, concerns over 1:1 instructional models, or challenges with cultural differences of specific student groups. This suggests that more work should be done in developing evaluation structures that accurately measure online teachers, but also that careful consideration needs to be made when determining if these rubrics are appropriate in every K-12 online setting.

When the expert online administrator group was asked to offer their opinions about the accuracy and usefulness of the three rubrics developed by the teacher group, the results were mixed. It is likely that since the administrator group was not involved in the initial stages of the study (identifying research from higher education that matched with K-12 practice, determining which teacher behaviors were most important to the K-12 online classroom, etc.) that they were at a disadvantage for understanding the research base on which the rubrics were created and had less of an understanding of the definitions of terms than the teacher group. It is also possible, as an expert in teacher evaluation suggests, "I wonder whether some of critical attributes, and more likely the examples, should be made more specific to the online environment" (C. Danielson, personal communication, March 3, 2015). The rubrics for *Developing Personal Connections* and *Facilitating Interaction* did not meet administrator consensus expectations despite their approval by the teacher group. The reasons stated were based on issues of semantics ("define over involved") or differences in philosophy ("I feel too much weighting is place on student interaction")

or differences in program models ("our program is self-paced). However, the *Providing Feedback* rubric did have an agreement rating and a consensus percentage of 100% for all four levels. This suggests that the expectations for online teachers regarding feedback is much more consistent across MN K-12 online schools.

Recommendations

Through the review of literature and the various iterations of the Delphi study, several recommendations can be made for application in the K-12 online setting. First, it is necessary for K-12 online teachers to have the same access to evaluative tools to improve their practice as those available to teachers who are performing in the traditional classroom, yet at the current time, no evaluation tools specific to the K-12 online setting could be found. The rubrics designed through the process of this study were noted by expert online teachers to be worthy of their approval and the teachers were willing to have their practice measured using all three of the rubrics. At this time, the rubrics should only be used as a supplement to other reputable teacher evaluation tools such as the *Framework for Teaching* (Danielson, 2013) because they do not fully represent all areas of teacher performance, however, they provide a solid start in measuring some of the unique behaviors required when supporting student engagement in the online classroom.

When using these rubrics as part of a teacher evaluation program, specific consideration should be made for the online environment in which they are being used. For schools that function in a blended or hybrid model, these rubrics, along with a more traditional teacher evaluation tool would likely be highly successful. In a school that operates entirely asynchronously or with 1:1 teacher to student ratios, the

rubric for *Facilitating Interaction* would be ineffective in measuring the behaviors of teachers because interaction would look significantly different than what the rubric describes. It would also be ill advised to use these rubrics to measure teachers in cultures where aspects of *Developing Personal Connections* would be considered inappropriate.

The literature reviewed for this study provided a good deal of information regarding evidence-based teacher behaviors that are effective in post-secondary online classrooms. Through the Delphi study it was confirmed that much of the research could be generalized to the K-12 online classroom, according to the expert teacher group. Research specific to teacher immediacy as well as online interaction should be considered for K-12 professional development as expectations for student engagement increase.

The 12 K-12 online teacher behaviors that were noted in the research and confirmed by the expert online teacher group (Table 28) should be taught in teacher preparation programs and supported through school based professional development. The list has strong consensus from the K-12 online teacher group and provides a clear and concise list of suggestions for online teachers to consider. The list however, should not be considered exhaustive. This study was limited to online teacher behaviors specific to improving student engagement and it did not address teacher behaviors connected to instructional design or assessment.

Suggestions for Future Research

The current study provides a basis for evaluating K-12 online teacher behaviors that specifically impact student engagement. However, there are many

facets of K-12 online teaching that would benefit from additional research including instructional design and assessment. Again, these are topics with a wealth of information and research in post-secondary levels, but very little, if any, exists in the K-12 online world.

Another potential area of further research would be validity studies to measure the rubrics developed here. Although they have their foundation in research and have been agreed to by a group of K-12 online educators, the three rubrics (*Developing Personal Connections, Facilitating Interaction,* and *Providing Feedback*) have not yet been used as an evaluative tool or determined to be successful in accurately measuring K-12 online teachers in practice. Danielson (Personal Communication, March 3, 2015) confirms, "I think it's a very good first cut at what is going to be an increasingly important area." The work is not done; further studies comparing online teachers' self-evaluation to measures reported by online administrators using these rubrics would also be helpful in further supporting the effective evaluation of online teachers.

Conclusion

As the world of online education continues to explode, the group of teachers called to support students in that environment will also grow and their practice will need to be evaluated just like their peers who teach in traditional schools. In order to measure them, we need to have tools of evaluation that are unique to the online setting. Although some tools exist for post-secondary online educators, none currently exist for the K-12 online educator, which is why this study was established.

K-12 online educators confirmed that much of the research available regarding evidence-based practices in online education, despite being specific to post-secondary settings, should be considered for application with younger students. Without unique K-12 online research, the studies of college and graduate level students, especially when measuring the positive behaviors of their instructors could be used as a reasonable starting point for elementary and secondary practice. Specifically, behaviors suggested in studies that noted intentional teacher immediacy and interaction were rated as the most effective in supporting student engagement in K-12 online classrooms by the expert teacher group.

Three unique rubrics were developed from the marriage of higher education research and K-12 online educator practice. The rubrics, Developing Personal Connections, Facilitating Interaction, and Providing Feedback (Appendix U, V and W) , provide a strong supplement to other teacher evaluation programs that do not yet highlight the unique skill set of the online teacher. Hopefully these tools will provide a strong jumping off point for further discussion and research about effective online teacher practice at the K-12 level.

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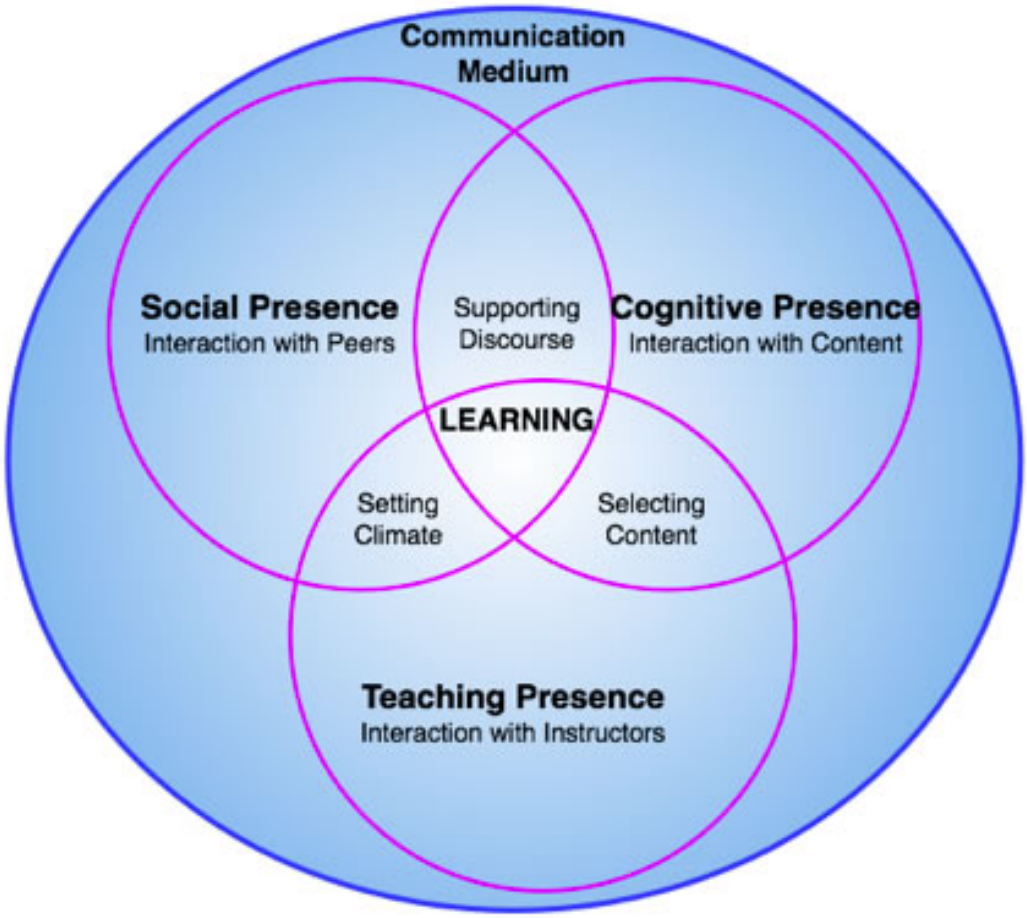
Appendix A: Community of Inquiry (Garrison et al., 2000)



Appendix B: List of Standards for Online Teaching

iNACOL National Standards for Quality Online Teaching

www.inacol.org/.../2013/02/iNACOL_TeachingStandardsv2.pdf

NEA – Guide to Teaching Online Courses

http://www.nea.org/home/30103.htm

SREB Standards for Quality in Online Teaching

http://publications.sreb.org/2006/06T02_Standards_Online_Teaching.pdf

Standards for Course Design for 6-12 Online Courses – Sloan Group

https://www.qualitymatters.org/node/2706/download/QM%20K12%20Program%20Overview.pdf

Standards for Teachers – ISTE

http://www.iste.org/docs/pdfs/20-14_ISTE_Standards-T_PDF.pdf

Appendix C: List of Measures of Online Teaching

Checklist for Online Interactive Learning (Sunal, Odell & Sundberg, 2003)

http://www.edtechpolicy.org/ArchivedWebsites/Articles/ResearchSupportedBestPractices.pdf

Idaho Digital Learning Rubric for Online Teachers

http://www.edutopia.org/pdfs/stw/edutopia-onlinelearning-rubric-teachers-expectation-IDLA.pdf

Rubric for Assessing Interactive Qualities in Distance Courses (Robyler & Wiencke, 2004)

http://www.westga.edu/~distance/roblyer32.html

Seven Principles of Good Practice in Undergraduate Education (Chickering & Gamson, 1987)

http://eric.ed.gov/?id=ED282491

Appendix D: Informed Consent Form

Evaluating Teacher Immediacy Behaviors in K-12 Online Schools

Purpose of the Study: The purpose of this Delphi study, which is a widely used research method used to gather opinions and build consensus among an expert group on a real-world issue, is to determine the teacher behaviors that positively impact student engagement in online settings and to develop a rubric, similar to Danielson's Framework, based on practical expertise and research that could be used in teacher evaluation at online schools.

What will be done: The study has two expert groups; the teacher expert group will participate in three rounds with one survey to be completed during each round. The administrator group will be one round only. Each web-delivered survey should not take more than one hour (and will likely take much less time) and participants will have the opportunity to leave the survey and return to it at a time when it is convenient. Because this is a Delphi study which uses several rounds of web-based surveys, this project may take several months to complete, but is scheduled to be completed by February 1, 2015.

Benefits of this Study: Because this is uncharted territory, and is currently a mandated requirement of MN teacher evaluation, participation in this study could truly make a difference in future online teacher evaluation practices. In online setting, no tools currently exist for teacher evaluation in the area of student engagement. Participants will also receive a copy of the final rubric to be used freely at their institutions.

Risks or discomforts: No risks or discomforts are anticipated from taking part in this study. If you feel uncomfortable with a question, you can skip that question or withdraw from the study altogether. If you decide to quit at any time before you have finished the questionnaire, your answers will NOT be recorded. You may choose to withdraw at any time without affecting your relationship with Bethel University.

Confidentiality: Your responses will be kept completely confidential. The data that will be used for this study will be collected using Qualtrics survey software. Identifiable data such as name, school of employment and email address will be collected in order to determine qualification of participation and allow for follow up contact if necessary during the study. Only this researcher and her advisor will have access to the data. Upon completion of the study, the data will be kept in a safe at the researcher's residence for 2 years. At the end of 2 years, the data will be destroyed. Individuals and school district data will never be identified by name. The research will not include any information about this study in any published works or presentations that will make it possible to identify any participants.

Appendix E: Email Request for Participation

While our MN legislature has mandated that teachers must be evaluated based on student engagement, current guidelines do not account for the unique situation of online education and there are currently no research-based rubrics available to specifically measure teacher behaviors that impact student engagement in online settings.

I am conducting a study to determine the measurable teacher behaviors that positively impact student engagement in K-12 online learning environments for my dissertation at Bethel University. You were identified as a Minnesota online learning provider by the Minnesota Department of Education and **I am hopeful that you would be willing to participate, and forward this information to other teachers and/or administrators at your institution**.

The purpose of this Delphi study is to determine the teacher behaviors that positively impact student engagement in online settings and to **develop a rubric, similar to Danielson's Framework, based on practical expertise and research that could be used in teacher evaluation at online schools.**

Because this is a Delphi study which uses several rounds of web-based surveys, this project may take several months to complete, but is scheduled to be completed by February 1, 2015. The study has two expert groups; the **teacher expert group** will participate in three rounds with one survey to be completed during each round. The **administrator group** will be one round only. Each web-delivered survey should take roughly **30 minutes** to complete and participants will have the opportunity to leave the survey and return to it at a time when it is convenient.

I believe that participants will find that this will be a rewarding experience. Because this is uncharted territory, participation in this study could truly make a difference in future online teacher evaluation practices. **Participants will also receive a copy of the final rubric to be used freely at their institutions**.

If you would like to participate, please use this link Study Screener to access the informed consent information and to answer a few questions necessary to determine expert status for participation. Each expert group will be limited to twenty participants selected randomly from qualified participants. I will personally respond to each person who shows interest in participating. You may also cut and paste this link into your browser window to access the initial screener: https://bethel.qualtrics.com/SE/?SID=SV_8BVCZtkH0NjJqvP

Should you have any questions or comments regarding this process, please feel free to contact me at lsilmser@bethel.edu or 612-965-0992 or contact my supervisor Dr. Mike Lindstrom at mike.r.lindstrom@gmail.com or 612-219-1739. Thank you for your consideration.

Appendix F: Participant Screener Survey

Thank you for your interest in participating in this research study to determine the teacher behaviors that positively impact student engagement in online settings and to develop a rubric, similar to Danielson's Framework, based on practical expertise and research that could be used in teacher evaluation at online schools.

Please answer the following questions to determine your eligibility for this study. Participants who meet the parameters for participation in the expert group will be contacted with additional information for the first round survey.

Name: Minnesota Online School: Preferred Email Address:

I wish to be considered for the following expert group:

- ◯ Online Teacher group
- ◯ Online Administrator group

Years of experience as an online educator:

- ◯ Less than 3 years
- ◯ 3-5 years
- ◯ More than 5 years

What was your designation following your last summative teacher evaluation?

- ◯ Distinguished
- ◯ Proficient
- ◯ Basic or Unsatisfactory
- ◯ Not applicable. I wish to participate in the administrator group.

Which most closely describes your online teaching environment?

- ◯ Mostly synchronous with no instructional face to face time
- ◯ Mostly asynchronous with no instructional face to face time
- ◯ A fairly equal amount of both synchronous and asynchronous with no instructional face to face time
- ◯ Hybrid: a mix of online (either synchronous and/or asynchronous) and face to face time

Informed Consent Form

I would like more information and would like the researcher to contact me.

Thank you. If you have any questions, please contact Lisa Silmser at lsilmser@bethel.edu or 612-965-0992.

Appendix G: Round 1 Survey

What are the behaviors you would expect to see in a student who is positively engaged in an online class?

What are the teacher behaviors that you have seen or personally used to increase or support student engagement in an online setting?

Researchers from higher education suggest that students are more engaged when teachers are intentional with developing personal connections, facilitating interaction, and providing feedback. Are these areas also significant for students at the K-12 level?

	Yes	No	Unsure
Developing Personal Connections	○	○	○
Facilitating Interactions	○	○	○
Providing Feedback	○	○	○

How important are the following teacher behaviors in impacting student engagement in an online setting?

	Not at all Important	Very Unimportant	Neither Important nor Unimportant	Very Important	Extremely Important
Use student names	○	○	○	○	○
Use pronouns "we" and "our"	○	○	○	○	○
Provide appropriate personal information and examples	○	○	○	○	○
Model appropriate levels of self disclosure for the class	○	○	○	○	○
Use humor	○	○	○	○	○
Use video or audio clips for introductions or announcements	○	○	○	○	○
Use extra class communication (email, phone calls or instant messaging, etc.)	○	○	○	○	○
Invite student participation in class activities	○	○	○	○	○
Provide small group opportunities	○	○	○	○	○
Acknowledge specific student contributions	○	○	○	○	○
Discussion Forums: allow students to participate first	○	○	○	○	○
Discussion Forums: provide corporate summaries or note specific student contributions	○	○	○	○	○
Answer questions readily	○	○	○	○	○
Show enthusiasm for course content	○	○	○	○	○
Provide authentic learner-centered assessments	○	○	○	○	○
Personalize feedback	○	○	○	○	○
Provide timely feedback on assessments	○	○	○	○	○

Are there other online teacher behaviors that are critical to increasing student engagement that aren't listed above?

Thank you. If you have any questions, please contact Lisa Silmser at lsilmser@bethel.edu or 612-965-0992.

Appendix H: Round 1 Email

Thank you for your willingness to participate in this study on Measurable Teacher Behaviors that Impact Student Engagement in Minnesota Online Schools. It is my hope that we will be able to develop a quality rubric that will be effective in evaluating online teachers according to MDE's expectation that student engagement be part of the teacher evaluation criteria. Your participation in this study, by sharing your practical expertise, will make a significant difference in the area of online teacher evaluation.

The method used for this study will be a Delphi survey technique for gathering consensus among the expert panel. This will involve 3 rounds of web-based surveys in which you will provide feedback on what the measurable teacher behaviors that impact student engagement in online environment should be. This will involve a time commitment of approximately 30 minutes per survey that can be completed with a two-week time frame. You may leave the survey and return to complete it (as long as you return to it using the same computer you used to start the survey). Your responses will be anonymous to other members of the panel so I encourage you to respond sincerely with what you believe is true based on your experience. Your responses will be collected and the overall results will be used in the next round of the survey.

The first round survey will be open through November 7, 2014. However, if all participants have responded before that time, the survey will close and we will move to the second round. The survey is located at https://bethel.qualtrics.com/SE/?SID=SV_8q3wW0Hp6YrF5hH

Should you have any questions or comments regarding this process, please feel free to contact me at lsilmser@bethel.edu or 612-965-0992. This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

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Appendix I: Round 2 Survey

The participant group identified the following descriptors of student engagement. Please identify and rank the statements that most accurately define student engagement:

	Not at all Important	Very Unimportant	Neither Important nor Unimportant	Very Important	Extremely Important
Consistent login behaviors as defined by school policy	○	○	○	○	○
Assignments completed thoroughly and on time	○	○	○	○	○
High level of participation in discussion forums and/or synchronous class sessions	○	○	○	○	○
Communicative with teachers and peers	○	○	○	○	○
Pacing of progress within course materials is consistent	○	○	○	○	○
Demonstrates interest in subject by asking questions	○	○	○	○	○
Readily asks for help when needed	○	○	○	○	○

The participant group identified the following teacher behaviors as being supportive of student engagement in an online setting. How important are the following behaviors in impacting student engagement in an online setting?

	Not at all Important	Very Unimportant	Neither Important nor Unimportant	Very Important	Extremely Important
Builds rapport with individual students	○	○	○	○	○
Answers questions promptly	○	○	○	○	○
Offers 1:1 interventions	○	○	○	○	○
Listens to students	○	○	○	○	○
Shows enthusiasm for content	○	○	○	○	○
Displays positive and fun attitude	○	○	○	○	○
Demonstrates a willingness to help and support students	○	○	○	○	○
Communicates with parents	○	○	○	○	○
Communicates with students	○	○	○	○	○
Uses various methods to communicate	○	○	○	○	○
Provides personalize feedback	○	○	○	○	○
Provides grades and feedback in a timely manner	○	○	○	○	○
Provides supportive feedback (i.e. separates the person from the work/skill)	○	○	○	○	○
Participates in class activities alongside of students	○	○	○	○	○
Teaches and models organizational skills and strategies	○	○	○	○	○
Teaches and models effective time management skills and strategies	○	○	○	○	○
Plans for students to connect with each other (i.e. in class or through extra activities)	○	○	○	○	○
Teaches the skills necessary to navigate the online classroom (i.e. technology)	○	○	○	○	○

The participant group identified the following teacher behaviors as Neither Important or Unimportant. Please confirm whether or not you agree that these statements are Neither Important or Unimportant to student engagement in an online environment

	Disagree	Neither Agree nor Disagree	Agree
Provide small group opportunities	○	○	○
Discussion Forums: allow students to participate first	○	○	○
Discussion Forums: provide corporate summaries or note specific student contributions	○	○	○
Use pronouns "we" and "our"	○	○	○

The participant group identified the following teacher behaviors as Very Important. Please confirm whether or not you agree that these statements are Very Important to student engagement in an online environment:

	Disagree	Neither Agree nor Disagree	Agree
Use student names	○	○	○
Provide appropriate personal information and examples	○	○	○
Model appropriate levels of self-disclosure for the class	○	○	○
Use humor	○	○	○
Invite student participation in class activities	○	○	○
Acknowledge specific student contributions	○	○	○
Provide authentic learner-centered assessments	○	○	○

The participant group identified the following teacher behaviors as Extremely Important. Please confirm whether or not you agree that these statements are Extremely Important to student engagement in an online environment;

	Disagree	Neither Agree nor Disagree	Agree
Answers questions readily	○	○	○
Shows enthusiasm for course content	○	○	○
Personalizes feedback	○	○	○
Provides timely feedback on assessments	○	○	○

Should teachers be evaluated on their ability to perform these behaviors that have been identified as Extremely Important?

	Yes	No
Answers questions readily	○	○
Shows enthusiasm for course content	○	○
Personalizes feedback	○	○
Provides timely feedback on assessments	○	○

What would a proficient level of "Answers questions readily" look like for you?

What would a proficient level of "Shows enthusiasm for course content" look like for you?

What would a proficient level of "Personalizes feedback" look like for you?

What would a proficient level of "Provides timely feedback on assessments" look like for you?

Do you have any other comments or suggestions related to the topic of Teacher Behaviors that Impact Student Engagement Online?

Thank you for your participation. You will be contacted for the final Round 3 survey in the beginning of December. Please contact me if you have comments or questions.

Lisa Silmser
612-965-0992
lsilmser@bethel.edu

Appendix J: Round 2 Email

Thank you for participating in the study to determine the teacher behaviors that positively impact student engagement in online settings. Your responses to the Round 1 survey have been synthesize with other participant opinions and now require your review for Round 2 of the study.

The second round survey will be open until December 2, 2014 at 11:59pm. However, if all participants have responded before that time, the survey will close and we will move to the third and final teacher round. The survey is located at https://bethel.qualtrics.com/SE/?SID=SV_ebbToEOkUWpbuIJ

Should you have any questions or comments regarding this process, please feel free to contact me at lsilmser@bethel.edu or 612-965-0992.

Thanks again for your participation!

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Appendix K: Round 2 Email Reminder

Thank you for participating in the study to determine the teacher behaviors that positively impact student engagement in online settings. Your participation is essential to the success of this project.

Please complete the second round survey by December 2, 2014 at 11:59pm. The survey is located at https://bethel.qualtrics.com/SE/?SID=SV_ebbToEOkUWpbuIJ

Other participants have found that it takes less than 20 minutes to complete.

Should you have any questions or comments regarding this process, please feel free to contact me at lsilmser@bethel.edu or 612-965-0992.

Thanks again for your participation!

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Appendix L: Round 3 Survey

After reviewing the Facilitating Interaction rubric, rate your level of agreement with the definition and critical attributes provided or each level:

	Strongly Disagree	Disagree	Agree	Strongly Agree
Distinguished Level	○	○	○	○
Proficient Level	○	○	○	○
Basic Level	○	○	○	○
Unsatisfactory Level	○	○	○	○

If you chose Strongly Disagree or Disagree, please provide suggestions for how the definition or critical attributes could be revised to allow you to agree with the statements:

After reviewing the Providing Feedback rubric, rate your level of agreement with the definition and critical attributes provided or each level:

	Strongly Disagree	Disagree	Agree	Strongly Agree
Distinguished Level	○	○	○	○
Proficient Level	○	○	○	○
Basic Level	○	○	○	○
Unsatisfactory Level	○	○	○	○

If you chose Strongly Disagree or Disagree, please provide suggestions for how the definition or critical attributes could be revised to allow you to agree with the statements:

After reviewing the Developing Personal Connections rubric, rate your level of agreement with the definition and critical attributes provided or each level:

	Strongly Disagree	Disagree	Agree	Strongly Agree
Distinguished Level	○	○	○	○
Proficient Level	○	○	○	○
Basic Level	○	○	○	○
Unsatisfactory Level	○	○	○	○

If you chose Strongly Disagree or Disagree, please provide suggestions for how the definition or critical attributes could be revised to allow you to agree with the statements:

If it was mandated that online teachers be evaluated based on their behaviors in these three areas, would you want administrators use these rubrics to evaluate you?

	Strongly Disagree	Disagree	Agree	Strongly Agree
Developing Personal Connections Rubric	○	○	○	○
Facilitating Interactions Rubric	○	○	○	○
Providing Feedback Rubric	○	○	○	○

If you chose Strongly Disagree or Disagree to show that you would not want the rubrics used to evaluate your teaching, please explain why and how the rubric could be improved to allow you to agree to its use.

Please provide any other comments you have for the researcher.

Thank you for your participation. The finalized rubric will be sent to the email you provided in January 2015. Please contact me if you have comments or questions.

Lisa Silmser
612-965-0992
lsilmser@bethel.edu

Appendix M: Round 3 Email

Thank you for participating in this study. Your responses to the Round 1 and Round 2 surveys have been synthesize with other participant opinions and have been used to create a rubric that could be used to evaluate teacher behaviors that impact student engagement in online learning environments.

The third (and Final!) round survey will be open until December 23, 2014 at 11:59pm. It is critical that all participants complete this final round. The survey is located at https://bethel.qualtrics.com/SE/?SID=SV_e3XXSrEJloiR2VT and it is expected that it will take you roughly 20 minutes to complete.

The finalized rubric will be shared with you sometime in January 2015.

Should you have any questions or comments regarding this process, please feel free to contact me at lsilmser@bethel.edu or 612-965-0992.

Thanks again for your participation!

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Appendix N: Round 3 Follow Up Email for Layout Issues

It has come to my attention that one of the participants was not able to view the entire rubric due to the formatting of the survey. On my version, I was able to scroll horizontally in order to view the entire rubric, however, this was not the case for this participant.

In hopes of making things easier for you, I am attaching the rubric file for you to view in full. Be aware that this is a draft form and should not be used to evaluate teachers. It is simply being shared to make completing the survey possible.

Thanks again for your help with this study. The survey is located at https://bethel.qualtrics.com/SE/?SID=SV_e3XXSrEJloiR2VT

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Appendix O: Round 3 Email Reminder

Email Reminder for Round 3 Survey:

Thank you for participating in the study to determine the teacher behaviors that positively impact student engagement in online settings. Your participation is essential to the success of this project.

Please complete the final round survey by December 22, 2014 at 11:59pm. The survey is located at https://bethel.qualtrics.com/SE/?SID=SV_e3XXSrEJloiR2VT

Other participants have found that it takes less than 20 minutes to complete.

Should you have any questions or comments regarding this process, please feel free to contact me at lsilmser@bethel.edu or 612-965-0992.

Thanks again for your participation!

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Appendix P: Round 2 Question 10 Open Ended Responses

Round 2 Question 10: What would a proficient level of "Answers questions readily" look like for you?

Text Response
Depends on course. Teacher should be logging in frequently. Every weekday should be the norm.
Questions answered within 24 hours of being asked.
Within 24 hours
Teacher responds to questions without hesitation. Shows that all questions are "good questions", Teacher responds saying they will get back to them with an answer if they do not have one immediately.
Within 24 hours during the school week and 48 on weekend/vacation
Teacher is open to questions at any time in the lesson and answers the questions when appropriate.
Reply to question within 24 hours
Within 36 hours or have set office hours for direct communication
Respond within twenty-four hours. Depending on the question, I prefer to have a synchronous conversation in which I can gauge whether or not the student is understanding and give the student the chance to ask follow up questions.
Ensures students' questions are being answered in a timely fashion, through specific feedback.
All questions and messages are thoughtfully and appropriately responded to within 24 hours
Positive

Appendix Q: Round 2 Question 11 Open Ended Responses

Round 2 Question 11: What would a proficient level of "Shows enthusiasm for course content" look like for you?

Text Response
This is nearly impossible in an online environment. But being positive about the course and providing good feedback can help.
Continual communication with students both for positive, mediocre, or negative participation and work.
I think it would be tough to show enthusiasm online
Teacher always has excitement for the material, relating it back to real life for the students.
Utilize comments to share an aspect of the content that you found interesting, i.e. plot or character in literature or a bit about the author that helps find deeper meaning in the context of a novel
Teacher remains positive during lesson and continually tries to engage students in the learning by relating content to personal experience of teacher and/or student. Teacher needs to demonstrate knowledge of the content and show excitement of the topics.
Positive attitude about subject
I need to buy in to the importance of the skills I am teaching my students. That means being able to communicate their value in post secondary educational settings and the workplace, or, in some cases, their value in personal betterment.
Being excited about the material while connecting it to real world examples and real life experiences.
Teacher consistently demonstrates enthusiasm for course content to students in live and/or offline-asynchronous interactions.
Readily displays enthusiasm for course content

Appendix R: Round 2 Question 12 Open Ended Responses

Round 2 Question 12: What would a proficient level of "Personalizes feedback" look like for you?

Text Response
Using name, grading the specific students work.
The comments are directed to the learner, not generic comments i.e. provided by learning platform.
Able to let them know about any insights they shown during journals and discussions
Provides feedback based specifically on the students submission rather than a canned comment. In a live session, responds to student answer with name and what you like/dislike about their response.
Uses students name and provides feedback for the student comments and constructive criticism
Feedback gives specific notes for how the student did and where corrections could be made and also pinpoints where in the course the information can be found.
Send encouraging messages and comments related to work completed
Use first names, know some personal interests
Above explaining how proficient a student is at any given skill as demonstrated on an assessment, also looking for individual growth. A focus on improvement. This means keeping track of individual students and commenting on their progression.
Commenting on specific aspects of a students work. Connects the feedback to the individual's work and/or person.
Teacher often uses unique messaging and feedback for student interactions, including email responses and student work evaluation.
Always personalize feedback

Appendix S: Round 2 Question 13 Open Ended Responses

Round 2 Question 13: What would a proficient level of "Provides timely feedback on assessments" look like for you?

Text Response
Feedback should be reasonably quick. However, immediate feedback is unreasonable.
Within 24 hours, unless a lot of short-answer grading, then within 48 hours.
Feedback should occur within a 24 hour period
Tests are corrected within 24 hours of submission.
Within 24 hours school week and 48 during weekends/vacations
Teacher reviews submissions within twenty-four hours and replies with feedback specific to the assessment.
Grade assessments within a 24 hour period
Built in feedback within assessment or written upon grading. Within 48 hours
For papers, I would say at least within two weeks. Our school actually has a policy that papers be graded within one week. That's doable, but barely. For other assessments, within two or three days.
Ensuring grades are updated within a couple days of submission.
Teacher consistently provides appropriate feedback on assessments within 7-10 days of the assessment. (This one is extremely loaded as there are so many variables in each assessment.)
I attempt to check student work and reach out to them daily. However, occasionally a full daily class schedule with evening meetings or commitments as well as temperamental rural provider service prevents daily contact.

Appendix T: Round 2 Question 14 Open Ended Responses

Round 2 Question 14: Do you have any other comments or suggestions related to the topic of Teacher Behaviors that Impact Student Engagement Online?

Text Response
Bottom line, the STUDENTS are the ones that are responsible for the work. As the teacher, I am there to assist. The students still need to choose to do the work and complete the work.
A teacher should be as totally engaged with the learners as possible, letting them know they are important and why they are online.
let them know that if you do not have an answer, tech. problems, you try to find someone who does.
Willingness to contact student frequently to urge them to complete work. You cannot be reticent about making contact student then parent and school. The school contacts are invaluable at helping me reach students. I also call since we are completing asynchronous and fully online. It's a personal touch in a sterile, online environment and it is very effective. Parents also generally appreciate phone calls over email.
Maintaining a positive attitude about the school, etc. and treating each student like they are the most important student to you.
Allow flexible completion timeframes and differentiated delivery
I find that students are more engaged when they have relationships with teachers and other students. I try to have conversations with students that aren't academic in nature. They often like to talk about their own interests
I believe it is essential for the teachers to be available to answer student questions in a timely manner.

Appendix U: Developing Personal Connections Rubric

Developing Personal Connections	
Unsatisfactory • Level 1	**Basic • Level 2**
The teacher's rapport with students is either too casual or too formal such that students are distracted or uncomfortable. The teacher does not know students by name and cannot offer any unique characteristics of their students. Communication between the teacher and the student is content based only and is not personalized at all, or communication is overly personal and does not connect to learning.	The teacher makes an effort to build rapport with the students through humor or personal stories, however the relationship is still forming. The teacher shares personal information appropriate for the classroom, but students may not reciprocate. Communication between the teacher and student is specific to content only and personal interests do not connect with class.
Critical Attributes:	*Critical Attributes:*
• The teacher does not know all of their students by name. • The teacher does not know any unique personal information about their students. • Communication outside of class is either too casual and does not connect to learning or does not exist.	• The teacher knows and uses student names, but may not always pronounce or spell them correctly. • The teacher makes attempts to connect content to general student interests. • The teacher attempts to question students about appropriate personal information but students offer little response. • Communication outside of class uses student names, but does not connect with unique student needs or interests.

Appendix V: Developing Personal Connections Rubric Continued

Developing Personal Connections	
Proficient • Level 3	**Distinguished • Level 4**
The rapport between the teacher and the student is characterized by familiarity and comfort. The teacher knows the unique interests of the student and shares appropriate personal information about themselves while still holding to professional boundaries. Communication between the teacher and student is comfortable and supports learning.	The rapport between the teacher and the student appears effortless and suggests that they have been effectively working together for some time. The teacher clearly knows the student's needs and interests and is able to connect these with course content. Communication between the teacher and the students is comfortable and supports learning. The teacher knows the student well enough to anticipate their needs.
Critical Attributes:	*Critical Attributes:*
• The teacher knows and uses student names with correct pronunciation or spelling. • The teacher connects course content to individual student interests. • The teacher regularly follows up on previous communications about personal information that students have shared. • Communication outside of class, via phone, email or messaging is personalized to individual student needs or interests.	• The teacher knows and uses student names or nicknames correctly. • The teacher connects course content to individual student interests and anticipates areas of need. • The teacher follows up on previous communications about personal information that students have shared and builds on it to advance learning. • Communication outside of class is personalized to individual needs or interests.

Appendix W: Facilitating Interaction Rubric

Facilitating Interaction* **This domain assumes that students are participating in an online course where access to the other students in the class is possible and interaction would be supportive to learning. Teachers in 1:1 online learning environments would not be evaluated*	
Unsatisfactory • Level 1	**Basic • Level 2**
The online learning environment is teacher centered and does not allow for interaction between students and their peers. The teacher does not, or rarely, provides opportunities for student interaction. There is no acknowledgment of student contributions.	The online learning environment is a mix of teacher centered and learner center interactions. The teacher offers some opportunities for students to interact with peers, the content and with the teacher. Although opportunities are provided, the teacher may still become over involved and cause interaction to be stilted. The teacher periodically acknowledges the work of students to the class.
Critical Attributes:	*Critical Attributes:*
• The teacher does not encourage students to discuss or share ideas with each other. • The teacher does not provide shared feedback for groups or the class. • The teacher relates with each student individually	• The teacher provides opportunities for students to participate in class activities. • The teacher allows students to work together upon request. • The teacher acknowledges individual student contributions to that student. • The teacher provides individual feedback to students, but does not provide group or class feedback • The teacher sometimes waits before offering assistance.

Appendix X: Facilitating Interaction Rubric Continued

Facilitating Interaction*	
Proficient • Level 3	**Distinguished • Level 4**
The online learning environment is learner centered and allows for regular interaction between students and their peers, students and the content, and between the students and the teacher. The teacher consistently provides and encourages opportunities for interaction and routinely acknowledges the work of students to the class.	The online learning environment is learner centered and allows for ongoing interaction between students and their peers, students and the content, and between students and the teacher. The teacher has modeled interaction to a level that students expect it. The work of students is acknowledged by both the teacher and the students.
Critical Attributes:	*Critical Attributes:*
• The teacher invites the participation of students in class activities. • The teacher creates situations where students interact with each other. • The teacher creates situations where the students interact with the content in small groups. • The teacher acknowledges individual student contributions to the class. • The teacher provides shared feedback to the group or class. • The teacher allows students to engage with each other and the content before they offer assistance or guidance.	• The teacher invites students to participate in creating interactive class activities. • The teacher consistently offers small group activities. • The teacher encourages students to acknowledge individual student contributions. • The teacher provides shared feedback to the group or class. • The teacher skillfully participates in class activities as a fellow learner.

Appendix Y: Providing Feedback Rubric

Providing Feedback	
Unsatisfactory • Level 1	**Basic • Level 2**
The teacher provides generic feedback to the student. Feedback is provided when it is available rather than at a predictable rate. The teacher does not answer all questions or answers them too late to be helpful.	The teacher provides some personalized and some generic feedback in a timely manner. The teacher shows general enthusiasm for their course content. The teacher readily answers questions.
Critical Attributes:	*Critical Attributes:*
• The teacher responds to direct requests from students at varying intervals such that students cannot predict when they will get a response. • Grades are not updated regularly. • The teacher provides generic feedback. • Feedback to students focuses on errors and does not provide support for improvement. • Feedback is not provided to students prior to the next assessment. • Teacher feedback does not communicate enthusiasm for course content.	• The teacher responds to direct requests from students within 48 hours during the school week. • The teacher updates grades at agreed upon intervals. • The teacher provides a mix of personalized and generic feedback to individual student work. • Feedback to students focus on areas for improvement with limited comments on student growth. • Teacher feedback communicates enthusiasm for course content.

Appendix Z: Providing Feedback Rubric Continued

Providing Feedback	
Proficient • Level 3	**Distinguished • Level 4**
The teacher provides personalized feedback to students in a timely manner. The teacher shows enthusiasm for student growth and readily answers questions.	The teacher provides students with the means to self-evaluate. The teacher provides personalized feedback in a timely manner and prior to the next assessment. The teacher shows enthusiasm for student growth and readily answers questions.
Critical Attributes:	*Critical Attributes:*
• The teacher responds to direct requests from students within 24 hours during the school week. • The teacher updates grades at agreed upon intervals. • The teacher provides the student with feedback specific to their individual work. • Feedback to students focuses on their individual growth and suggestions for continued improvement. • Personalized feedback includes student's name • Teacher feedback communicates enthusiasm for course content and connects learning to student interests.	• The teacher responds to direct requests from students within 24 hours during the school week. • The teacher updates grades at agreed upon intervals. • The teacher provides opportunities for students to get immediate generic feedback as well as personalize feedback on their work prior to the next assessment. • Personalized feedback includes student's name • Teacher feedback communicates enthusiasm for course content and connects to student interests.

Appendix AA: Quotations From Personal Email Communication with Charlotte Danielson

Quotations from Personal Email Communications with Ms. Charlotte Danielson
February and March 2015
Used with permission

- "I think it's going to make a real contribution."

- "I think the work does, indeed, fill a "hole" that we've been trying to think about how to fill."

- "I wonder whether some of the critical attributes, and more likely the examples, should be made more specific to the online environment."

- In a comment related to the rejection of discussion forum behaviors as critical in the K-12 online setting, Ms. Danielson writes, "I wonder, too, whether it has to do with the challenge of leading discussions. We know that 3b in the FfT is one of the more difficult for teachers to do well – they tend to engage in recitation-style questioning and discussion. Of course, that would raise the question of whether at the higher ed level instructors are more skilled in this area."

- "These are really important findings, but I trust that you are explicit (and perhaps it's in the earlier chapter) that the results are based on perceptions and self-report data, not hard measures. At least, I'm assuming that's the case – that's what it sounds like here."

- "Do you propose a formal validation study?"

- "I think it's a very good first cut at what is going to be an increasingly important area. It's a relatively new field, and people would appreciate guidance, I would think."