Spring 5-14-2021

Designing Effective Online Courses: Exploring the Relationships Amongst Teaching Self-efficacy, Professional Development, Faculty Experience, and Implementation of Effective Online Course Design Practices

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by

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A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Education (Ed.D.) in Educational Leadership at

Minnesota State University, Moorhead

March 29, 2021

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ACKNOWLEDGEMENTS

There are many who have contributed to the success of this project. I want to take this opportunity to thank them.

First, I wish to express my deepest appreciation for the support, advice, and encouragement provided by my dissertation advisor and committee chair, Dr. Ximena Suarez-Sousa. The completion of my dissertation would not have been possible without her cheerful support, patience, expertise, and guidance. She clearly puts the success of her students at the forefront of all she does, and I am so fortunate that she was available to advise me on this very large project.

I'm also I'm extremely grateful to my committee, Dr. Kimberly Johnson, Dr. Tracy Wright, and Dr. Kristen Carlson for their work to improve this project through their advice, support, and detailed feedback. I knew they were in "my corner" throughout the entire study. Thank you for your time, wisdom, and encouragement.

Many thanks also to our "coffee support group" that met regularly during this last long stretch to keep each other on task. This includes my peer colleagues in Cohort 2: Angie Brekken and Rachelle Hunt. I appreciated their helpful and practical suggestions as well as their availability to serve as a sounding board when needed as the inevitable frustrations and life constraints presented themselves.

I am also deeply indebted to the individuals who participated on the Content Evaluation Panel for the questionnaire, to the individuals who piloted and provided feedback on the questionnaire, to all of the individuals who completed the Phase I questionnaire, and to the individuals who opened their courses for the purposes of completing Phase II of the study. With the COVID-19 pandemic looming over everyone with all of the inherent uncertainties, concerns,

and extra work burdens, I am beyond grateful that all of these individuals found the extra bit of time needed to participate and contribute to the success of this project.

Finally, to my husband, Tim: your love, understanding, and unwavering belief in me made this possible. You earned this degree right along with me. Thank you for all you do.

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ABSTRACT

How best to prepare and support faculty to design and teach effective online courses is a topic of great significance to higher education institutional leaders and faculty developers. This research project was motivated by several research questions that were formulated to explore how specific demographic characteristics including online teaching experience, hours of professional development completed, gender, institution type, whether or not the participant has participated in a Quality Matters official course review, and whether or not the participant had experience as an online student were related to online teaching self-efficacy and the extent to which participants reported implementation of effective online course design practices. Using a non-experimental sequential quantitative correlational explanatory research study design, data were collected using a questionnaire and a course review component. Participants included 104 online faculty from a large public higher education system located in the upper Midwest that includes both community colleges and universities. The study also included an external review of six online courses. The findings suggested that both online teaching self-efficacy and self-reported ratings of implementation of effective online course design practices were higher when individuals have completed at least 20 hours of professional development meant to prepare them to teach online, have participated in a Quality Matters official course review, have experience as an online learner, and have experience as an online instructor. The findings offer insights into how those with varying levels of online teaching self-efficacy rate their online course design practices and suggest that faculty may not be able to accurately self-assess their course design abilities. Specific findings related to a subset of participants who were new to teaching online due to the COVID-19 pandemic are included. The results, implications for those who are

planning for and providing professional development meant to prepare faculty to teach online, and future research are discussed.

Key words: *online teaching self-efficacy, Quality Matters, online course design, faculty development, community college faculty, university faculty, COVID-19 pandemic.*

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CHAPTER 1. INTRODUCTION

Online education has continued to grow even as higher education institutions are facing declines in enrollment in face-to-face courses (Garret et al., 2020). Faculty are often not well prepared or supported to create and successfully deliver online courses using effective practices that will create quality courses that support student learning, satisfaction, and satisfactory completion (*EDUCAUSE 2019 Horizon Report Preview*, 2019). The reasons for the lack of faculty preparation are varied but are frequently related to the simple fact that faculty who teach online have not been required to complete professional development specifically related to best practices in teaching in a technology-mediated environment before assuming the role of the online teacher (Hardre, 2017). Additionally, when faculty development opportunities are available, faculty are left to determine what type of professional development they feel will best fit with their interests and meet their self-identified needs (Mohr & Shelton, 2017). This approach further exacerbates the unequal nature of faculty preparedness to successfully teach online which, in turn, impacts student learning and success.

Brief Literature Review

Nationally and regionally, the number of online courses and programs continues to grow although the pace of growth has slowed. Various surveys and resources indicated that the percentage of courses being offered online at institutions of various types and sizes in the United States continues to grow (Garrett et al., 2019; Magda, 2019; Seaman & Seaman, 2017). In the

Distance Education State Almanac 2017, Seaman and Seaman (2017) indicated that in 2017, 29.7% of all higher education students in the United States have or are taking at least one online course and that in Minnesota, that percentage is about 43%. Garret et al. (2019) also found that nationally institutions reported having plans to expand or grow their online programs in the coming years and that this goal is seen as important for two reasons: to increase enrollment and revenue; and, to meet student and industry demands.

As online courses and programs increase, the need for faculty who are prepared to create and deliver online courses also becomes greater. Higher education faculty who teach online are expected to be experts in their discipline and to be proficient at providing effective online learning experiences for their students. Inconsistent participation in faculty development activities meant to improve teaching and learning practices is a problem that is commonly cited by individuals who organize and deliver these professional development experiences and activities for faculty. For faculty who design and teach online courses, there is an additional expectation that they can effectively integrate technology and pedagogically sound design practices into their online classroom. How well the professional development provided meets the needs of the faculty member is strongly correlated to the quality of the online programs being delivered (Baran & Correia, 2014).

The *EDUCAUSE Horizon Report* is an annual report that summarizes key trends, significant challenges, and important developments in educational technology. In the 2019 report, the authors stated that the need to rethink the role of the instructor and how faculty development is provided and supported is a *wicked challenge.* Wicked challenges are defined in the publication as those challenges that are complex to define and difficult to address. Specifically, the report indicated that the role of the instructor is changing to one of facilitator

and curator and explained that this changing role means that there is a need to reevaluate the role of teaching and instruction. This also includes changing the focus of faculty development related to course design strategies and teaching practices. The wicked challenge is that there is a need for strategically planned faculty support and that "without sufficient access to sustained support and the tools and resources essential in the design of a student-centered environment, instructors are challenged to create these experiences on their own. Managing the changing practice of teaching requires that institutions intentionally design faculty support that is not bound by location or time" (*EDUCAUSE 2019 Horizon Report Preview*, 2019, p. 7). As the role of the faculty is changing, so too is the role of those who supervise and support them. The administrators charged with supervising and supporting the work of the faculty must also change how resources are allocated in order to support the professional development needed.

In a recent survey of senior online learning officers from institutions of varying types and sizes across the United States, the study authors found that approximately forty percent of institutions do not require their faculty to complete any type of professional development to teach online (Garrett et al., 2020). Of those who do provide professional development, the primary topics and percent offering the training included:

- Learning Management System (LMS) and technology (57%)
- Quality standards and assurance measures (50%)
- Institutional rules and policies (50%)
- Use of resources and pedagogy (49%)

The study authors reported that the percentage for institutions that require professional development was higher in community colleges (61%) and regional universities (64.5%) than in the respondents overall.

Linder and Hayes (2018) provided an overview of a variety of practices that are described as High Impact Practices (HIP) for online education. The explanations and examples of these

HIPs are meant to guide both administrators and faculty regarding ways to improve the learning experience for online students. Woven throughout the various chapters is a common theme of the need for faculty development in the areas of "effective technology use (what tools to use and when), relevant and embedded direct assessment, effective communication and engagement strategies, integration of effective pedagogical approaches, and consistent and clear course structure" as being essential for implementing the HIP and increasing the quality of the learning experience (p. 215-216).

Baldwin et al. (2018) stressed the importance of using quality standards or evaluation processes to assure quality in online courses. They succinctly explained why this is critical by saying

> Building a course without quality standards is like building a house without safety and building codes. Such construction would leave homes (and online courses) a jumble of ad hoc choices, lacking potentially important elements. Evaluation of online course design may provide validation and continual improvement for stakeholders. High quality courses are more likely to maximize user satisfaction and encourage better learning outcomes. (p. 56)

The literature includes many studies about faculty motivation, the role of faculty in designing online courses, and increasingly provides insights into the role of instructional designers in supporting faculty. Diehl (2016) provided a summary of the online faculty teaching competencies articulated by various organizations and researchers. Additionally, several studies examining the role of self-efficacy concerning how faculty feel about their ability to teach online courses or their willingness to move to an online delivery modality have been published

(Anderson et al., 2016; Corry & Stella, 2018; Fishback et al., 2015; Horvitz et al., 2014; Magda, 2019; Richter & Idleman, 2017).

There appears to be a gap in the literature regarding the relationship between faculty self-efficacy for online teaching, faculty experience or background, professional development completion, and the implementation of effective online course design practices. Research into the relationships among self-efficacy beliefs related to online teaching, teaching experience, professional development choices, and course design expertise is needed to further explore how these constructs are related. This information may be beneficial to those planning and funding professional development programming for new and experienced online faculty.

Statement of the Problem

It is unknown if faculty who are designing and teaching online courses are accurately assessing their skills and abilities to do so effectively. Inaccurate self-perception may lead these faculty to forego professional development opportunities that would support their professional growth and development in areas where it is most needed. It is also not known if certain types of professional development are more likely to lead to course design improvements that are consistent with what is known about effective online course design practices. Professional development meant to prepare novice and experienced higher education faculty to design and teach effective online courses is not always provided in formats and times that are convenient for faculty and it is not known if what is offered leads to the intended outcome of improved courses. Additionally, there are instances where faculty who have a high sense of self-efficacy are taking a “do it yourself” approach to learning how to design and teach online courses or who have developed their own set of best practices to follow in the design of their courses. Taken together, this uneven and potentially lacking preparation to teach online may leave faculty without the

requisite skills or knowledge necessary to create online and blended courses that support student learning and success.

Purpose of the Study

The purpose of this study was to investigate what relationships exist between the self-efficacy ratings for online teachers when compared to their teaching experience levels, their professional development, and the degree to which they have implemented effective online course design practices as compared to nationally recognized effective online course design practices. Many public institutions in higher education do not have the resources, support, or professional development to provide a consistent approach to the design and delivery of online courses. Many faculty begin teaching online with limited preparation, professional development, and support. They may have developed their online course design based on previous face-to-face teaching experiences. This study aimed to identify more specifically what the relationships are amongst online teaching self-efficacy beliefs, professional development completion, faculty teaching experience, and the implementation of effective online course design practices.

Research Questions

Primary Research Question

1. What are the relationships among online teaching self-efficacy, higher education instructors' online teaching experience, professional development, and implementation of effective online course design practices?

   H0: There are no significant relationships between online teaching self-efficacy beliefs, higher education instructors' teaching experience, professional development, and online course design effectiveness ratings.

H1: There are significant relationships between online teaching self-efficacy beliefs, higher education instructors' teaching experience, professional development, and online course design effectiveness ratings.

Secondary Research Questions

2. What levels of online teaching self-efficacy do online faculty possess?
3. To what degree do particular demographics impact levels of online teaching self-efficacy and ratings of the importance of online teaching competencies?
4. To what degree do particular demographics impact self-perception of implementation of effective online course design practices?
5. What are the differences between online course design practices of higher education online instructors with a perceived high or low sense of online teaching self-efficacy based on the type of professional development completed and course design supports used prior to designing an online course?
6. How does the course design by higher education online instructors with a perceived high sense of online teaching self-efficacy correlate to nationally recognized effective online course design practices?

Definitions

Key Terms

1. Online learning: "the use of the Internet to access learning materials; to interact with the content, instructor and other learners; to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience" (CITATION DELETED).

- Blended learning: a combination of face-to-face and online learning that includes a mix of the two modalities, the percentage of which "can vary based on consideration of differences in course content and the level of student comfort with online learning" (Potter, 2015, p. 4).
- Emergency Remote Teaching (ERT): "a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances. It involves the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that format once the crisis or emergency has abated" (Hodges et al., 2020, p. 7).

Variables

The following are the variables of study:

Predictor Variable:

- Online Teaching Self-Efficacy
    - Constitutive definition: The concept of self-efficacy, originally developed by Albert Bandura, is based on this simple definition: Self-efficacy involves "People's beliefs about their capabilities to produce effects" (Bandura, 1994, p. 71). Teaching self-efficacy, according to Corry and Stella (2018), is "a measure of the degree to which a teacher believes he/she has the ability to perform correctly the tasks suggested as best practices for teaching" (p. 8). Online teaching self-efficacy takes this one step further and looks specifically at the knowledge, skills, and abilities needed by teachers to be effective in the online context.

- Operational definition: The various competencies necessary to effectively teach online courses were defined by Gosselin (2009) and resulted in an instrument known as the OTSEI (Online Teaching Self- Efficacy Inventory) which specifically measures online teaching self-efficacy.

Outcome Variable:

- Effective Online Course Design Practices (also known as *quality* practices)
  - Constitutive definition: Several sources and rubrics attempt to define specific effective or best practices that are necessary for designing an online course. One of the most universal and recognized sets of rubrics was created by Quality Matters. The *Standards from the Quality Matters Higher Education Rubric, 6th Edition* (2018) is a current, research-supported, practice-based set of quality standards that are meant to guide the course design decisions of faculty and/or instructional designers.
  - Operational definition: For this study, the effective online course design practices variable was measured using two instruments that were developed for this study. These instruments are based on the *Standards from the Quality Matters Higher Education Rubric, 6th Edition* (2018).

Intervening Variables:

1. Demographics (Refer to Appendix B, Phase I Questionnaire, items 1 – 8 for an operational definition):
   a. Age
   b. Gender (Male, Female, Non-binary)
   c. Ethnicity

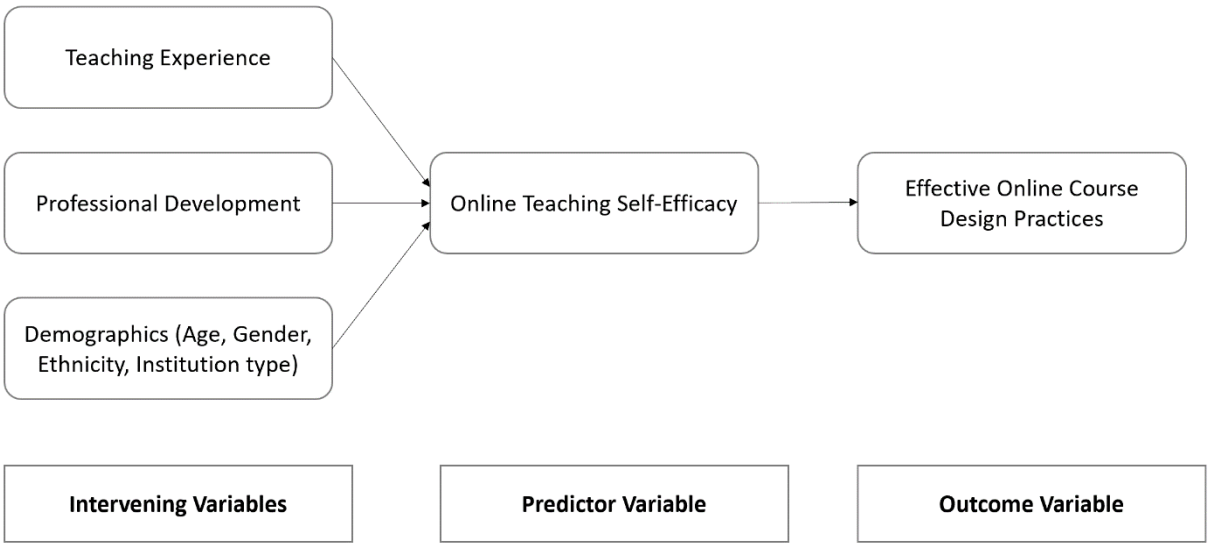
    d. Institution type

2. Teaching Experience (Refer to Appendix B, Phase I Questionnaire, items 9 for an operational definition):
    a. Face-to-Face (F2F) teaching experience in higher education expressed in the number of years
    b. Online teaching experience in higher education expressed in the number of years
3. Professional Development
    a. Professional Development Completion as reported by faculty
    b. Professional Development Preferences (Refer to Appendix B, Phase I Questionnaire, item 10 for an operational definition)

The expectation was that several variables contribute to online teaching self-efficacy and ultimately to effective online course design practices. Figure 1 illustrates the expected relationship of these variables.

Figure 1

Illustration of Relationship of Study Variables



Significance of the Study

The impact of quality course design on student satisfaction and student learning cannot be overstated. Many factors have an impact on the quality of an online course and the preparedness of faculty to create and deliver a quality learning experience is one of those factors (Ali et al., 2005; Meyer & Murrell, 2014; Stupnisky et al., 2018). Faculty experience, professional development choices, and online efficacy beliefs all impact the decisions faculty make that contribute to the design and quality of an online and/or blended course. Determining how the variables in this study are related is important to determine how best to support faculty in providing quality learning experiences for the students they serve.

Joosten and Cusatis (2019) specifically studied the student perspectives of the design characteristics of their online courses. Their findings indicated that student satisfaction and their perception of learning are significantly impacted by not only the design and organization of an

online course but also the learner support, course interaction (including both student-student and instructor-student), overall content design and delivery, and assessment. Jaggars and Xu (2016) also looked at the course design features. They reviewed features commonly found in course design rubrics and explored the impact of the various features on student learning outcomes. They determined that the quality of personal interaction between the instructor and the student had a positive impact on student grades.

Barcyzyk et al. (2017), in a study of 3,160 students involved in 31 colleges and universities across the United States found that online students "value clearly stated learning objectives, easy-to-understand grading policies, assessment strategies that provide feedback, and appropriate methods for submitting assessments" and went on to describe that "this is critically important, especially for instructional designers and faculty members designing online courses, as it reinforces the notion that clear learning objectives and alignment within online courses are important to all learners" (p. 181). Their study highlighted the importance of ensuring good course design decisions because online students have high expectations for quality course design considerations including course alignment among objectives, assessments, and learning activities. They also found that students value organization, navigation, accessibility, opportunities for learner interaction and learning community, clear explanations for grading, specific criteria for how the coursework will be assessed, and clear expectations for student performance in general.

Researching the role of self-perception of faculty in making decisions regarding learning about best practices may provide further insights into the implementation of those practices. Stupnisky et al. (2018) noted that "not all faculty members use best practices when teaching despite their well-documented effectiveness" (p. 15) in improving the quality of teaching and

improving student gains. Ali et al. (2005) identified that perceived faculty expertise to teach online is important and explained that faculty participating in professional development have varying levels of expertise. These faculty, therefore, need different types of training and support to be successful online educators and recommended that it is important to "identify the level of perceived expertise of faculty in online teaching and the priorities of areas to be addressed in faculty development sessions" (p. 33). In their study, Horvitz et al. (2014) suggested that given the various roles that online faculty are asked to play in designing and teaching an online course, examining the self-efficacy of online faculty might yield information useful for institutions to use in supporting the faculty transition to becoming an online instructor.

This study solicited participants from a system of higher education located in the upper Midwest. Brown et al. (2020) completed an action research project related to faculty development in that same system of higher education. While their study was broadly focused on faculty development across modalities, the issues identified regarding the complexities of supporting faculty with differing needs are perfectly summarized in their report. They indicated that,

> Faculty needs are great. New teachers need opportunities to learn teaching and assessment strategies and apply them, they need to collaborate with peers and mentors, and develop relationships with colleagues. Novice teachers need opportunities to gain exposure to new approaches to curriculum delivery, using their classroom experiences to enhance their learning and to further apply what they learned from their own schooling to their classrooms and assess that application. Mid-career teachers also need support; we might assume seasoned faculty know what they are doing, but faculty don't know what they don't know. We can help them see where they can improve. Administrators who

> evaluate faculty on their teaching, many of whom have been out of the classroom for a long time, could also benefit from professional development. Assessment of program effectiveness is critical at all levels, and a perceived lack of time as a barrier to participation creates an impossibility that is difficult to surmount. (p. 1)

The academic leaders who prepared the report focused their comments in part on the sentiment that this researcher expressed at the outset of the study. Faculty *don't know what they don't know* and therefore, may not be in the best position to determine what type and amount of professional development will best support them to become skilled and effective online faculty.

In my professional experience, when faculty are presented with an option to participate in professional development or learning activities related to various quality assurance activities (e.g., best practices for teaching, improving course design, integrating technology using sound pedagogical principles) many opt-out of the experience or activity if given a choice. For the past several years I have been involved with both coordinating professional development for faculty, with facilitating professional development related to effective practices in online education, and in overseeing peer course reviews for online courses that are meant to validate that effective online course design practices have been used in the design of online courses. In that time, I have been struck by the fact that faculty beliefs regarding their abilities to design effective online courses are sometimes not accurate. Another phenomenon I have encountered is that those who complete professional development workshops or topics related to the improvement of online course design, do not always implement what they have learned in their online courses.

In a small research project, McMahon and Stark (2015) sought to determine how online instructors rate their course design abilities to meet Quality Matters standards and whether or not online instructors overestimate their abilities to do so. Participants included individuals from 28

institutions within the Minnesota State system. This public higher education system is comprised of 37 community colleges and universities. Of the 120 faculty who responded to the survey, responses to questions related to the ability to teach effectively online, write measurable learning objectives, effectively assess students online, and effectively communicate course information online were all answered with *agree* or *strongly agree* by approximately 90% of the participants. The only items rated lower than 70% were related to creating accessible course materials. The authors included comparison data of QM course review aggregate reports for this same group of faculty that indicated that standards related to learning objectives, assessment, communicating course information, and accessibility were standards that were not met as often as other standards. While it was not possible to do a direct correlation of participant responses to review outcomes, when the aggregate data were compared to the survey responses, it demonstrated a significant mismatch between what faculty were reporting and what an external review revealed. This led to an assumption by these researchers that faculty are over-estimating their ability to design effective online courses.

Meyer and Murrell (2014), in a large national study of content and activities for faculty development, stated that "faculty members have the curiosity, interest, and drive to become better teachers in their online courses" (p. 16) and they cautioned that it is important to remember that faculty are not a homogenous group with the same needs and interests. Meyer (2013) suggested that there is a need for studies that delve into understanding the differences among faculty in terms of personal and professional variables as well as their learning preferences. She also suggested that there should be studies that seek to capture how these individual variables and learning preferences impact involvement and overall outcomes. Lian (2014) suggested that future research might investigate professional development needs for

online faculty at various career stages, especially the needs of established or tenured faculty who may not have the same motivations for advancement that younger faculty might have. Also suggested was the need for research in demographic influences on motivation, value, and perception of professional development. Mohr and Shelton (2017) suggested that understanding the professional development needs of more experienced faculty is important to improve participation.

Rhode et al. (2017) described that, too often, professional development meant to prepare faculty for online teaching is offered as a one-size-fits-all model that fails to consider the skills, knowledge, and abilities faculty may already have. They described the use of an online teaching readiness self-assessment tool that could be used to create personalized professional development offerings for faculty. The authors suggested that a self-assessment tool could be useful for helping faculty with an accurate self-evaluation of their online teaching skills and self-reported proficiencies.

Providing professional development choices was frequently recommended as a way to motivate faculty participation, however few of the studies I reviewed focused on whether or not faculty are making informed choices related to the professional development they choose to participate in and complete relative to their knowledge and skills or if they are choosing sessions based on interest and availability. This leads to several questions such as:

- Is someone who is a novice with a particular skill or teaching approach in the best position to decide what professional development is needed?
- If instructors over-estimate their ability or proficiency, will they choose the professional development options that will best prepare them to serve students effectively?

- For faculty who choose not to participate in professional development meant to prepare them to design courses that are based on effective course design practices, how do they prepare themselves to take on this new role? Are there specific professional development types or resources that they prefer to use?

In order to seek answers to these questions, a literature review and research were needed to identify how the factors of online teaching self-efficacy, professional development, and teaching experience are related.

Whether described as self-perception, self-efficacy, or self-evaluation, how faculty view their ability to effectively design and teach online courses plays a role in the decisions they make to participate in and complete professional development and certainly impacts the course design decisions they make when creating an online course. The expectation was that what was learned in the study would lead to alternate or additional approaches for providing, encouraging, and supporting professional development for online faculty. This might impact those tasked with developing and delivering faculty development activities. Additionally, this information may be of value for individuals such as academic administrators who make decisions regarding the type of resources, professional development, and support to provide for online faculty. Meyer (2013) stated that "faculty development in online teaching is a critical foundation for quality online education" (p. 93) and suggested that decreasing higher education budgets will impact the decisions made by faculty developers to allocate resources for different types of professional development. This makes maximizing the effectiveness and participation in the faculty development that is provided increasingly important.

On a personal level, from 2012 - 2019, I was deeply involved in a quality assurance project sponsored by the Minnesota State Educational Innovations system office. This quality

assurance project involved encouraging faculty to participate in professional development related to best practices for online course design and delivery, providing academic administrators with information about the skills and resources faculty need to be successful at designing online courses, and ultimately, involved focusing on strategies for faculty, administrators, and institutions that improve the online student learning experience. While I am no longer in that position, this research project was directly related to that work and similar work that I will be doing in the future. What I learned as a result of this dissertation work and study may lead to opportunities for publication in online learning journals and conference presentations. It may also lead to additional studies that explore this topic through different lenses. It may be possible that the study could be replicated by others who could use it in different higher education contexts and for different purposes.

In March 2020, many colleges and universities were faced with making determinations for how to support ongoing teaching and learning following campus closures due to the Coronavirus disease (COVID-19) pandemic. To support continuity of instruction for their students, faculty were asked to move their teaching from face-to-face delivery to delivery that often included some combination of synchronous meeting technologies and online delivery methods. For many institutions, this situation created a more urgent need to prepare faculty to move to online delivery or, as described by Hodges, et al. (2020), what is more accurately known as emergency remote teaching. Institutions have had to scramble to support faculty with moving courses “online” to provide continuation of campus-based courses that are no longer being provided in the format for which they were designed (i.e. face-to-face). Well-designed online courses may take six to nine months for development but the rapid shift required in response to the COVID-19-related institution closures meant courses were being moved online in a very

limited time (a day to a few weeks). As this rapid shift occurred, it led to questions regarding how clearly faculty and administrators are able to articulate what is required for an effective online learning experience going forward. These authors suggested that rather than describe the rapid shift as a move to online delivery (which is how many institutions have initially described this move), that instead, the term Emergency Remote Teaching (ERT) is a more accurate descriptor. These authors cautioned that

> The rapid approach necessary for ERT may diminish the quality of the courses delivered. A full-course development project can take months when done properly. The need to "just get it online" is in direct contradiction to the time and effort normally dedicated to developing a quality course. Online courses created in this way should not be mistaken for long-term solutions but accepted as a temporary solution to an immediate problem. (Hodges et al., 2020, p. 8)

The uncertainty regarding the trajectory and longevity of the current pandemic response means that institutions may be faced with what amounts to crisis delivery of courses for many months to come. This circumstance underscores the need for discussion about the factors that impact course design decisions by faculty as they design and redesign their courses for alternate delivery formats including the online components of courses that use emergency remote delivery.

Research Ethics

Permission and IRB Approval. In order to conduct this study, the researcher received approval from the Institutional Review Board (IRB) from Minnesota State University, Moorhead (MSUM) to ensure the ethical conduct of research involving human subjects was maintained. The MSUM IRB approval form can be found in Appendix A.

Informed Consent. The protection of human subjects participating in research was assured. Participants were made aware that this study was conducted as part of the researcher's Doctoral Program and that it benefited her teaching practice. Participants were fully informed of the purpose and procedures of the study for which consent was sought. Confidentiality was protected through the use of pseudonyms (e.g., Participant 1) without the utilization of any identifying information. The choice to participate or withdraw at any time was outlined both, verbally and in writing. The informed consent information for the questionnaire is located in Appendix B and Appendix D.

Potential Limitations. This study used convenience sampling of online higher education instructors in a large system of public higher education institutions comprised of community colleges and universities located in the upper Midwest. While the potential pool of participants among thirty community colleges and seven state universities was large, there was a possibility that not enough faculty would choose to participate in the survey which would have caused an insufficient sample size for use in determining a research result. Without an adequate sample size, it would not have been possible to determine if there were significant relationships among the study variables. This small sample size would also have impacted the volunteer pool from which the participants for the second phase of the study were selected.

A second potential limitation was that the primary data for analysis was based on faculty self-reported perceptions of their ability to design effective online courses. It was assumed that the participating faculty would answer honestly after reflecting on their perceptions and practices.

A third limitation is that this study focused solely on online faculty who are part of a system of public higher education that, at the time of the study, had (a) a lack of minimum

requirements or professional development related to how faculty are prepared to teach online; (b) limited use of or availability of common resources or instructional design support; and, (c) faculty bargaining units in place that guide decisions regarding the extent to which it is possible to require professional development prior to teaching online. Therefore, the findings were not generalizable to all community college or university settings.

A last limitation is related to the COVID-19 pandemic itself and impacts on participation. The potential participants for this study may have had limited time and energy to engage in this type of study. Even for those faculty who typically teach online, the nature of this pandemic and the disruption caused to everyday life for every individual may have meant there were fewer participants. This potential issue was likely more pronounced for those faculty who were new to online delivery and who were facing an even greater hurdle with transitioning courses for remote delivery.

Conclusions

There was a need to study the relationships among faculty perceived online teaching self-efficacy, professional development, teaching experience, and the implementation of effective design practices in online courses. This chapter explained the need, purpose, and significance of this study. The research questions were provided along with a list of the variables. The next chapter will provide an overview of the context of the study and includes a literature review that sets the stage for an explanation of the research design. The theoretical context for the study will also be explained.

CHAPTER 2. LITERATURE REVIEW

This study sought to understand the relationships among several variables that impact the design of an online course. It looked for relationships among online teaching self-efficacy, teaching experience, professional development, and effective online course design practices. Using a combination of surveys and course evaluation, the study sought to identify what the relationships were among the variables with an expectation that what was learned could be used to inform decisions by those who are planning for and providing professional development for faculty and possibly to provide insights into how accurately faculty can self-assess their ability to design effective online courses. This knowledge may also be useful for institutions that are doing quality assurance implementation planning.

This chapter describes the context for this study. A literature review is included that describes research and information about the variables in this study including a description of online teaching self-efficacy, effective online course design practices, professional development, and faculty demographic information as it relates to professional development to prepare for online teaching. The theoretical framework for this study is also described.

Body of the Review

Context

Faculty beliefs and assumptions about teaching and learning are closely related to their perceived self-efficacy in designing courses that meet the needs of students. Transformation of beliefs and assumptions through professional development may also lead to changes in perceived self-efficacy and motivation to seek out and complete additional professional development. The concept of self-efficacy, originally developed by Albert Bandura, has been extensively studied in various contexts. Self-efficacy is defined as the personal belief or confidence one has in their

ability to perform appropriately and effectively when working towards their identified goals or tasks. Teaching self-efficacy relates specifically to the belief that instructors have about their professional knowledge, skills, and abilities to teach effectively. Online teaching self-efficacy takes this one step further and looks specifically at the knowledge, skills, and abilities needed by instructors to be effective in the online context.

To gain a better understanding of how these factors are inter-related, a review of the literature looking specifically at information and articles related to online teaching and/or learning (or distance learning) was conducted. The review sought to discover where or how there were intersections with faculty experience, faculty preparedness to teach online, professional development for teaching online, and quality course design standards. The literature review also included an investigation of how online course design decisions impact student success. While there is some overlap in how the articles cited here addressed these topics, this literature review is divided into the following sections: online teaching self-efficacy, effective online course design practices, professional development, and faculty demographics.

Online Teaching Self-efficacy. Corry and Stella (2018) completed a comprehensive literature review of the past 15 years of literature related to teacher self-efficacy in online education. They defined teacher self-efficacy as "a measure of the teacher's belief that he/she can affect student success" (p. 1). They noted in their opening comments that there has been a great deal of research regarding teacher self-efficacy in the face-to-face classroom but that the field of online education has not yet had the same level of research applied to it. Their literature review was focused on three main areas: 1) self-efficacy as related to teacher's adoption of online teaching, 2) measuring the relationships of self-efficacy and demographic variables such as experience (e.g., age), and 3) measuring changes as a pre- and post-measure of efficacy

changes related to professional development. Their work identified several themes in the literature including the importance of quality of the technology, quality in the curriculum of online education, the need for more research regarding how self-efficacy in online education is defined, questions about best practices in teacher education programs, and a need for correlations between teacher self-efficacy and student outcomes. They suggested that further research specifically related to online teaching self-efficacy is needed.

Anderson et al. (2016) used a mixed-methods case study to identify the professional learning needs of online faculty at a higher education institution in the United States. The problem they identified related to the need to provide professional development for faculty that is based on their specific needs and based on their perceived self-efficacy. The design of the study used self-efficacy and threshold concepts as a foundation. The research questions were focused on the identification of threshold concepts that teaching staff encounter when they being learning about online learning, determination of whether or not these threshold concepts are different based on experience; and, identification of threshold concepts that should be included in professional development. The study used a reflective journaling process, a self-report questionnaire, and focus groups to gather data from 38 individuals with various responsibilities within the institution including faculty and administrators who represented several different academic disciplines. Data were analyzed over three phases. In phase I, the threshold concepts for online teaching were identified. In phase II, the threshold concepts and attitudes were identified. In phase III, threshold concepts, attitudes, and threshold skills were identified. The Online Teaching Self-Efficacy Inventory (OTSEI) is an instrument designed to determine the confidence level of faculty in accomplishing activities related to online teaching and learning. Findings in this study were compared to the OTSEI scale to measure self-efficacy. Means and

standard deviations were used to show the outcomes among the various phases of the project. The focus of Anderson et al. (2016) for this study was on Phase III. The authors explained that the small sample size made it impossible to declare significant findings but did indicate that overall, self-efficacy or confidence increases over time based on faculty experience. Specifically, they said "online educators experience transformations in their knowledge, skills and, to an extent, attitudes about teaching online" and went on to add that confidence and self-efficacy "appear to be precursors to the advancement of an online educator's knowledge and skill-based competencies" (p. 187).

Horvitz et al. (2014) used survey research to better understand the challenges teachers face as they move to deliver courses online. The authors described several barriers that faculty report related to engaging in online teaching, including unfamiliarity with effective online pedagogy and inadequate opportunities to learn how to teach online. In addition to these barriers, the authors also described studies that found that faculty with feelings of low self-efficacy are less likely to persist in trying something new when faced with negative outcome expectations. Given the various roles that online faculty are asked to play in designing and teaching an online course, the study authors suggested that examining the self-efficacy of online faculty might yield information useful for institutions to use in supporting the faculty transition to becoming an online instructor. The study found that participants had high self-efficacy scores in general and had a strong sense of satisfaction. The authors described that there was higher self-efficacy in the areas of use of online instructional strategies and classroom management than they had in the area of fostering student engagement online. The study authors also described that there was no consistent influence of one or several variables on self-efficacy, in particular demographic variables.

Richter and Idelman (2017) studied the online teaching efficacy of nursing faculty. Using a causal-comparative research design, these researchers used the Michigan Nurse Educators Sense of Efficacy for Online Teaching (MNESEOT) instrument to determine self-efficacy ratings of 39 participants from 14 universities. All subjects were nursing faculty in accredited nursing programs. The findings indicated that the overall online teaching self-efficacy rankings were high. The researchers found no significant correlations between online self-efficacy and age or experience, nor between online self-efficacy and type of degree of the faculty. Additionally, the findings indicated that for most types of support or professional development provided as compared to overall online teaching self-efficacy there was no significant difference. However, there were significantly higher efficacy scores reported in student engagement, instructional strategies, computer use, and overall efficiency related to the completion of a seminar in online teaching and for those who received release time for course development. These authors concluded that participants who have a number of professional development supports (including release time) report greater self-efficacy.

Fishback et al. (2015) specifically studied self-efficacy in the community college setting. They investigated how self-efficacy impacted choices in teaching methods. Online teaching was included as one of the methods. This was not a study focused on online faculty but instead studied the ability of community college faculty to choose and use student-centered teaching methods. Using a mixed-methods sequential exploratory design, they used a survey followed by focus groups to solicit data for the study. The population for this study included faculty from four public community colleges in Kansas. Participants included a mix of individuals from suburban and rural campuses. Using the Teacher Efficacy Beliefs Scale – Self (TEB S-S) to measure faculty self-efficacy, they were able to collect data from 157 faculty. The survey was

followed up with focus groups from a group of volunteers from the campuses included in the population. One of the questions on the survey asked these faculty about their thoughts related to their online teaching methods. The researchers reported that those who indicated they had adequate training expressed more confidence in their online teaching methods. A primary finding of this study is that self-efficacy views of faculty are tied to their beliefs about how they think a good teacher behaves. These faculty also reported that they tended to spend their limited professional development time and resources on improvements to their knowledge about the subject matter.

Effective Online Course Design Practices. The implementation of design practices for online courses that are effective for student learning, student motivation, and student success is often discussed using terms such as *quality practices* or *best practices*. For this portion of the literature review, the term *effective design practices* will be used as the descriptor to describe online course design practices that have been found to support student learning and student success.

The use of quality standards to guide the design decisions of faculty has become increasingly common. Jaggars and Xu (2016) explored different course design rubrics and studies to identify common online course design features that impact student learning. They found that while the sources they reviewed varied in what might be considered the key elements of quality, there was agreement among most sources that attention to the following general course design categories is key:

> (1) the extent to which the course interface is well organized and easy to navigate; (2) the clarity of learning objectives and performance standards; (3) the strength and

> diversity of interpersonal interaction; and, (4) The extent to which technology is effectively used. (Jaggars & Xu, 2016, p. 272)

These researchers found that of the four design categories, the quality of the interpersonal interaction had the most impact on student grades and student commitment.

Smidt et al. (2017) explored how quality in an online course is perceived differently by administrators, faculty, and students. Using qualitative data analysis of survey data from two public universities in the mid-Atlantic region, they were able to identify 7 quality features that all three groups indicated should be included in a quality course. Each group prioritized certain features as more important than the other groups.

> Students appeared to prioritize quality features that emphasized learner support, e.g., Were the requirements for students to successfully complete coursework clear? Was the professor available so that students could successfully complete their coursework? Was feedback provided so that students could be successful in their coursework? On the other hand, faculty seemed to emphasize active engagement and interaction, which according to the constructivist theory encouraged learning. Finally, administrators were concerned about effective course design, e.g. Did the courses meet objectives or outcomes? Were the courses rigorous? (Smidt et al., 2017, p. 79)

Baldwin et al. (2018) reviewed publicly available online course evaluation instruments to identify the characteristics and standards that are common to these instruments. They found six instruments that met their criteria for inclusion in their study. To be included in the study, each instrument had to meet the following criteria: (a) evaluate the design of higher ed online courses; (b) support student success; (c) have national and statewide influence; (c) be published after 2006, and; (d) be currently in use (p. 47). The six instruments they evaluated were Blackboard's

Exemplary Course Program Rubric, California Community Colleges' Online Education Initiative OEI) Course Design Rubric, The Open SUNY Course Quality Review Rubric (OSCQR), the Quality Matters (QM) Higher Education Rubric, the Illinois Online Network's Quality Online Course Initiative (QOCI), and the California State University Quality Online Learning and Teaching (QOLT) instrument. In this study, the researchers identified a set of standards that were deemed *essential*. These standards were found to be present in all six of the evaluation instruments examined. These standards are:

- Objectives are available.
- Navigation is intuitive.
- Technology is used to promote learner engagement/ facilitate learning.
- Student-to-student interaction is supported.
- Communication and activities are used to build community.
- Instructor contact information is stated.
- Expectations regarding quality of communication/ participation are provided.
- Assessment rubrics for graded assignments are provided.
- Assessments align with objectives.
- Links to institutional services are provided.
- Course has accommodations for disabilities.
- Course policies are stated for behavior expectations. (Baldwin et al., 2018, p. 56)

One of the online course evaluation instruments examined by Baldwin et al. (2018) was the Quality Matters (QM) Higher Education Rubric. Quality Matters began as part of a 2003-2006 grant from the Department of Education's Fund for the Improvement of Post-Secondary Education (FIPSE) (Shattuck, 2015). The purpose of the grant was "to create a replicable and scalable process to assure quality in online course design" (Shattuck, 2015, p. 3). The Quality Matters program uses a rigorous, peer-review process and a rubric to assess the quality of an online course. The higher education rubric is based on standards of best practice and instructional design principles. It is supported by relevant research literature and includes the perspectives of expert practitioners. Every two-to-three years the rubric is updated after a

thorough literature review. The *Standards from the Quality Matters Higher Education Rubric, 6th Edition* includes a list of forty-two standards. Organized or grouped into eight general standards, each of the forty-two specific review standards is supported by a detailed annotation that explains what the standard is about, how it is meant to be applied, and includes examples for how the specific standard can be met. The rubric is designed to be used by institutions for various purposes including instructional design guidance, as the basis for creating course design templates, as a tool for individual faculty to use when designing a course, and for both informal and official forms of peer course review. Peer course review that leads to course improvement as a component of a continuous improvement process was part of the original purpose for the rubric. An official QM course review is one of those types of peer review. In an official QM course peer review, trained and certified Quality Matters Peer Reviewers use a well-defined review protocol to make decisions regarding whether or not a course meets the various standards and provide constructive feedback meant for continuous improvement of courses. Quality Matters remains focused on research into the impact of quality assurance activities on students. As Shattuck stated "Taking the learner's perspective is a guiding, core QM principle. Gathering and analyzing the learner voice is of key importance to the continuous validation and improvement of QM Standards and processes" (2015, p. 8).

Considering the student perspective regarding effective course design is also important. Hixon et al., (2015) surveyed 183 students at a public Midwestern university to determine their perception of the design quality of their courses. The Quality Matters rubric was used as the framework for the study. These researchers found that attention should be paid to following the QM standards when developing a course, regardless of format. They found that course elements such as clear instructions regarding organization and navigation, explanations about how to use

course materials and how students will be assessed, clear connections between the assessments and the learning objectives, course interaction opportunities that were meaningful and relevant, and instructional materials that were readily available were all considered to be important for students to consider the course to be a quality learning experience. These researchers concluded that "When faculty are trained and quality elements (as defined by QM standards) are built into the design of a course, students derive a high-quality experience that may result in increased satisfaction, learning, and retention" (Hixon et al., 2015, p. 30). Kelly and Zakrajsek (2021) also stressed the need for faculty to "avoid outdated and ineffective approaches to teaching online courses" if they have a goal of improving student success and retention as well as goals of closing achievement gaps (p. 10).

Professional Development. The literature related to factors that impact participation in faculty or professional development focuses on several themes that are categorized in different ways by different authors. These themes included the focus of the topics or programs offered, differences in delivery modes, motivating factors, institutional support, and faculty demographic factors. Each of these themes is closely related to the others and, when considered in isolation, is likely not going to be the lone deciding factor that impacts participation positively or negatively. As noted by Baran and Correia (2014), "successful online teaching is considered to be the result of complex interplay among personal, pedagogical, contextual, and organization factors within higher education institutions." (p. 97). The professional development that prepares and supports online faculty to do that work is just as complex.

A consistent theme related to the topics and delivery approaches for professional development for online faculty is related to the actual topics delivered and the various delivery modes. Conclusions from various studies indicated that the professional development topics and

delivery formats must be designed carefully and strategically to meet the needs of the faculty (Mohr & Shelton, 2017; Dennis et al. 2017; Lian, 2014). This includes the need to develop a pattern or plan for the offerings rather than simply offering a randomized collection of topics (Mohr & Shelton, 2017). The planned offerings should also include a plan to deliver higher-level topics over time to continue to support what Dennis et al. (2017) referred to as *seasoned professionals*. The importance of inclusion of topics that are meant for experienced faculty was also mentioned by Huston and Weaver (2007) and Elliott et al. (2015).

Many of the authors attempted to categorize the types of professional development for online faculty as a means of determining which types of topics faculty were most likely to be interested in or to complete. For example, Mohr and Shelton (2017) presented a list of four broad categories that included faculty roles, online classroom design, learning processes, and legal issues. Similarly, Elliot et al. (2015) identified three broad topic focus areas which were theoretical, applied, and institutional and suggested that professional development programming should include a mix of topics from these three focus areas. A deeper look into how topics were categorized showed that the actual topics being offered were similar across institutions but how they were categorized was specific to the institution. The result of this listing of topics and attempts at categorization underscored what many authors identified – the need to offer variety in the types of courses and topics provided in order to present faculty with choices based on interest and scheduling needs (Dennis et al., 2017; Elliot et al., 2015). Scarpena et al. (2018) also suggested that the topics offered should relate to pedagogical practice and that including discipline-specific topics is also important for encouraging faculty participation. For many faculty, the inclusion of topics related to technology integration is also important because the

necessary knowledge and skills to use the technology to effectively deliver the online courses are not skills many faculty possess (Baran and Correia, 2014; Lian, 2014; Scarpena et al., 2018).

Lian (2014) suggested that faculty assign value to participation in professional development opportunities that are off-campus, that provide networking opportunities and that are convenient due to online delivery. This suggestion was supported by Scarpena et al. (2018) who described the need to use both formal and informal delivery methods to keep online faculty engaged in professional development. Another idea cited was the importance of creating online communities of practice. Creating online communities of practice that have a special focus on peer support was stressed by Baran and Correia (2014) and Scarpena et al. (2018). Providing opportunities for faculty to interact either formally or informally with their peers or others, such as instructional designers and media specialists from various departments and/or institutions, provide multiple opportunities for creating community, networking, and facilitating collaboration.

Hardre (2012) identified the existence of a strong motivational connection between value, self-efficacy, and intrinsic reasons to participate in professional development. She found that relevance and perceived value were key motivators. This author also suggested that intrinsic motivation can be optimized by identifying specific faculty needs and goals and then working to meet them.

McQuiggan (2012) described the common practice of preparing faculty to teach online through face-to-face delivery of sessions focused on how to use instructional technologies. She identified the following problem as the basis for her study, “no studies have been conducted that provided faculty with professional development activities for online teaching designed specifically to foster transformative learning to bring about changes in their assumptions and

beliefs about teaching" (p. 29). This study was an action research study that sought to explore the transformative learning of faculty as a result of professional development. In particular, the study focused on determining the aspects of professional development activities that faculty perceive as most effective in helping them with the critical reflection needed to question currently held beliefs; questioned whether the faculty experience changes in beliefs and assumptions as a result of learning to teach online; and, finally, asked about the impact of learning to teach online on face-to-face teaching practices. McQuiggan identified the following themes as a result of her research:

- Faculty valued the connections with colleagues and the resulting discussions that caused them to consider alternative perspectives and new approaches.
- Faculty were able to identify changes to perspectives and assumptions about teaching as a result of the reflective activities.
- Faculty were able to identify changes in face-to-face teaching practices and to become more learner-centered teachers.

The research conducted by Kearns and Mancilla (2017) on the impact of faculty development in online teaching and online design also found positive impacts on the face-to-face teaching practices of these faculty. This study focused specifically on the professional development provided by the Quality Matters organization. These researchers analyzed data from 2,148 individuals who had completed a QM workshop over a three-year period. They found that participants reported changes to learning objectives, course alignment, and communication with students in their online, face-to-face, and blended courses.

A study by Stupnisky et al. (2018) focused on using self-determination theory to explore university faculty members' motivation to utilize best practices in their teaching. They found that

autonomy, competence, and relatedness had a positive, significant predictive effect on autonomous motivation with autonomy having the greatest effect on improving key teaching practices. These researchers suggested that in order to maximize autonomous motivation, faculty be provided choice in professional development workshops as well as adequate time to prepare courses as a way to improve teaching competency.

Faculty Demographics. Much of the research literature related to professional development for online faculty is related to best practices for how the program might be designed or delivered. There is less of a focus on the needs and characteristics of the individual participants. As noted by Meyer (2013):

> One of the very curious absences in this review of the literature was the lack of attention to individual learner differences in the evaluations of faculty development programs. Why might this be so? Do developers and those who design and carry out evaluations believe that faculty members learn in a homogenous fashion? Do faculty think, act, and believe as a single entity? (p. 105)

Lian (2014) did look at differences among faculty and found that "gender, ethnicity, age, employment status, off-campus FPD, online FPD, and hours spent on FPD were found to affect faculty's motivation and perceptions of FPD" (p. 139). The study revealed that female faculty were more likely to participate in professional development activities and to perceive the activities as valuable and useful. African American and Latino participants indicated that their motivation to participate, in addition to wanting to learn something new, was based on a desire to network and have opportunities for career advancement. This researcher also found that faculty in their 30s and 40s had a higher motivation to participate in professional development, faculty in

their 30s indicated a higher perception of the usefulness of the professional development, and that non-tenured or adjunct faculty had high scores on motivation, value, and usefulness.

Huston and Weaver (2007) described the professional development needs of experienced faculty as being "often overlooked" in the research literature and that their needs are different than those of newer faculty. This sentiment, as mentioned earlier in this review, was echoed by Dennis et al. (2017) and Elliot et al. (2015). Huston and Weaver (2007) suggested that experienced faculty are more likely to "ask more nuanced and sophisticated questions about most teaching and learning issues" (p. 6) than junior colleagues but that they might find it uncomfortable to ask questions about other topics such as how to integrate instructional technologies. One suggestion for how to meet the unique needs of the experienced faculty and to engage them in professional development was through the use of a reciprocal peer coaching model (Huston & Weaver, 2007; Baran & Correia, 2014). Pairing faculty with different experience levels provides opportunities for each participant to reflect on teaching practice and to participate in peer review and coaching to improve practice. It would also foster engagement of mid- and late-career faculty in activities that build community and collegiality.

Blakely (2015) specifically studied late-career faculty in the area of technology adoption. Through focus groups with a small group of successful, late-career instructors about their pedagogical uses of technology, she was able to identify that the *toolism approach* to faculty development did not meet their needs. These experienced faculty indicated that decisions to integrate technology were based on the perceived pedagogical usefulness of technology and that professional development was most useful when it introduced tools based on how the tools would best support student learning.

Faculty professional development along with faculty degree status and faculty longevity and the impact of those variables on student satisfaction and student success were explored by Kane et al. (2015). Using archived data, they analyzed student satisfaction based on end-of-course student evaluations over seven terms. Specifically, they reviewed satisfaction from before and after faculty completed training. Other faculty demographics were also included in their analysis. Their primary finding was that the predictor of student satisfaction was faculty longevity. Training and faculty degree attainment were not significant predictors of student satisfaction.

An attempt to determine what type of professional development and support faculty at a public university find most beneficial and utilize was made by Samuel (2016). At this university, professional development was optional and faculty are responsible for all aspects of the course (design, development, and delivery) regardless of delivery mode. This researcher found that faculty were participating in professional development offered by the institution (e.g., workshops) as well as through other means outside the institution (e.g., conferences, colleagues, mentors). The type of professional development participation varied by age and experience level of the study participants. For example, younger participants "equated technical proficiency with the ability to teach online" (p. 232) and because of this did not see a need to attend any training including professional development related to pedagogical strategies for teaching online. This author also found that younger faculty were less likely to seek out formal professional development and instead preferred conferring with colleagues.

How, when, and why faculty participate in professional development is related to the fact that those organizing the professional development must recognize that "faculty are adult learners and faculty development should be approached from an adult education perspective"

(Samuel, 2016, p. 233). The differences in how faculty in different stages of their career approach professional development and/or participation in activities related to adequate preparation to take on a new role as an online instructor are related to adult learning theory. Knowles (1980) described the concept of *andragogy* which looks specifically at how adult learners approach learning. Andragogy includes several assumptions about adult learning that should be considered when creating or offering professional development or learning opportunities for adults. Faculty exemplify these six assumptions which are: (1) they are self-directed, (2) they have real-life experiences which serve as additional resources to support their learning, (3) they are exhibit readiness to learn within their social role as faculty members, (4) they are seeking immediately applicable knowledge that will help them solve a problem, (5) they are motivated by internal factors, and (6) they value learning that is relevant to their discipline and that they perceive has immediate relevance (McQuiggan, 2012). Self-directed learning is an important component of what Knowles' theory represents. Cercone (2008) explained that one problem with Knowles' theory is that it does not consider the context of the individual stating "Characteristics related to culture, life experiences, and gender may be more important to learning than the fact that a learner is considered an adult" (p. 146).

COVID-19 Pandemic. Online teaching and emergency remote instruction are not the same things. Beginning in March 2020, the COVID-19 Pandemic created the need for all types of educational institutions to make a rapid shift to something other than the traditional face-to-face classroom delivery. Due to the rapid shift, which for some occurred in a matter of days, institutions scrambled to support faculty to make instruction available using the synchronous and asynchronous tools that were readily available. Resources, checklists, and helpful guides of all types were made available to help guide this transition. As this transition occurred, it was

without a finite end date but for many, remote delivery was viewed as a short-term solution before things *returned to normal.* The current situation with this viral pandemic remains fluid and it is possible that institutions will never see a full return to face-to-face classes delivered in the same manner.

It is important to recognize that even though online courses have been available for over twenty years, many faculty who have been teaching in the face-to-face classroom have had limited experience as a learner in the online classroom. For many of these faculty, online courses are still somewhat of an unknown entity. This leads to uncertainty about how best to design an effective online course as well as how best to understand the online learner experience.

> Most adults were taught in a traditional and passive classroom. Online learning environments are also new to instructors, who have to learn new methods for teaching in this kind of setting. Learners and instructors both need to adapt and change as they learn how to use this new medium. (Cercone, 2008, p. 139)

Even though Cercone's study was conducted over ten years ago, there continue to be many faculty who have not yet taught online. The lack of experience with teaching online meant the need to transition rapidly due to the pandemic threat was more difficult for some faculty. Much of the self-efficacy research relates to how to support faculty in improving their self-efficacy as a way to encourage them to become online instructors (Corry & Stella, 2018; Horvitz et al., 2014, Northcote et al., 2015) and doesn't include those who had no choice in the change to this delivery modality.

Because of the uncertainty related to when return to campus will be safe for delivery of face-to-face courses in the next several months, institutions are now making plans for increasingly online courses and programs. Higher education leaders who focus on quality online

learning, such as Mills (2020), have begun to raise concern that those faculty who have been using online tools and platforms as part of their emergency remote instruction, may now see themselves as online instructors. These faculty may believe that they can easily make a transition to fully online courses without recognizing that their involvement in the transition from face-to-face to remote instruction would not have adequately prepared them to do so. Dr. Mills sums up the concern being raised in his blog where he said

> Many faculty who transitioned quickly to remote teaching as a result of COVID-19 did so with little regard to instructional design; content was quickly put together for delivery over a synchronous video-conferencing platform. Learning Management Systems were thrust into the fore, but faculty had to be quickly trained on all the tools: gradebooks, discussion boards, assessments. It was the Wild West education episode. (Mills, 2020)

Theoretical Framework

Self-efficacy, which is based on Bandura's social cognitive theory, will be used as the theoretical framework for this study. Bandura defined self-efficacy as "People's beliefs about their capabilities to produce effects" (p. 71) or in other words, the beliefs an individual has regarding their ability to perceive, regulate, and evaluate their behavior in various situations to achieve specific outcomes (Bandura, 1994). According to Bandura's theory, there are two components to self-efficacy: outcome expectations and efficacy expectations. Outcome expectations refer to the expectations the individual has that their ability, knowledge, or skills to perform a task or behavior will lead to the outcome they expect. Efficacy expectations are based on the individual's belief or estimate of the consequences of their performance (Bandura, 1994).

Self-efficacy beliefs, according to Bandura (1994) are influenced by four sources: mastery experiences; vicarious experiences provided by social models; verbal or social

persuasion, and, physiological indicators. Mastery experiences are a primary source of self-efficacy. Successes an individual may experience lead to stronger self-efficacy, while failures may diminish or undermine self-efficacy. The ease with which an individual achieves success may lead to an expectation of similar success with future similar tasks. According to Bandura (1994), individuals who experience some setbacks or difficulties but who then go on to succeed, learn that they have the necessary skills, abilities, or knowledge to be successful if they persist and persevere. A second source for creating or reinforcing self-efficacy beliefs relates to vicarious experiences. In other words, when an individual sees others who are similar and who can succeed at something, there is an increase in the belief by that individual that success is also possible for them. Bandura (2009) described that this internal belief or perception of ability is strongly influenced by the perceived similarity to the model. A third way of strengthening beliefs and perceptions is verbal or social persuasion. In other words, people can be persuaded that they have what it takes to accomplish what they set out to accomplish. A key component of this source of reinforcing or creating self-efficacy through persuasion is that the persuader must "avoid placing people in situations prematurely where they are likely to fail often" and to "measure success in terms of self-improvement rather than by triumphs over others" (Bandura, 2009, p. 185). The last, or fourth way of reinforcing self-efficacy is through helping people accurately perceive and interpret stress reactions, tension, or negative emotions that occur in new or challenging situations.

Self-efficacy beliefs affect human functioning in various ways including cognitive processes, motivational processes, affective processes, and selection processes. Cognitive processes are impacted by self-efficacy beliefs in that the ability to accurately perceive one's abilities will directly impact the type of goals or challenges that an individual is willing to

pursue. According to Bandura (2009), individuals with higher self-efficacy set higher goals for themselves and are more committed to achieving them. Self-efficacy beliefs also impact motivation. Those with high self-efficacy beliefs believe they can do something and therefore, see failure as related to the amount of effort they applied. Conversely, those with low self-efficacy beliefs may attribute failure to their lack of ability rather than to lack of effort. This motivational influence contributes to the type of goals an individual sets, the amount of effort expended towards that goal, the amount of perseverance when faced with difficulties, and how the individual deals with failure.

The construct of teaching self-efficacy has been well-studied. Corry and Stella (2018) describe teaching self-efficacy as "a measure of the degree to which a teacher believes he/she has the ability to perform correctly the tasks suggested as best practices for teaching" (p. 8). Pajares (1996) explained that outcome expectations are important in the area of academic motivation. Teachers have outcome expectations when they engage in various teaching activities. They create and implement the activities and interpret the results or outcomes. These interpretations are used to inform their beliefs about their teaching ability. If they experience success consistently, this leads to increased self-efficacy. If they determine that the activity was unsuccessful, this may lower their self-efficacy and confidence. In an explanation of the accuracy of self-perception, Pajares (1996) described how it is common for people to over-estimate or have over-confidence in their abilities and that self-efficacy appraisals need to be accurate. This author cautions that it is necessary to "ensure that teacher efficacy assessments correspond to the outcomes to which they are compared" (Pajares, 1996, p. 569).

This study looked specifically at online teaching self-efficacy which includes the knowledge, skills, and abilities needed by teachers to be effective in the online context. This

framework provided a lens through which to view this study which looked at how self-efficacy beliefs for online teaching may be influenced by professional development, teaching experience, and the ability to implement effective online course design strategies.

Research Questions

Primary Research Question

1. What are the relationships among online teaching self-efficacy, higher education instructors' online teaching experience, professional development, and implementation of effective online course design practices?

   H0: There are no significant relationships between online teaching self-efficacy beliefs, higher education instructors' teaching experience, professional development, and online course design effectiveness ratings.

   H1: There are significant relationships between online teaching self-efficacy beliefs, higher education instructors' teaching experience, professional development, and online course design effectiveness ratings.

Secondary Research Questions

2. What levels of online teaching self-efficacy do online faculty possess?
3. To what degree do particular demographics impact levels of online teaching self-efficacy and ratings of the importance of online teaching competencies?
4. To what degree do particular demographics impact self-perception of implementation of effective online course design practices?
5. What are the differences between online course design practices of higher education online instructors with a perceived high or low sense of online teaching self-efficacy

based on the type of professional development completed and course design supports used prior to designing an online course?

6. How does the course design by higher education online instructors with a perceived high sense of online teaching self-efficacy correlate to nationally recognized effective online course design practices?

Conclusions

This chapter described the context of this study. The literature review included discussion about recent articles related to online teaching self-efficacy, effective online course design practices, professional development, and faculty demographics. Online teaching self-efficacy was defined and the findings from several researchers who have studied self-efficacy were discussed. These studies tended to focus on the impact of self-efficacy on comfort with becoming an online instructor, with professional development meant to improve efficacy, and with self-efficacy findings based on demographics. There were no studies found related to the impact of self-efficacy on decisions made regarding online course design. Effective online course design practices were discussed and information about how organizations have provided standards that can be used to guide course design decisions was provided. A list of course design elements that are shared by many design rubrics was provided. The impact of course design on student satisfaction and success was also discussed.

Several studies related to professional development for online faculty were included. In general, these articles focused on how to motivate faculty to participate, the methods for delivery, and why providing faculty with choice in what they wish to attend was important. The literature review included discussion of some differences noted by researchers related to professional development needs or interests based on faculty experience, age, and gender. The

impact of the COVID-19 pandemic and the rapid transition to online delivery experienced by higher education faculty was also addressed.

There is a gap in the literature related to how online teaching self-efficacy, faculty experience, professional development, and implementation of effective course design practices are related. Focusing on self-efficacy theory as an underlying theoretical framework, this study sought to identify how these factors are inter-related. The next chapter, Chapter 3, will address the study methodology.

CHAPTER 3. METHODS

Introduction

This study sought to understand the relationships among several variables that impact how faculty approach designing an online course. To look for relationships among online teaching self-efficacy, teaching experience, professional development, and effective course design practices, a study design that used a combination of surveys and course evaluation was completed. The purpose of the study was to identify what the relationships are among the variables with an expectation that what was learned could be used to inform decisions by those who are planning for and providing professional development for faculty and possibly to provide insights into how accurately faculty can self-assess their ability to design effective online courses. This knowledge might be useful for institutional leaders who are tasked with leading strategic and quality assurance implementation activities. This chapter outlined the design and plan for the study.

Research Questions

Primary Research Question

1. What are the relationships among online teaching self-efficacy, higher education instructors' online teaching experience, professional development, and implementation of effective online course design practices?

   H0: There are no significant relationships between online teaching self-efficacy beliefs, higher education instructors' teaching experience, professional development, and online course design effectiveness ratings.

H1: There are significant relationships between online teaching self-efficacy beliefs, higher education instructors' teaching experience, professional development, and online course design effectiveness ratings.

Secondary Research Questions

2. What levels of online teaching self-efficacy do online faculty possess?
3. To what degree do particular demographics impact levels of online teaching self-efficacy and ratings of the importance of online teaching competencies?
4. To what degree do particular demographics impact self-perception of implementation of effective online course design practices?
5. What are the differences between online course design practices of higher education online instructors with a perceived high or low sense of online teaching self-efficacy based on the type of professional development completed and course design supports used prior to designing an online course?
6. How does the course design by higher education online instructors with a perceived high sense of online teaching self-efficacy correlate to nationally recognized effective online course design practices?

Research Design

Using a quantitative research paradigm, this study used a non-experimental sequential quantitative correlational explanatory research design. Correlational research designs, which are a type of descriptive research, are meant to describe an existing relationship between two or more variables (Fraenkel et al., 2015). To determine the best research design for this study, the researcher used a pragmatic approach to this inquiry. As described by Kaushik and Walsh (2019), designing a study using this paradigm begins with a reflection on the "the nature of the

problem and its potential solutions, and on the nature of the potential solutions and the likely actions" (p. 8) to determine the best research design. Research design methodology for pragmatists is based on *what works* and is designed to find solutions to problems with *change* as the primary goal. Initially, the researcher considered doing a mixed-methods approach for this study to examine these variables. After further consideration, it was decided that a quantitative approach was most appropriate given the number of variables and the time frame available to conduct this study. It was determined that a correlational design was appropriate for this research study because this study looked at relationships. According to Fraenkel et al. (2015), one of the purposes for conducting a correlational research study is to identify existing relationships between variables and to describe the correlation or the degree to which the variables are related. This study looked specifically at the relationships among online teaching self-efficacy, faculty experience, professional development, and implementation of effective course design practices among higher education faculty teaching online (or partially online) courses in a large public system of higher education located in the Midwest area of the United States. The research questions in this study were structured to identify the strength and direction of the relationship between the variables and were appropriate for this type of study.

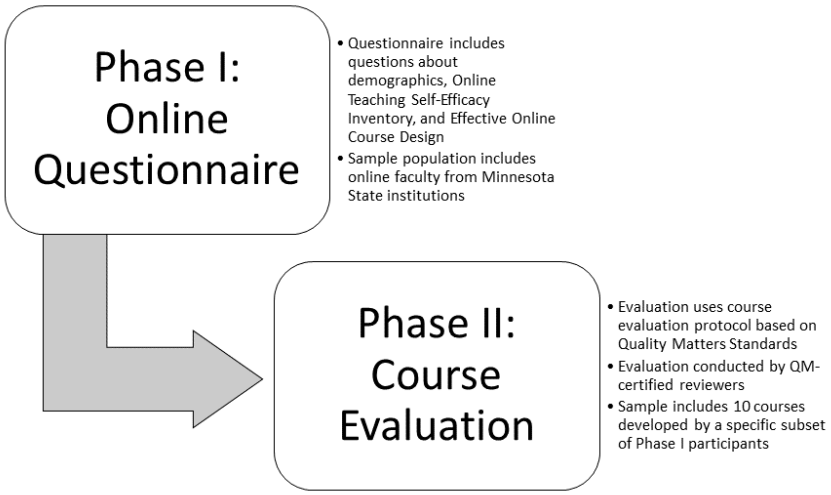
This study looked for relationships among several variables that relate to quantity and opinions. Variables of this nature are best examined using quantitative data collection strategies. The questionnaire approach for gathering the majority of the data for this study is supported by Muijs (2012) who indicated that surveys (i.e. questionnaires) are the best choice for research questions that relate to "quantity, opinions and attitudes, relationships between variables and perceived behaviours" (p. 153).

The participants were community college and university faculty who teach online courses in a large public higher education system located in the upper Midwest. These faculty may have come to their online teaching role through various professional development approaches such as no explicit professional development and/or support to develop their online course, minimal professional development and/or support to develop their online course, and some with more extensive professional development and/or support to develop their online course/s.

In this study, the data were collected in two phases which occurred sequentially over approximately five months. Phase I, which involved the administration of a questionnaire to a broad group of participants, formed the basis of this study. As part of the completion of the Phase I survey, volunteers were solicited to participate in Phase II. Figure 2 provides a visual depiction of the two phases including brief descriptions of each phase.

Figure 2

Visual Depiction of Two Phases (Including Descriptions)



Phase II in this correlational study included the collection of additional data in the form of course reviews from a small number of the Phase I participants. The purpose of Phase II was to gain insights into the course design practices of faculty who reported high levels of self-efficacy and who reported that they have integrated effective course design elements into their online courses. This phase of the study was meant to explore the extent to which the design practices as reported by these faculty mirrored the findings of two evaluators. The study design planned for between eight and ten courses to be evaluated in Phase II. The theoretical framework for the entire study was online teaching self-efficacy. As such, the courses that were reviewed were selected from the list of those who indicated interest (i.e., volunteered) on the Phase I questionnaire and who fit the following profile: High self-efficacy and have designed their online course. An effort was made to include a balance of individuals from community colleges and universities. The evaluators evaluated the selected courses to determine if faculty with a high perceived sense of self-efficacy were accurate in their assessment of their course design abilities.

Setting

This study took place in a primarily virtual setting. The setting included a mix of public higher education institutions of various sizes and locations that are part of a higher education system located in the upper Midwest. Consisting of seven universities and thirty community colleges, the system includes small, rural, and large, urban institutions. Phase I of the study was completed virtually using an electronic survey. Phase II also took place virtually in that the evaluations were completed asynchronously by the two course evaluators once they were given access to the online courses being reviewed.

Many of the higher education institutions from which participants were drawn continue to face financial constraints that have resulted over the past several years in cuts to resources,

professional development, and other types of support provided for faculty. At the time the data were gathered, many of the institutions in this study were not providing instructional design support and did not (cannot) require any specific type of professional development before teaching online. The professional development offered by these institutions is based primarily on topics of faculty interest or is based on what the institution leadership or faculty development personnel decide is most needed (Brown et al., 2020). The central system office provided access to a common Learning Management System (LMS) called Brightspace by D2L which has been used by all institutions in the system for supporting online, face-to-face, and blended courses for over fifteen years. Other provided support resources from the system included: access to a common web-conferencing software, a virtual tutoring solution for online students, a system-managed 24/7 technical support for students, shared online library access, and the option to access online advisors and counselors on a part-time basis. There were no common minimal course design standards identified for either institutions or across this higher education system as a whole.

Participants

The participants were community college and university faculty who teach online and blended courses for the public higher education institutions that are part of this system. This system includes thirty community colleges and seven state universities located on fifty-four campuses. It is the third-largest public higher education system in the United States and serves over 350,000 students each year. Statistics on the number of faculty who were currently teaching online within the system at the time of this study were not available as this is not information the system makes publicly available. There was no requirement within the system for baseline knowledge or skills before being assigned to teach an online course. The majority of faculty

working in this system are full-time faculty who work in a collective bargaining environment that includes two different faculty unions. The faculty employment agreements provide them with a significant amount of autonomy to make personal judgments about the amount and type of professional development needed to teach online courses. Information about age, gender, ethnicity, and institution size was included in the data that were gathered from these participants.

The amount and types of professional development provided by the institutions where these faculty are employed is limited. As described by Brown, et al. (2020) in a report about the faculty development structures in this system, the majority of the institutions rely on free webinars hosted by the system office as a primary source of professional development to supplement limited on-campus offerings. Professional development offerings that are provided by the institutions are often limited due to budgetary constraints. When offered, the topics for professional development are determined primarily by *informal suggestions* or based on ideas from the faculty developer for those institutions that have one. Additionally, some institutions determined professional development topics based on surveys, administrative directives, or strategic planning initiatives.

Sampling

The study used a convenience sampling method. The target population was community college and university faculty teaching online courses. The accessible population for this study were the faculty who design and teach online courses in this system of colleges and universities. An invitation to complete the questionnaire was sent to potential faculty participants using communication channels within this system including various listservs, institution distribution lists, and institution-specific contacts. There was no master email list of online faculty that could be used for distribution and there were significant differences among these institutions regarding

how emailed information could be distributed. This meant that in order to broadly distribute the questionnaire, the researcher had to rely on multiple approaches to get the invitation to the target group (i.e. online faculty).

Adjustments Based on COVID-19 Pandemic

As a result of the COVID-19 pandemic that created the need for most higher education faculty to transition all courses to some form of remote delivery, the researcher recognized an opportunity existed to create a study that was more inclusive of all higher education faculty rather than the original target group which was only online faculty. Where appropriate, explanations regarding how the instrument or process was modified as a result of the COVID-19 situation are provided.

Instrumentation

Instrumentation for this study included a Phase I – Questionnaire that was administered to all participants (Appendix B) and a Phase II – Course Evaluation Instrument (Appendix C) that was used to evaluate the presence of specific design components in a select number of online courses. Each of these instruments is described in more detail below.

Data Collection

Data for this study were collected in two phases which occurred sequentially. Data from 104 participants were collected using an online questionnaire. The plan for the study had determined that a minimum of 60 participants would be required for this phase which meant that the 104 usable responses obtained for Phase I was sufficient for data analysis. Data for Phase II used direct evaluations of online courses to collect data. The study planned for evaluation of between 8 and 10 courses. Ultimately, 6 courses were evaluated.

Phase I: Questionnaire. The Phase I questionnaire, was disseminated using Qualtrics survey software, includes three main sections. In addition to the main sections, there was an introductory page where participants were asked to signify agreement to participate and a closing page where individuals were invited to participate for Phase II of the study. The main part of the questionnaire is organized as follows:

- Phase I, Section 1: Demographic questions.
- Phase I, Section 2: Online Teaching Self-Efficacy Instrument (OTSEI). This part of the instrument was based on the OTSEI instrument developed by Dr. Kevin P. Gosselin (Gosselin, 2009). Appendix A includes a permission statement from Dr. Gosselin to use the OTSEI instrument
- Phase I, Section 3: Effective Online Course Design. This part of the instrument included a short series of questions regarding online course design decisions that were based on the *Standards from the Quality Matters Higher Education Rubric, 6th Edition*. The Quality Matters rubric was chosen specifically for this part of the study because (a) the standards are supported by the research literature, (b) it is updated regularly to reflect new findings, (c) it is widely utilized in the United States (as well as many other countries), and (d) the individuals who serve as faculty peer reviewers must become certified for that role through professional development. The use of the Quality Matters rubric for this purpose was approved by the Quality Matters organization. The documentation of this approval is included in Appendix A.

The entire Phase I instrument packet as it appeared to the participant in Qualtrics can be viewed in Appendix B. Each of the three main sections that were part of the Phase I questionnaire is described in detail below.

Phase I, Section I: Demographic Information. Section I of the questionnaire was designed to gather important demographic information. It included questions about age, gender, race, institution size, institution type, previous experience teaching online courses at the post-secondary level, previous experience teaching face-to-face courses at the post-secondary level, previous professional development related to online pedagogy and course design, professional development preferences, and the level of education completed by the participant. There were twenty-two (22) multiple-choice or multi-select questions in Section I of the Phase I questionnaire.

Phase I, Section II: Online Teaching Self-Efficacy Beliefs. The OTSEI survey is a five-part inventory that consists of 47 items for assessing online teaching self-efficacy (Gosselin, 2009). To create the OTSEI, Gosselin first performed an extensive literature review to identify tasks and skills needed by online teachers. He worked with online learning experts to validate the list which was further broken down into five sub-scales. He used exploratory factor analysis for each of the five online teaching inventory scales which then results in a final instrument known as the OTSEI. The remaining 47 items on the instrument are organized into the following five scales: *(*1) Web-Based Course Structure; (2) The Online Alignment of Objectives, Instruction, and Assessment; (3) Course Content Migration; (4) Virtual Interaction; and (5) Selection of Technological Resources. Analyses of the items were conducted to determine internal consistency and reliability which resulted in a final OTSEI with five inventory scales. According to Gosselin (2009),

> Cronbach's alpha for the five scales ranged from .84 to .95, reflecting excellent internal consistency for each of the scales. For all of the inventory scales, analyses subsequent to

factor rotation further indicated that these alphas would not increase with the deletion of any item; thus, each item made an incremental contribution to its scale (p. 122).

The table below provides the Alpha coefficients for the five scales in the Online Teaching Self Efficacy (Gosselin, 2009).

Table 1

Cronbach's Alpha for the Online Teaching Self-Inventory Scales

Scale	Alpha
Web-based Course Structure	.89
Online Alignment of Objectives, Instruction, and Assessment	.89
Course Content Migration	.84
Virtual Interaction	.91
Selection of Technological Resources	.91

Gosselin reported that the average variance accounted for across the five scales was 53.16%. The percentage of variance explained for each of the inventory scales provides evidence for good factor validity (Stevens, 1996).

The resulting instrument was an inventory of online teaching skills that provides participants with an opportunity to rate or indicate their confidence level with accomplishing these activities related to online teaching by selecting a number for each item on a scale ranging from 0 to 10. No confidence is indicated by a 0 and complete confidence is indicated by a 10. The inventory items are organized as follows: Part 1: Technological Resources (8 items); Part 2: Virtual Interaction (10 items); Part 3: Course Content Migration (7 items); Part 4: Online Alignment (11 items); and, Part 5: Web-based Course Structure (11 items).

Table 2

Total Variance for the Online Teaching Self-Efficacy Inventory Scales

Scale	% of Variance
Web-based Course Structure	64.38
Online Alignment of Objectives, Instruction, and Assessment	45.93
Course Content Migration	47.99
Virtual Interaction	49.98
Selection of Technological Resources	57.51

Note: As reported by Gosselin (2009)

The author of the OTSEI instrument focused on its internal consistency and its construct validity as explained above. The OTSEI was previously used in studies related to establishing threshold concepts for online teachers (Anderson et al., 2016; Northcote et al., 2015; Northcote et al., 2011). The content validity of the instrument was not described in the available resources. The researcher contacted the instrument author for this information. He indicated that content validity was calculated when the instrument was created but that it was not available at this time. Because the content validity information was not available to report, a process to establish the content validity was included in this study. Bannigan and Watson (2009) define content validity as "whether a scale has included all the relevant and excluded the irrelevant issues in terms of its content" (p. 3240). They further explained that this can be done by using an expert panel who will review the instrument for clarity and completeness. The process used to establish content validity was first described by Lawshe (1975) and with the scoring later refined by various authors including Ayre and Scally (2014).

To establish content validity for the OTSEI instrument, a questionnaire was prepared in Qualtrics that included all of the items on the OTSEI. There was an open-ended question added at the end of each of the five parts of the OTSEI that invited comments related to questions in each part. The researcher reached out to subject matter experts (SMEs) with significant

experience in the field of online learning in the roles of online learning faculty, online learning administrators, instructional designers, and individuals who provide faculty support for online faculty. In the end, a total of fourteen individuals from twelve different states participated on the panel. The panel of SMEs was purposefully chosen to include a mix of individuals from community colleges and universities. The composition of the panel was also purposefully formulated to include individuals from different parts of the United States. The list of individuals including their areas of expertise, current role, institution, and location in the United States is provided in Appendix H.

The content validity determination process of the OTSEI included two iterations. Initially, the panel included eight individuals. Each was sent the link to the Qualtrics survey and was asked to review each item and determine if the item was (a) essential, (b) important but not essential, or (c) not important and not essential for an online teacher. According to Lawshe (1975), only the items marked as *essential* are to be used to calculate the coefficient of validity. The results indicated that many of the items on the OTSEI were not essential for an online teacher. Comments left by the panelists indicated that there was confusion about the role or responsibility of online faculty versus what might be provided by other departments (e.g., instructional technology) or other personnel at the institution. One panelist said,

> I answered the questions under the assumption that the educational institution has instructional technology staff whose job it is to vet the technological resources for compatibility, copyright, etc., and that the online teacher's job is to choose technology from an already *approved* pool of resources.

Another panelist echoed this sentiment that perhaps the responsibility might lie with someone other than the faculty saying,

Although these are all essential items, these are items that instructional designers or other institutional resources do and then provide the information for the instructor. Some instructors do this work on their own but in my experience much of this is provided by the institution.

Because there may have been lack of clarity in what these panelists were asked to evaluate, the questionnaire was revised slightly, and the process was completed again. In this second iteration, the individuals were asked to "review each item and determine if the item is (a) essential, (b) important but not essential, or (c) not important and not essential for *individuals responsible for the designing and/or teaching* an online course." The focus in the question was changed to be on the individual designing or teaching course rather than the more general phrase of "online teacher." An additional seven individuals were asked to complete the revised questionnaire along with the original eight content experts. The second iteration for establishing content validity via expert panel occurred approximately 3 months after the first iteration. In this second iteration, seven of the original eight participated along with the seven new individuals for a total of 14 individuals. Interestingly, in the second iteration there were additional comments from panelists regarding there being some other entity or department at the institution that would either provide support for or perform some of the functions listed which meant that the item would not be "essential" for the person designing the course. The items marked as essential in some parts of the OTSEI varied widely among content validity panelists which may indicate that the online teaching roles may not be clearly differentiated at some institutions. This is an area for further exploration.

The Content Validity Ratio (CVR) was calculated for each item and a Content Validity Index (CVI) was calculated for each part as well as for the entire instrument. When input from

14 panelists is used, the CVI should be .51 or higher. The overall score was .40. Part 1 of the OTSEI had a very low content validity index which impacted the overall score. The other four parts had more robust scores in particular Part 3 on *Content Migration* and Part 4 on *Online Alignment of Objectives, Instruction, and Assessment*. The CVI for the five scales or parts as well as an overall score are reported in Table 3.

Table 3

CVI for Online Teaching Self-Inventory Scales: Content Evaluation Panel Results

Scale	*CVI (n=14)*
Selection of Technological Resources	.07
Virtual Interaction	.41
Course Content Migration	.53
Online Alignment of Objectives, Instruction, and Assessment	.61
Web-based Course Structure	.35
Overall score	**.40**

In addition to the self-efficacy that was measured using the OTSEI, this same set of items was used to gather data about another construct. The participants were asked to rate their confidence related to the items on the OTSEI and were also asked to indicate the degree of importance they placed on each item. This component was added to the questionnaire to solicit data from those new to online teaching regarding the importance placed on skills related to online teaching. Participants were asked to rank importance using a 5-point Likert scale. Because this additional scale for rating importance was added to the Gosselin instrument as a side-by-side item in Qualtrics in the Phase I, Section II questionnaire, the original OTSEI scale of 0 – 10 was revised to a smaller scale of 1-5 to make the two scales parallel for ease of completion by participants. According to Krosnick and Presser (2010), “the length of scales can impact the process by which people map their attitudes onto the response alternatives” (p. 269). These authors go on to suggest that using a larger scale does not allow for each of the points on the

scale to include a descriptive label which complicates completion of each question since participants must create their own mental description for what each point on a numerical only scale means. Using the shorter 5-point scales for Sections II and III on the Phase I questionnaire, it was possible to include a written description for each number on the scale. As explained by Krosnick and Presser (2010), this approach "may clarify the meanings of the scale points while at the same time reducing respondent burden by removing a step from the cognitive processes entailed in answering the question" (p. 271). Given the length of the questionnaire overall, reducing respondent burden was important. The revised 5-point Likert scale asked participants to indicate their confidence in completing each of the statements on a 5-point Likert scale ranging from 1 (*not at all confident*) to 5 (*very confident*) as well as to rate the importance on the same item ranging from 1 (*not important*) to 5 (*extremely important*). The two scales (i.e., rating importance and rating self-efficacy) for each item in Phase I, Section II were presented in a side-by-side question format that asks participants to first-rate importance and then rank their ability per item.

Phase I, Section III: Course Design. Section III of the Part I questionnaire asked participants to reflect on the quality of the design of an online course they recently designed and currently teach. Questions in this section were based on the Quality Matters standards for course design (*Standards from the Quality Matters Higher Education Rubric, 6th Edition*, 2018). The rubric, now in its 6th edition, was first created in 2004. At that time, Legon (2006) examined the validity of the instrument by comparing it to a set of standards that were endorsed by the Council of Higher Education Accreditation (CHEA) and the eight regional accrediting agencies. Legon found that the "QM Rubric is fully consistent with published accreditation standards for online education" and went on to add that "the QM Rubric can demonstrate an institution's (or

program's) commitment to quality assurance of its online offerings and its success in achieving a well-defined standard for course design" (p. 9).

In this section of the questionnaire, the forty-two specific standards from the *Quality Matters Higher Education Rubric, 6th Ed.* were grouped into eleven general statements. These statements reflected the eight overarching statements around which the QM higher education rubric is organized. To create this list of eleven items, a summary statement was created for each of the eight general standards:

1. Course Overview and Introduction
2. Learning Objectives
3. Assessment and Measurement
4. Instructional Materials
5. Learning Activities and Learner Interaction
6. Course Technology
7. Learner Support
8. Accessibility and Usability

Since course alignment is represented in several of the QM rubric standards, a separate item related specifically to course alignment was created. Two of the statements (related to QM Rubric Standard 5 and Standard 8) were split into two items each to provide clarity around what was being asked regarding learner engagement and usability/ accessibility.

To complete this portion of the questionnaire, the participants were first asked to list the prefix and number of an online course they recently designed. They were asked to select from a list of resources or supports they used to develop that course. They were then asked to review each course design statement and determine the extent to which they believe the statement described the design of their online course using a 5-point Likert scale ranging from 1 (*definitely not*) to 5 (*definitely yes*).

Phase I, Final Section: Request for Volunteers. The final section of the Phase I questionnaire asked participants if they were interested in volunteering to be part of Phase II of the study. In this second phase, the intent was that ten volunteers would be chosen to have an online course undergo a course evaluation. The last question of the Phase I questionnaire asked individuals to indicate interest by providing their name and email address. This information was used to follow-up with the volunteers to provide more information about what was be required of Phase II participants. The design planned for up to ten courses to be analyzed. Ultimately, only six participants were selected for participation in Phase II due to factors that are described in Chapter 4.

Phase II: Course Evaluation. As part of the completion of the Phase I questionnaire, participants were presented with an invitation to participate in Phase II. Those who indicated interest and who met specific criteria were sent further information about the expectations and criteria for participation in Phase II. If after receiving that information, they decided to participate, their names were added to a list for consideration as one of the volunteers. The Phase II course evaluation plan was for ten online courses to be evaluated by two evaluators using an evaluation checklist to determine the extent to which the courses demonstrated inclusion of effective online course design practices. Since only ten volunteer spots were available, volunteers were chosen based on the following process: Individuals who indicated interest were sorted based on their self-efficacy score into a high score group and a low score group based on mean and median scores. Those who fell into the high score group were further sorted based on what they answered on the questionnaire regarding their preparation to teach online and whether or not they had ever had a course go through an official QM course review. The intent in selecting volunteers for Phase II was to choose a variety of participants who have high self-

efficacy, who have varied amounts of professional development preparation to teach online, but who have not been through an official QM course review process. Individuals who met the criteria, who agreed to participate, and who were selected were sent an informed consent form and instruction sheet regarding expectations. The informed consent form and detailed instructions for participation in Phase II can be viewed in Appendix D. Once the individuals were selected and the informed consent forms were returned, they were asked to provide course login information to a copy of the course that was then evaluated. The process used for selection of the Phase II participants included a preliminary review of the results to identify potential participants based on their online teaching self-efficacy scores. The process by which the Phase II participants were selected is described in detail in Chapter 4.

Data for Phase II of the study were gathered through completion of course evaluations by two certified QM Master Reviewers who made determinations regarding the extent to which each course selected for this phase had integrated course design standards into the online course that had been submitted for evaluation. Each evaluator was a currently certified Quality Matters Master Reviewer (MR). QM Certified MRs have experience as online faculty who have recently taught an online course and have experience as peer reviewers of online and blended courses. To become certified by QM for this role, MRs complete rigorous professional development meant to prepare them for the role of MR. They are required to recertify annually through further professional development to maintain the role.

The purpose of this course evaluation instrument was to determine the extent to which an online course is inclusive of the course design elements described on the instrument as determined by the two evaluators. The evaluation protocol developed for Phase II used twenty-three of the standards from the *Quality Matters Higher Education Rubric, 6th Edition* as the

basis for the evaluation checklist. The course evaluators will use the Phase II: Course Evaluation instrument to rate or evaluate a selected number of online courses. The use of the Course Evaluation instrument (Appendix C) to perform this evaluation was intended to provide a formal and consistent approach to observe the course design decisions made by the faculty selected for this portion of the study. The use of an instrument to perform the observation (i.e., evaluation) allowed the evidence gathered to be reported in tabular form and could then be used to perform direct comparisons of what the faculty reported they had included in the design of their online course to what is present in the course.

To protect the identity of the Phase II participants in this study, each course that was reviewed was assigned a letter that was used as the case record. The course name, number, institution, and/or name of the faculty who chose to participate in the review were not used as an identifier for these courses.

The Course Evaluation instrument can be viewed in Appendix C. The course evaluators used a 5-point Likert scale to indicate the extent to which the course design element was present in each course with 1 (*absent*) and 5 (*exemplary*). Using a separate form for each course, the evaluators rated each course independently assigning a number using the scale for each of the items. The scores from the two evaluators were averaged for each item to arrive at an item score. Using two evaluators provided an opportunity for comparison of scores as a means to increase the reliability of the scores obtained in this phase (Fraenkel et al., 2015). The evaluation data were compared to the data gathered in the Phase I, Section III questionnaire. The Course Evaluation instrument was intended to align with the Phase I, Section III questionnaire. See Appendix G for the alignment of these two design effectiveness scales.

Data Analysis

Data analysis included detailed descriptive statistics as well as multiple inferential statistics to determine the relationships among the variables. Because the assumptions for use of the Pearson Product Moment Correlation were violated, nonparametric tests were used instead to analyze the data to explore relationships among the self-perceived competency level for online teaching competencies, various demographic variables, and self-assessment of inclusion of effective course design elements. These tests included Spearman's rank-order correlations, Kendall's tau-b correlations, and Mann-Whitney U rank order correlations. The researcher looked for differences among the responses as compared to the multiple variables included in the survey to see whether or not things like previous experience, professional development, etc. show relationships of value. This type of analysis is used to look for the existing relationships among and between variables in an attempt to describe the degree to which these various variables are related (Fraenkel et al., 2015).

Because of the different types of variables in this study, several types of analysis were completed. First, to describe the sample from which data were collected, descriptive information on age, gender, teaching experience, educational attainment, professional development completion, and professional development preferences were provided, as well as the means, medians, and standard deviations for the scores on Part 1 (Demographics) and Part 2 (OTSEI) of the Phase I Questionnaire. Second, to determine the relationship between the Phase I, Part 2 (OTSEI) and Phase I, Part 3 (EOCDP), correlation coefficients were determined using Spearman's rho and Kendall's tau-b correlation tests. Third, to determine if there were any differences in the Phase I, Part 2 (OTSEI) and Phase I, Part 3 (EOCDP) scores that might be due to moderating effects such as teaching experience, age, or professional development type

completed, Mann-Whitney U rank order correlation tests were completed to determine if any significant differences existed. Fourth, a comparison of the scores obtained from the Phase II course evaluation were compared to the Phase I, Part 3 scores (EOCDP).

Research Questions and System Alignment

Table 4 describes the alignment between the research questions and the methods used in this study to ensure that all variables of study have been accounted for adequately. Table 5 (p. 69) summarizes the data analysis.

Table 4

Research Question Alignment

Research Question (RQ)	Variables	Design	Instrument	Validity & Reliability	Technique	Source
Primary RQ						
RQ1 **What are the relationships among online teaching self-efficacy, online higher education instructors' faculty teaching experience, professional development, and implementation of effective online course design practices?**	Online Teaching Self-Efficacy	Correlational	Phase I: Section 2 (OTSEI)	R: .84 to .95 V: .41	Survey	Faculty
	Teaching Experience		Phase I: Section 1	NA	Survey	Faculty
	Professional Development		Phase I: Section 1	NA	Survey	Faculty
	Effective Course Design Practices		Phase I: Section 3	NA	Survey	Faculty
Secondary RQs						
RQ2 **What levels of online teaching self-efficacy do online faculty possess?**	Teaching Self-Efficacy	Correlational	Phase I: Section 2 (OTSEI)	R: .84 to .95 V: .41	Survey	Faculty
RQ3 **To what degree do particular demographics impact levels of online teaching self-efficacy and ratings of the importance of online teaching competencies?**	Teaching Self-Efficacy	Correlational	Phase I: Section 2 (OTSEI)	R: .84 to .95 V: .41	Survey	Faculty
	Teaching Experience		Phase I: Section 1	NA	Survey	Faculty
	Professional Development		Phase I: Section 1	NA	Survey	Faculty

Research Question (RQ)	Variables	Design	Instrument	Validity & Reliability	Technique	Source
RQ4 **To what degree do particular demographics impact self-perception of implementation of effective online course design practices?**	Teaching Experience	Correlational	Phase I: Section 1	NA	Survey	Faculty
	Professional Development		Phase I: Section 1	NA	Survey	Faculty
	Effective Course Design Practices		Phase I: Section 3	NA	Survey	Faculty
RQ5 **What are the differences between online course design practices of higher education online instructors with a perceived high or low sense of online teaching self-efficacy based on the type of professional development completed and course design supports used prior to designing an online course?**	Teaching Self-Efficacy	Correlational	Phase I: Section 2 (OTSEI)	R: .84 to .95 V:.41	Survey	Faculty
	Professional Development		Phase I: Section 1	NA	Survey	Faculty
	Effective Course Design Practices		Phase I: Section 3	NA	Survey	Faculty
RQ6 **How does the course design by higher education online instructors with a perceived high sense of online teaching self-efficacy correlate to nationally recognized effective online course design practices?**	Teaching Self-Efficacy	Correlational	Phase I: Section 2 (OTSEI)	R: .84 to .95 V: .41	Survey	Faculty
	Effective Course Design Practices		Phase I: Section 3 Phase II: Course Evaluation	NA	Course Evaluation	Course Data

Table 5

Data Analysis

Research Question	Data Analyses
RQ1 What are the relationships among online teaching self-efficacy, online higher education instructors' faculty teaching experience, professional development, and implementation of effective online course design practices?	Inferential Statistics: Spearman's rho and Kendall's tau-b correlation
RQ2 What levels of online teaching self-efficacy do online faculty possess?	Descriptive Statistics: Means, standard deviations, percentages
RQ3 To what degree do particular demographics impact levels of online teaching self-efficacy and ratings of the importance of online teaching competencies?	Descriptive Statistics: Means, standard deviations, percentages Inferential Statistics: Mann-Whitney U rank order correlation
RQ4 To what degree do particular demographics impact self-perception of implementation of effective online course design practices?	Descriptive Statistics: Means, standard deviations, percentages Inferential Statistics: Mann-Whitney U rank order correlation
RQ5 What are the differences between online course design practices of higher education online instructors with a perceived high or low sense of online teaching self-efficacy based on the type of professional development completed and course design supports used prior to designing an online course?	Descriptive Statistics: Means, standard deviations, percentages
RQ6 How does the course design by higher education online instructors with a perceived high sense of online teaching self-efficacy correlate to nationally recognized effective online course design practices?	Descriptive Statistics: Means, standard deviations, percentages

Procedures and Timeline

Timeline Overview

A pilot of the questionnaire was conducted in spring 2020. Both phases of the study were completed during summer and fall 2020. The actual timeline for each phase of the study is listed here with a more detailed description provided in the next section:

- Phase I Questionnaire Pilot: Completed Spring 2020.
- Completion of OTSEI content validity: Completed June 2020.
- Phase I Questionnaire open for responses: July 15, 2020 – September 18, 2020.
- Questionnaire responses were exported to SPSS and initial analysis was completed to identify high self-efficacy individuals who volunteered for Phase II: Completed September 2020.
- Follow-up with volunteers for Phase II to obtain informed consent and to gain access to courses: Completed October 2020.
- Phase II Course Evaluation of six courses: Completed November 2020
- Data analysis for all data: October 2020 through January 2021.
- Written conclusions prepared and finalized: January 2021 – February 2021.
- Dissertation Defense: March 2021

Adjustments Based on COVID-19 Pandemic. The changes and adjustments described in this section are reflected in the planned timeline provided above. The Phase I instrument was modified in June 2020 to include a question to differentiate those who were teaching online for the first time as a result of the mass transition to online delivery that was the result of the COVID-19 pandemic campus closures. Additionally, the questions regarding online teaching self-efficacy (Phase I, Section 2 questions) were modified to provide participants an opportunity

to not only rate their ability to perform the competency (i.e., self-efficacy), but also to ask them to rank their perception of the importance of these competencies as part of what they need to know to design an effective online course. Following these modifications, the instrument was piloted a second time with a small group of individuals who do not currently teach online. The intent with the second pilot was to get feedback from individuals who might be less familiar with the concepts and terminology related to online course development to determine if the instrument included any items that might confuse those newer to online delivery. The three participants in this small second pilot were not part of the target group for the study. See Appendix F for the responses to pilot #2. No adjustments were made to the questionnaire based on their feedback.

Additionally, the timeline for the project was adjusted slightly from the original plan. In order to capture the thoughts of those faculty who were newly online, it was decided to extend the time frame during which the questionnaire was available. Starting with a mid-July initial invitation to participate, the questionnaire remained open for responses through the end of September. With the competing demands on faculty time due to the pandemic response at their institutions, accepting responses to the questionnaire for a longer period was appropriate in that it provided an opportunity for participation for those faculty who taught during the summer as well as for those who were not teaching again until fall semester to participate.

Procedures

The Phase I questionnaire was piloted by a selected group of experienced online faculty in spring 2020. These individuals included a mix of community college and university faculty who have been teaching online for a varying number of years. All of these individuals were from the target group for this study. They were made aware that their participation in the pilot would preclude them from participation in the actual survey. Nine individuals participated in this pilot.

The questions along with the responses are included in Appendix E. The feedback these individuals provided was used to make minor modifications to the questionnaire such as changing to use the term *faculty* rather than *teacher* to be more inclusive, the addition of more answer choices to represent a greater range of disciplines, and a slight reorganization of the introduction page.

Content validity of the OTSEI was established using a procedure described by Lawshe (1975). A *content evaluation panel* was convened that was comprised of persons knowledgeable about required competencies for online higher education instructors. The list of experts included individuals with extensive experience teaching online, with designing effective online courses, and/or with supervising online faculty. Each member of the panel was provided a copy of the OTSEI items and was asked to rank each item as being *essential*, *useful but not essential*, or *not useful* for an online teacher. Using the scores obtained from these content experts, a Content Validity Ratio (CVR) and Content Validity Index (CVI) was computed.

Phase I data collection began in July 2020. By starting the data collection in mid-summer, the expectation was that some faculty who were teaching summer courses or who were working on fall semester course preparations in advance of the August 24, 2020 fall semester start date would have interest in completion of the survey during the summer. The questionnaire remained open for several weeks into the fall semester in order to provide potential participants who did not complete the questionnaire in the summer approximately three weeks to get their fall semester classes started before being asked to complete the questionnaire.

To initiate the data collection process, an invitation to participate in the study was sent along with a link to the Phase I questionnaire (i.e., Qualtrics survey) via email to the senior academic officers at the various institutions with a request that it be distributed to faculty.

Additionally, to assure broad distribution, this same email information was sent to faculty development leaders, instructional design departments, and via listservs in the system inviting participation. The researcher also relied on personal outreach to faculty developers, administrators, and campus trainers asking that they also encourage participation by distributing the invitation and questionnaire to the online faculty at their respective institutions. Within the questionnaire itself, the instructions explicitly invited participation from faculty who were teaching online or blended courses as well as those who were teaching online for the first time as a result of the emergency remote transition to online course delivery due to the COVID-19 pandemic.

The Phase I questionnaire was open to accepting responses until the end of September 2020. Data from the Qualtrics survey was exported to SPSS in late August and again after the Qualtrics survey was closed at the end of September 2020. SPSS was used to determine the self-efficacy scores of the participants. The resulting scores were analyzed to determine a minimum and maximum score as well as a median score. The initial working definition for high and low efficacy was that those with online teaching self-efficacy (OTSE) scores falling above the median were considered as having *high* self-efficacy. Those with scores below the median were considered as having *low* self-efficacy. The median was used as a middle point because of the skewed distribution of the OTSE scores. The researcher used SPSS to identify which of the participants indicated an interest in participation in Phase II of the study. Individuals who had *high* self-efficacy and who indicated interest in participation in Phase II were sent information that outlined the expectations for the second phase. The criteria for inclusion included: 1) having created an online course; and, 2) agreement to provide login access for the evaluators of a copy of the course that does not include student data. Additionally, the Phase I questionnaire, Section I

responses were sorted to identify which participants were from community colleges and which were from universities. An attempt to include faculty from both institution types was important because the resources, professional development, and institutional support may be significantly different. From those two lists, Section II responses were reviewed to determine which participants fit the scoring criteria for being high online teaching self-efficacy. Individuals who indicated they had previously participated in a Quality Matters official course review for any online or blended course were excluded from the list of possible volunteers. Based on that initial sorting of responses, from those who indicated interest in further participation, nine individuals from both institution types (i.e., community colleges and state universities) were selected for participation in Phase II. Further explanation about the process for selection of Phase II participants is described in Chapter 4 including the circumstances that led to the only six courses being reviewed.

The Phase II informed consent form was then emailed to the individuals who were identified for this portion of the study. Once the informed consent form was signed and returned to the researcher, a copy was returned to the individuals via email for their records. Once informed consent was secured for Phase II of the study, the participant was provided with written instructions for working their local D2L Brightspace or LMS administrator to create a copy of the online course that was to be reviewed. The two evaluators were enrolled in each course in the student role. The instructions to the participant included a reminder to ensure that the online course copy did not include actual student data. Appendix D includes the *Consent for Participation* and the instruction document.

The courses were then evaluated by two Quality Matters Certified Master Reviewers (MR). Course Evaluator #1 is an experienced QM Certified MR who was selected by the

researcher from the Quality Matters peer reviewer database. Course Evaluator #1 was an instructional designer and faculty at a large midwestern university in a different state than the study participants. She has extensive experience with designing online courses, teaching online courses, and with reviewing online courses using the Quality Matters Higher Education Rubric. Course Evaluator #1 was paid a stipend by the researcher to perform the course evaluations. The researcher was Course Evaluator #2. She is a Quality Matters Certified MR with extensive experience with designing and teaching online courses as well as with reviewing courses using the Quality Matters Higher Education Rubric. The evaluators did not review the responses on the questionnaire regarding course design decisions (from Phase I, Section 3 of the questionnaire) of the Phase II participants prior to evaluating the courses. These evaluators accessed and reviewed the courses independently of the other. The courses were evaluated to determine the extent that each course met the course design standards outlined in the Phase II evaluation protocol. Decisions regarding the extent that each course met the standards were informed by the annotations that are part of the Quality Matters Higher Education Rubric. The scores assigned to each course by the evaluators were combined to create a composite score for each of the Phase II courses. Scores from the items on the Phase II instrument were then compared to the scores on the Phase I, Section III questionnaire to look for variance between the two sets of scores.

From mid-October until the end of January 2021, the researcher analyzed the data from both phases of the study and prepared the report. The written conclusions were completed in February 2021.

Ethical Considerations

The potential risk to subjects was very low. The survey questions in Phase I did not include any specific identifiers such as participant name or institution name. Data gathered in Phase II were de-identified. Quotes or specific examples included in the results use pseudonyms.

Conclusions

This chapter described the research methods for this study. Using a sequential quantitative explanatory approach to obtain the primary data regarding associations among online teaching self-efficacy beliefs, various demographic elements, professional development, and course design effectiveness, this study also included a qualitative component that examines the extent to which course design practices of a select group of faculty mirror their self-perception of effective practice. The next chapter will describe the results of this study.

CHAPTER 4. RESEARCH RESULTS

Introduction

Many public institutions in higher education do not have the resources, support, or professional development to provide a consistent approach to preparing faculty to design and deliver effective online courses. Because of this, there are faculty who begin teaching online with limited preparation, professional development, and support. This is especially true now given the shift to primarily online delivery due to the COVID-19 pandemic that began in March 2020.

Online faculty who have had limited professional development or support to begin teaching online may have developed their online course design practices based on previous face-to-face teaching experiences or based on previous experiences as an online student. When professional development or support is available, often faculty are given a choice in the types and amount of support they might use or the professional development they will complete prior to teaching online. Faculty sometimes choose to, or if no supports or professional development are offered by the institution must, take a "do-it-yourself" approach to learn how to design and teach online courses. Additionally, the sense of online teaching self-efficacy faculty possess may impact their decisions to participate in professional development or to seek support. For example, faculty with a high sense of online teaching self-efficacy and high self-perception of their online teaching abilities might forego professional development in areas or on topics where it is needed. Whether or not the professional design or institutional supports offered leads to the intended outcome of improved courses is also unknown. Taken together, this uneven and potentially lacking preparation to teach online may leave faculty without the requisite skills or knowledge necessary to create online and blended courses that support student learning and success.

Purpose of the Study

The purpose of this study was to investigate what relationships exist between the online teaching self-efficacy ratings of higher education faculty when compared to their online teaching experience levels, the hours of professional development completed, and the degree to which these faculty have implemented effective online course design practices in a course of their creation as compared to nationally recognized effective online course design practices. This non-experimental sequential quantitative correlational explanatory research design study included two phases to investigate these variables. Phase I used a questionnaire to gather most of the data for the study. Invitations to participate were sent to faculty in a large system of public higher education located in the Midwest. Phase II included data gathered through a course review process of a small number of courses that were then compared to the course design ratings of the participants recruited for this phase. The analysis of the data is presented in this chapter.

The analysis of data in this chapter is organized by the six research questions. The primary research question focused on the relationship among the main study variables: online teaching self-efficacy (OTSE), effective online course design practices (EOCDP), and faculty demographics such as years teaching online or hours of professional development completed. Four of the secondary research questions focused on examining differences and relationships among subgroups. The final research question focused on the relationship between the EOCDP of a small number of participants as compared to course design ratings by two course evaluators.

Research Questions

Primary Research Question

1. What are the relationships among online teaching self-efficacy, higher education instructors' teaching experience, professional development, and implementation of effective online course design practices?

   H0: There are no significant relationships between online teaching self-efficacy beliefs, higher education instructors' teaching experience, professional development, and online course design effectiveness ratings.

   H1: There are significant relationships between online teaching self-efficacy beliefs, higher education instructors' teaching experience, professional development, and online course design effectiveness ratings.

Secondary Research Questions

2. What levels of online teaching self-efficacy do online faculty possess?
3. To what degree do particular demographics impact levels of online teaching self-efficacy and ratings of the importance of online teaching competencies?
4. To what degree do particular demographics impact self-perception of implementation of effective online course design practices?
5. What are the differences between online course design practices of higher education online instructors with a perceived high or low sense of online teaching self-efficacy based on the type of professional development completed and course design supports used prior to designing an online course?

6. How does the course design by higher education online instructors with a perceived high sense of online teaching self-efficacy correlate to nationally recognized effective online course design practices?

Participants

Participant demographic information was drawn from the Phase I questionnaire. The questionnaire was completed by a total of 104 higher education faculty. This number of participants included seven individuals who indicated they were teaching their first online course as a result of the COVID-19 pandemic. Of the 104 participants, the majority were women (78.8%), White (96%), full-time (76%), community-college faculty (65%). The ages of the participants ranged from 28 to 73 years with a mean age of 51.41 years. Higher education teaching experience ranged from 0 – 42 years with a mean of 15.99 years. Online teaching experience ranged from 0 – 25 years with a mean of 9.17 years. The participants included individuals from higher education institutions from a range of sizes including small, mid-sized, and large institutions that were all part of a system of public higher education located in the upper Midwest. Thirty-six of the participants provided the contact information necessary for being sent more information about Phase II of the study if they met the criteria. Study participant demographic information of all participants is summarized in Table 6.

Table 6

Participant Demographic Characteristics

Participant Characteristic	*n*	%
Gender		
Women	82	78.8
Men	20	19.2
Non-binary	1	1.0
Prefer not to answer	1	1.0
Ethnicity		
Hispanic	1	1.0
Indian	1	1.0
Multi-Ethnic	2	1.9
Native American	1	1.0
White	96	92.3
Prefer not to answer	1	1.0
Highest Education Level		
Associate's Degree	2	1.9
Bachelor's Degree	4	3.8
Master's Degree	50	48.1
Doctorate Level Degree	48	46.1
Faculty Employment Status		
Full-time (not adjunct or temporary)	79	76.0
Part-time (not adjunct or temporary)	1	1.0
Full-time (adjunct or temporary)	9	8.7
Part-time (adjunct or temporary)	15	14.4
Institution Type		
Community and/or Technical College (2-year institution)	68	65.4
State University (4-year institution)	36	34.6
Institution Size		
Less than 1,000 students	7	6.7
1,000 – 5,000 students	55	52.9
5,001 – 10,000 students	25	24.0
10,001 – 15,000 students	12	11.5
More than 15,000 students	1	1.0
Don't know	1	1.0
Experience as an online student	86	82.7
Participated in a QM official course review	33	31.7
Taught first online course due to COVID-19 pandemic	7	6.7

Participant Characteristics	*M*	*Mdn*	*SD*
Age[a]	51.41	52.0	10.55
Years of Higher Education Teaching Experience	15.99	15.0	9.05
Years of Higher Education Online Teaching Experience[b]	9.17	9.0	6.38

Note. $n = 104$.

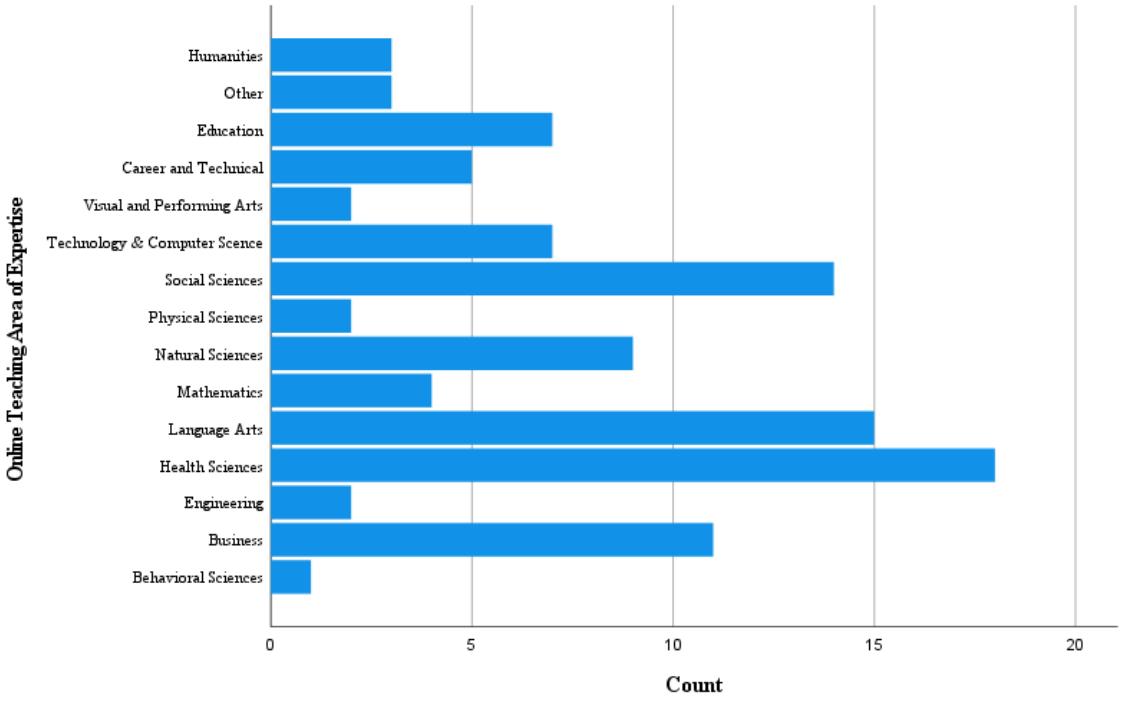
a. Two participants did not answer this question.

b. One participant did not answer.

The areas of online teaching expertise of the participants included more than fourteen areas with the following most reported: Health Sciences, Language Arts, Social Sciences, and Business. Figure 3 summarizes the areas of online teaching expertise of the study participants.

Figure 3

Online Teaching Area of Expertise



Comments Specific to COVID-19 Pandemic Participants

Seven of the 104 participants reported teaching their first online or partially online course as a result of the COVID-19 pandemic which necessitated the rapid shift to Emergency Remote Teaching in March 2020. The information for these participants is included in the summary of demographic information presented in Table 6. Where relevant, comments are provided related to each research question that are pertinent to data gathered from these 7 participants who will be referred to as *New-online.* The individuals in the *New-online* group were majority women (85.7%) and all were White (100%). The group included a mix of full-time (57.1%) and part-

time (42.9%) faculty; community college (42.9%) and university faculty (57.1%); and, indicated employment at institutions ranging in size from 1000 – 10, 000 students. New-online participants' ages ranged from 34 to 57 years with a mean age of 45.71 years (*Mdn* = 46, *SD* = 9.92). They reported higher education teaching experience ranging from 0 – 31 years with a mean of 9.14 years (*Mdn* = 6, *SD* = .84). The areas of online teaching expertise of these participants included health sciences, language arts, education, mathematics, physical sciences, and visual and performing arts. Table 7 summarizes the characteristics of this group.

Table 7

Participant Demographics: Newly Online Due to COVID-19 Pandemic

Participant Characteristic	*n*	%
Gender		
Women	6	85.7
Men	1	14.3
Ethnicity		
White	7	100
Highest Education Level		
Bachelor's Degree	1	14.3
Master's Degree	4	57.1
Doctorate Level Degree	2	28.6
Faculty Employment Status		
Full-time (not adjunct or temporary)	4	57.1
Part-time (adjunct or temporary)	3	42.9
Institution Type		
Community and/or Technical College (2-year institution)	3	42.9
State University (4-year institution)	4	57.1
Institution Size		
1,000 – 5,000 students	2	28.6
5,001 – 10,000 students	3	42.9
10,001 – 15,000 students	1	14.3
Don't know	1	14.3
Taught first online course due to COVID-19 pandemic	7	100

Participant Characteristics	*M*	*Mdn*	*SD*
Age	45.71	46.0	9.92
Years of Higher Education Teaching Experience	9.14	6.0	10.98
Years of Higher Education Online Teaching Experience	0.5	0	.84

Note. $n = 7$. Results here are included in the totals in Table 6.

Results

The following section provides an analysis of the data and the results. The six research questions were used as a guide for completing this analysis with results organized by research question. For most questions, the initial analysis does not include the results from the 7 *New-online* individuals. Comments related to this group are included for most questions where relevant following the initial analysis of the main study participants.

Research Question 1

What are the relationships among online teaching self-efficacy, higher education instructors' teaching experience, professional development, and implementation of effective online course design practices?

H0: There are no significant relationships between online teaching self-efficacy beliefs, higher education instructors' online teaching experience, professional development, and online course design effectiveness ratings.

H1: There are significant relationships between online teaching self-efficacy beliefs, higher education instructors' teaching experience, professional development, and online course design effectiveness ratings.

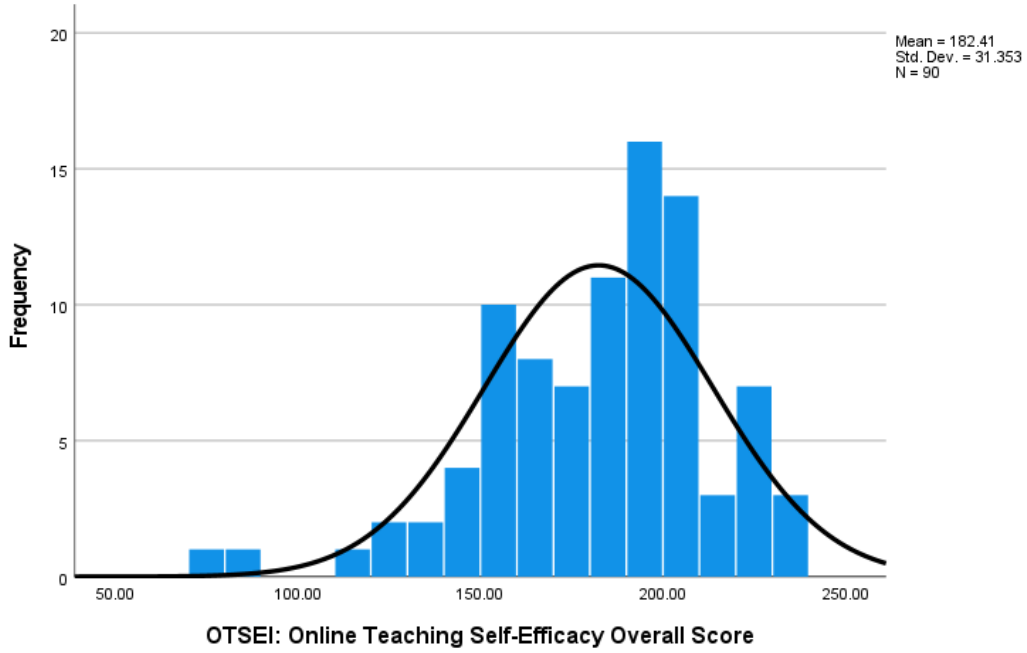
To investigate the relationships among higher education faculty online teaching self-efficacy beliefs, online teaching experience, professional development, and effective online course design practices ratings, the researcher examined data obtained from the Phase I questionnaire. The distribution of the results for the two primary study variables, online teaching self-efficacy (OTSE) and effective online course design practices (EOCDP), is presented in Figures 4 and 5. The total number of responses included for some variables are different because

there were questions that some participants skipped or missed as they completed the questionnaire. Items with no answer were not included in the calculations.

Figure 4 shows the OTSE score distribution. The distribution is negatively skewed and is not a normal distribution. Figure 5 (pg. 87) shows the EOCDP score distribution. Similarly, it is negatively skewed and is not a normal distribution. Because the score distributions were not normal for these variables, non-parametric inferential statistical tests were used to analyze the data. Descriptions of the specific tests and the assumptions examined to choose them are provided as each test is introduced.

Figure 4

Online Teaching Self-Efficacy (OTSE) Score Distribution

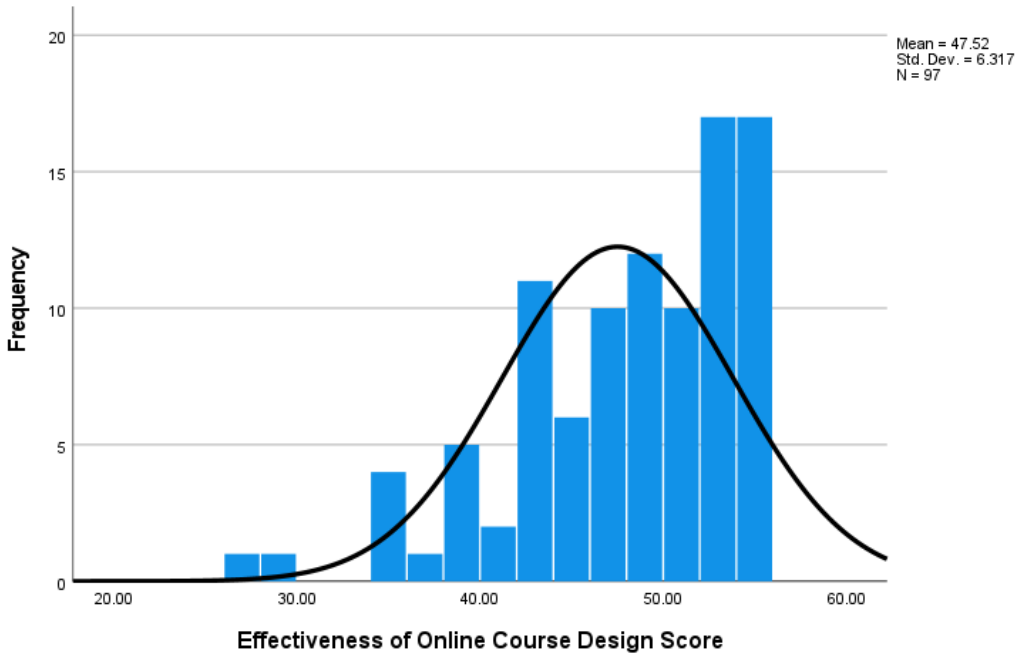


The variable *online teaching self-efficacy* was analyzed using an OTSE score for each participant based on responses to the Online Teaching Self-Efficacy Inventory (OTSEI) that was part of the Phase I questionnaire. The OTSE score was derived by adding the scores for the 47

OTSEI items together to arrive at a total OTSE score. Of the 97 participants who completed the questionnaire, 90 participants answered every item on the OTSEI. The highest possible score on the OTSEI was 235. The minimum score reported was 75 with a maximum reported score of 235. For these 90 participants, the mean score was 182.41 (*Mdn =188.0, SD* = 31.35).

Figure 5

Effective Online Course Design Practices (EOCDP) Score Distribution



The variable of *effective online course design practices* was examined using the EOCDP score that was based on an 11-item section on the Phase I questionnaire. The scores for this portion of the questionnaire were added together to obtain an overall score. The highest score possible was 55 points. The lowest reported score was 27 while the highest was 55. Eleven participants (11.34%) of the total of 97 participants reported the highest possible score of 55. The mean score was 47.52 (*Mdn* = 49.0, *SD* = 6.32).

Two measures related to *teaching experience* were included in the analysis. Participants were asked to report how many years of higher education teaching experience they have as well as their years of experience with online teaching. For overall higher education teaching experience (whether face-to-face, online or blended courses), some individuals reported this was their first year of teaching. The highest number of years of experience reported was 42 years with the lowest at 1 year. The mean was 16.48 years (*Mdn= 16.0, SD* = 8.76). When asked specifically about years of experience teaching online, the participants reported a range of 1 to 25 years with a mean of 9.72 years (*Mdn* = 10.0*, SD* = 6.18). Table 8 summarizes the information related to these variables.

Table 8

Mean Scores: OTSE, Teaching Experience, and Effectiveness of Online Course Design

Variable	*n*	*M*	*Mdn*	*SD*	Min. Statistic	Max. Statistic
Online Teaching Self-Efficacy (OTSE) Score	90	182.41	188.0	31.35	75	235
Years of Teaching Experience (Online)	97	9.71	10.0	6.18	1	25
Effectiveness of Online Course Design Practices (EOCDP) Score	97	47.52	49.0	6.32	27	55

Note: n = valid responses from a total of 97

Information for the variable *professional development* was obtained by asking the participants to report how many hours of professional development they had completed specifically related to preparing to design and teach online courses. Participants reported the number of hours completed using categories in 10-hour increments (i.e., 0 – 10 hours, 11 – 20 hours, etc.). Of the 97 participants, 32% reported completion of greater than 50 hours of professional development while 19.6% reported having completed ten or fewer hours. The results for professional development related to online course design are provided in Table 9.

Table 9

Hours of Professional Development Completed

Number of Hours	*n*	%
0 – 10 Hours	19	19.6%
11 – 20 Hours	22	22.7%
21 – 30 Hours	10	10.3%
31 – 40 Hours	12	12.4%
41 – 50 Hours	3	3.1%
Greater than 50 Hours	31	32.0%

Note: n = proportion of valid responses from a total of 97

A comparison was made between the number of hours of professional development completed as related to the years of online teaching experience. The results were grouped into the following categories based on years of reported online teaching experience: 1 year or less, 2 – 3 years, 4 – 6 years, 7 – 10 years, and 11 years or more. This analysis found that across each category of online teaching experience there were individuals who reported completing less than 10 hours of professional development related to online course design and teaching. For faculty who indicated less than one year of teaching experience, 66.7 percent ($n = 4$) indicated completion of fewer than 20 hours of professional development while 33.3 percent ($n = 2$) reported completion of 31 – 40 hours. For those with 2 – 3 years of online teaching experience, 50 percent ($n = 6$) reported having completed less than 20 hours of professional development, 16.6 percent ($n = 2$) reported completing between 21 and 40 hours of professional development, and 33.3 percent ($n = 4$) reported completion of greater than 50 hours of professional development. For those with 4 – 6 years of online teaching experience, 70 percent ($n = 14$) reported having completed less than 20 hours of professional development, 15 percent ($n = 3$) reported completing between 21 and 30 hours of professional development, and 15 percent ($n = 3$) reported completion of greater than 50 hours of professional development. For those with 7 – 10 years of online teaching experience, 40 percent ($n = 8$) reported having completed less than

20 hours of professional development, 30 percent (n = 6) reported completing between 21 and 50 hours of professional development, and 30 percent (n = 6) reported completion of greater than 50 hours of professional development. For those with more than 11 years of online teaching experience, 23 percent (n = 9) reported having completed less than 20 hours of professional development, 30.7 percent (n = 12) reported completing between 21 and 50 hours of professional development, and 46.2 percent (n = 18) reported completion of greater than 50 hours of professional development. Table 10 summarizes these data.

Table 10

Hours of Professional Development by Years of Online Teaching Experience

Years of Online Teaching Experience	Hours of PD Completed	*n*	Percentage
1 year or less	0 – 10 hours	1	16.7
	11 – 20 hours	3	50.0
	31 – 40 hours	2	33.3
	Total	6	100.0
2 – 3 years	0 – 10 hours	5	41.7
	11 – 20 hours	1	8.3
	21 – 30 hours	1	8.3
	31 – 40 hours	1	8.3
	Greater than 50 hours	4	33.3
	Total	12	100.0
4 – 6 years	0 – 10 hours	6	30.0
	11 – 20 hours	8	40.0
	21 – 30 hours	3	15.0
	Greater than 50 hours	3	15.0
	Total	20	100.0
7 – 10 years	0 – 10 hours	5	25.0
	11 – 20 hours	3	15.0
	21 – 30 hours	1	5.0
	31 – 40 hours	4	20.0
	41 – 50 hours	1	5.0
	Greater than 50 hours	6	30.0
	Total	20	100.0
11 or more years	0 – 10 hours	2	5.1
	11 – 20 hours	7	17.9
	21 – 30 hours	5	12.8
	31 – 40 hours	5	12.8
	41 – 50 hours	2	5.1
	Greater than 50 hours	18	46.2
	Total	39	100.0

Note. n = number of valid responses from a total of 97

To explore the relationships among these variables, two different correlation measures were run. Spearman's rank-order correlations were completed to analyze the relationship among the OTSE score, the EOCDP score, and the years of online teaching experience. According to

Schober et al. (2018) and Laerd Statistics (2016), it is appropriate to use Spearman's rank-order correlation for two or more continuous variables with paired observations where the variables have a monotonic relationship. Spearman's correlation coefficient is used to measure the strength and direction of association of two ranked variables. The characteristics of the variables (i.e. paired observations of continuous variables) satisfied two of the assumptions for using Spearman's rank-order correlation. The third assumption requires that there be a monotonic relationship between the variables. Preliminary analysis showed the relationship among the variables to be monotonic, as assessed by visual inspection of a scatterplot so the assumptions were not violated.

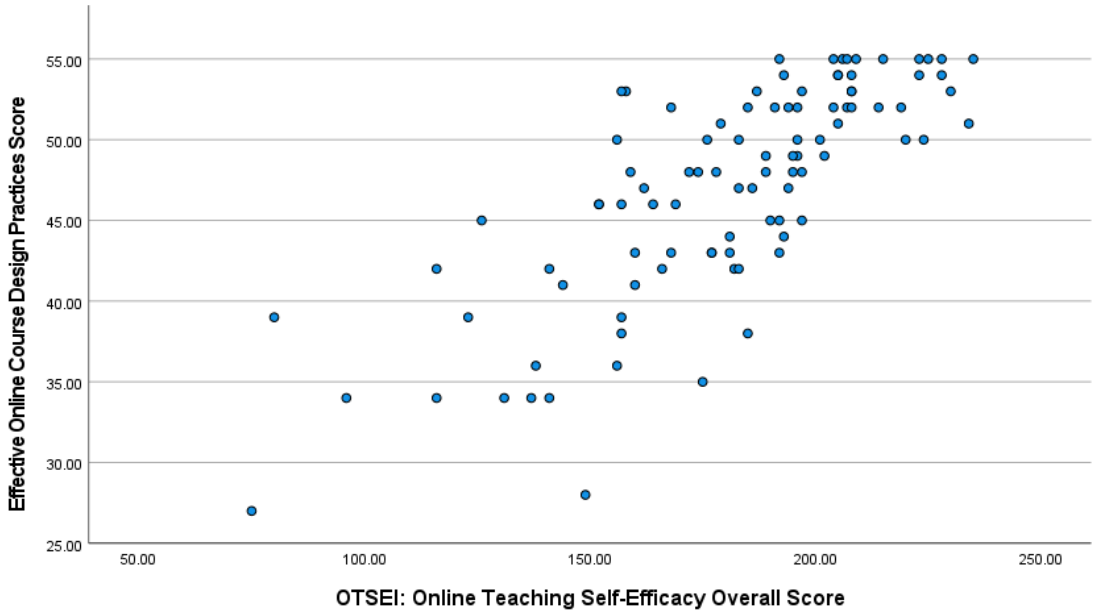
Because data related to the hours of professional development variable was not reported as a continuous variable, but instead was an ordinal variable, a Kendall's tau_b correlation was performed for comparisons related to the professional development variable. Kendall's Tau is a rank correlation that shows the relationship between columns of ranked data from paired observations. According to Schober et al. (2018) and Laerd Statistics (2016), it is appropriate to use Kendall's tau_b correlation for two variables with paired observations where the variables have a monotonic relationship. The two variables may be ordinal, continuous, or a combination of the two types. The third assumption requires that there be a monotonic relationship between the variables. Preliminary analysis showed the relationship among the variables to be monotonic, as assessed by visual inspection of a scatterplot so the assumptions were not violated.

Using Spearman's rank-order correlation to examine the relationship between OTSE and EOCDP, the results from 90 participants were compared. There was a statistically significant, strong positive correlation between the OTSE score and the EOCDP score, $r_s(88) = .758$, $p <$

.001. The scatterplot in Figure 6 illustrates the relationship between these two primary study variables.

Figure 6

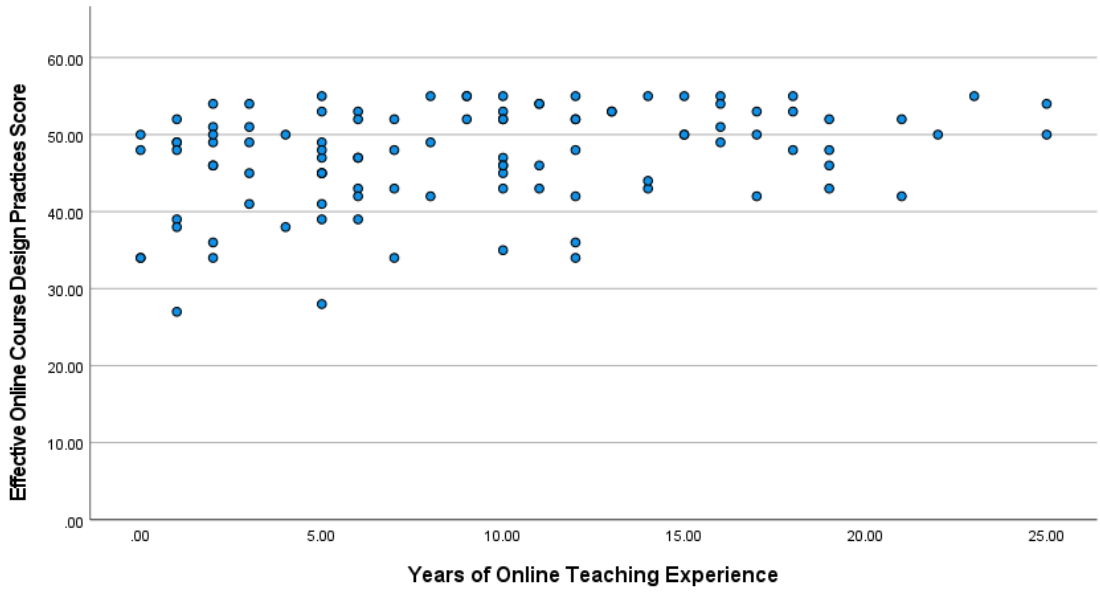
Scatterplot of OTSE Score by EOCDP Score



A Spearman's rank-order correlation was calculated to examine the relationship between OTSE and years of online teaching experience using the results from 90 participants were compared. The years of online teaching experience showed a weak association with the OTSE score, $r_s(88) = .255$, $p < .015$. The relationship between online teaching experience and the EOCDP score was also explored with a Spearman's rank-order correlation. The results of 97 participants were compared. There was a statistically significant, mild positive correlation between the years of online teaching experience and the EOCDP score, $r_s(95) = .279$, $p < .006$. Figure 7 illustrates the relationship between the EOCDP score and the years of online teaching experience.

Figure 7

Scatterplot of EOCDP Scores by Years of Online Teaching Experience



To determine if there was a relationship between hours of professional development completed and the EOCDP score, the results of 97 participants analyzed using Kendall's tau-b correlation. This test found a moderate, positive association between hours of professional development completed and the EOCDP score, which was statistically significant, $\tau_b = .334$, $p = .000$. An examination of the association between hours of professional development completed and the OTSE was then examined. For this pairing of variables, the results of 90 participants were explored. A Kendall's tau-b correlation found that there was a moderate, positive association between hours of professional development completed and the OTSE score, which was statistically significant, $\tau_b = .359$, $p = .000$.

Table 11 provides a summary of both the Spearman's correlation coefficients and the Kendall’s tau_b correlation coefficient along with statistical significance for each of these

variables. Naming practices for correlation coefficients based on the values derived indicated there were weak (.255 and .279), moderate (.334 and .359), and strong (.758) indicators of correlation among these variables (Akoglu, 2018).

Table 11

Summary of Correlation Coefficients and Statistical Significance

			OTSE Score	EOCDP Score
Spearman's rho	Online Teaching Self-Efficacy (OTSE) Score	Correlation Coefficient	1.000	**.758****
		Sig. (2 tailed)	.	.000
		n	90	90
	Effective Online Course Design Practices (EOCDP) Score	Correlation Coefficient	.758**	1.000
		Sig. (2 tailed)	.000	.
		n	90	97
	Years of Online Teaching Experience	Correlation Coefficient	**.255***	**.279****
		Sig. (2 tailed)	.015	.006
		n	90	97
Kendall's tau_b	Hours of Professional Development Completed	Correlation Coefficient	**.359***	**.334***
		Sig. (2 tailed)	.000	.000
		n	90	97

Note: *Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Based on these findings, it was determined that there was a relationship among the study variables, and it was statistically significant for all of these relationships ($p < .05$): online teaching self-efficacy, higher education instructors' online teaching experience, hours of professional development completed, and implementation of effective online course design practices. Therefore, the null hypothesis can be rejected, and the alternative hypothesis accepted.

Research Question 2

What levels of online teaching self-efficacy do online faculty possess?

To determine levels of online teaching self-efficacy, an overall score was calculated by adding the 47 items on the Online Teaching Self-Efficacy Inventory (OTSEI) to create the OTSE

score. Additionally, a score for each of the five individual parts of the OTSEI was calculated similarly. The scores of 90 participants were included in the calculations. Item responses for the OTSEI scales were based on a 5-point Likert scale for a possible total point value of 235 points (5 points x 47 items). Total possible points for each part were based on the number of items in each part as follows: Part 1 = 40 points (8 items), Part 2 = 50 points (10 items), Part 3 = 35 points (7 items), Part 4 = 55 points (11 items), and Part 5 = 55 points (11 items). The OTSEI instrument is included in Appendix C: Phase I Questionnaire.

Among the 90 participants, the lowest overall score recorded was 75 while the highest was 235 (M = 182.41, *Mdn =188.0, SD* = 31.35). Table 12 provides a summary of the mean scores, median scores, and standard deviations for the overall OTSE score as well as for each sub-part.

Table 12

Online Teaching Self-Efficacy Levels

		OTSEI: Online Teaching Self-Efficacy Score	OTSEI (Part 1): Selection of Technological Resources	OTSEI (Part 2): Virtual Interaction	OTSEI (Part 3): Course Content Migration	OTSEI (Part 4): Online Alignment of Objectives, Instruction, and Assessment	OTSEI (Part 5): Web-based Course Structure
n	Valid	90	94	97	96	94	97
	Missing	7	3	0	1	3	0
Mean		182.41	27.03	38.91	28.77	44.28	43.89
Median		188	26	40	30	45	46
Std. Deviation		31.35	6.96	7.69	4.91	7.82	8.02
Minimum possible score		0	0	0	0	0	0
Maximum possible score		235	40	50	35	55	55

Figure 4 (p. 86) illustrates the score distributions for the overall OTSE score and Figures 8 – 12 (pp. 97 – 101) illustrate the score distributions for each of the five parts. The questions associated with each of these five parts can be found in Appendix C: Phase I Questionnaire. Score distributions were not normally distributed and were negatively skewed for each part. Of the five parts, Part 1: Selection of Technological Resources was closest to a normal distribution as is illustrated in Figure 8. This section of the OTSEI included 8 items that asked the participants to assess their ability to select, utilize and determine the appropriateness of technology to enhance student learning and enrich instruction. Out of the 94 responses, the lowest score reported was 9 with the highest 40 out of a possible 40 points. The mean score of the OTSEI, Part 1 was 27.03 (*SD* = 6.96). The median was 26.0. Of the five parts, Part 1 had the lowest overall efficacy scores for these participants.

Figure 8

OTSEI (Part 1): Selection of Technological Resources Score Distribution

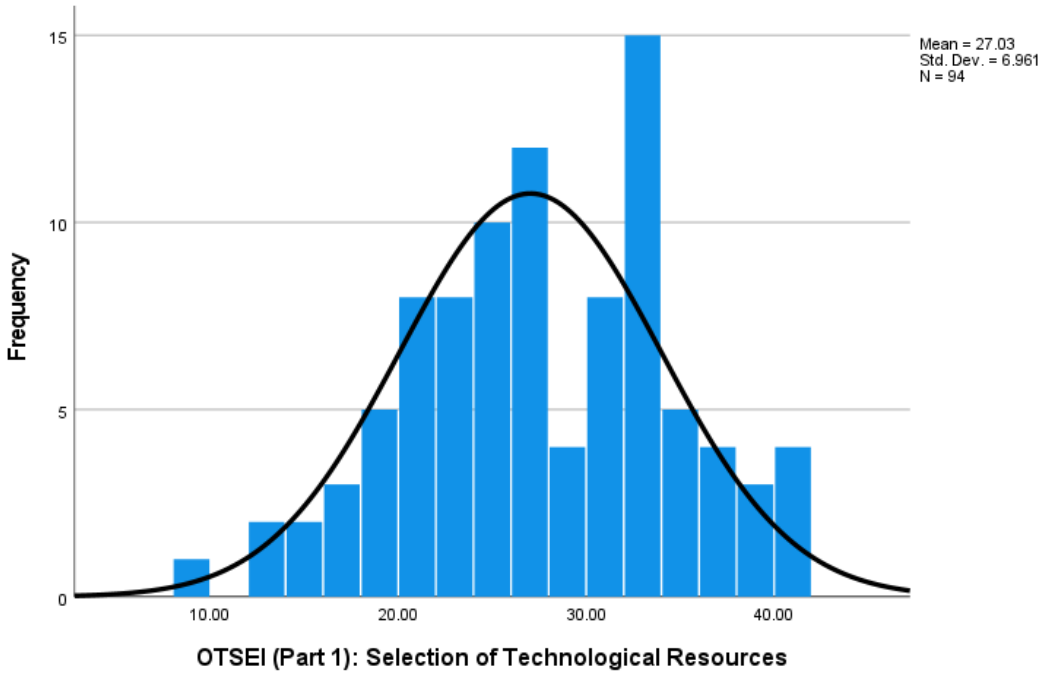


Figure 9 represents the score distribution for the OTSEI Part 2: Virtual Interaction. This section of the OTSEI included 10 items that asked the participants to assess their ability to effectively facilitate teacher-student interaction, meaningful student cooperation, and the ability to establish a positive social climate that engages students through fostering motivation, intellectual commitment, and personal development. Out of the 97 responses, the lowest score reported was 19 with the highest 50 out of a possible 50 points. The mean score of the OTSEI, Part 2 was 38.91 (SD = 7.69). The median was 40.0. Of the five parts, Part 2 had scores lower than Parts 3 – 5 but higher than Part 1.

Figure 9

OTSEI (Part 2): Virtual Interaction Score Distribution

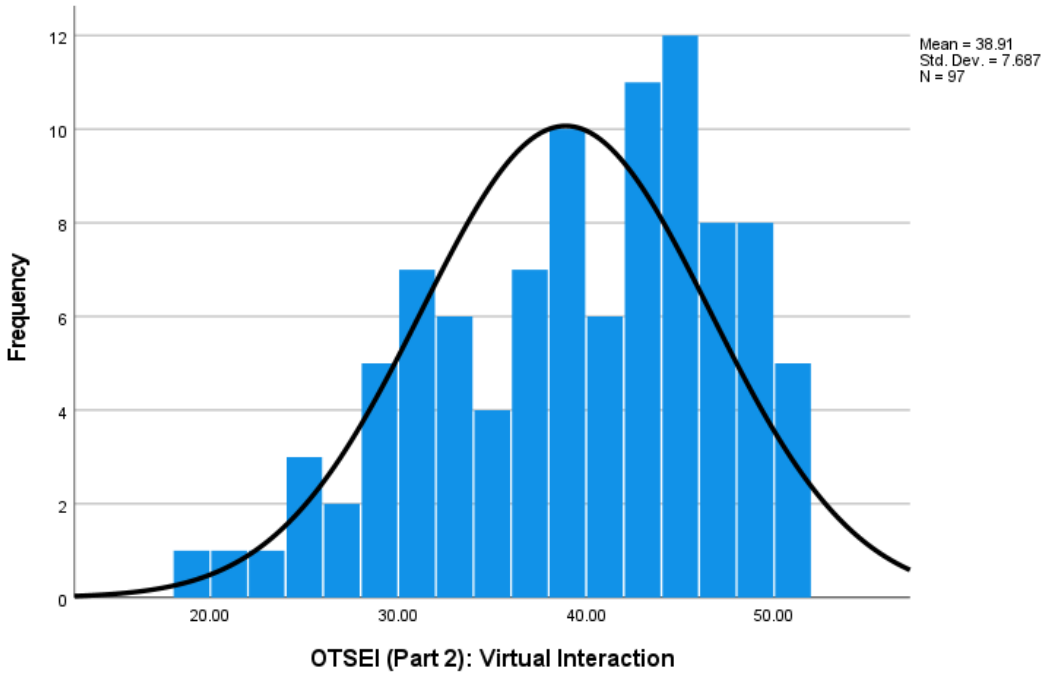


Figure 10 represents the score distribution for the OTSEI Part 3: Course Content Migration. This section of the OTSEI included 10 items that asked the participants to assess their ability to successfully transfer instructional materials from face-to-face to online courses. They

were asked to consider if the contents of the information they provided or transferred were sufficiently comprehensive to achieve the defined learning outcomes. For the scope of this study, instructional materials referred to information created and prepared by the online instructor. Out of the 96 responses, the lowest score reported was 10 with the highest 35 out of a possible 35 points. The mean score of the OTSEI, Part 3 was 28.77 (*SD* = 4.91). The median was 30.0. Of the five parts, this area of the OTSEI inventory had the highest scores.

Figure 10

OTSEI (Part 3): Course Content Migration Score Distribution

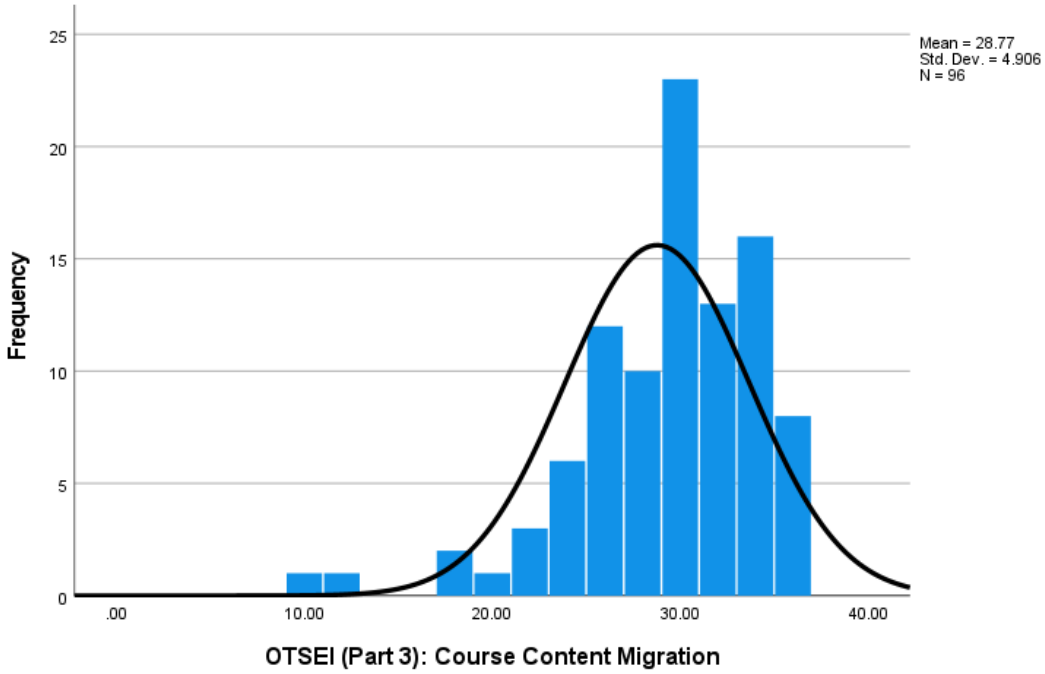


Figure 11 represents the score distribution for the OTSEI Part 4: Alignment of Objectives, Instruction, and Assessment. This section of the OTSEI included 11 items that asked the participants to assess their ability to effectively align learning objectives, unit assignments, learning activities, assessment strategies, and procedures within online courses. Out of the 94 responses, the lowest score reported was 14 with the highest 55 out of a possible 55 points. The

mean score of the OTSEI, Part 4 was 44.27 (*SD* = 7.83). The median was 45.0. Of the five parts, this part had the second-highest scores from the participants.

Figure 11

OTSEI (Part 4): Online Alignment of Objectives, Instruction, and Assessment Score Distribution

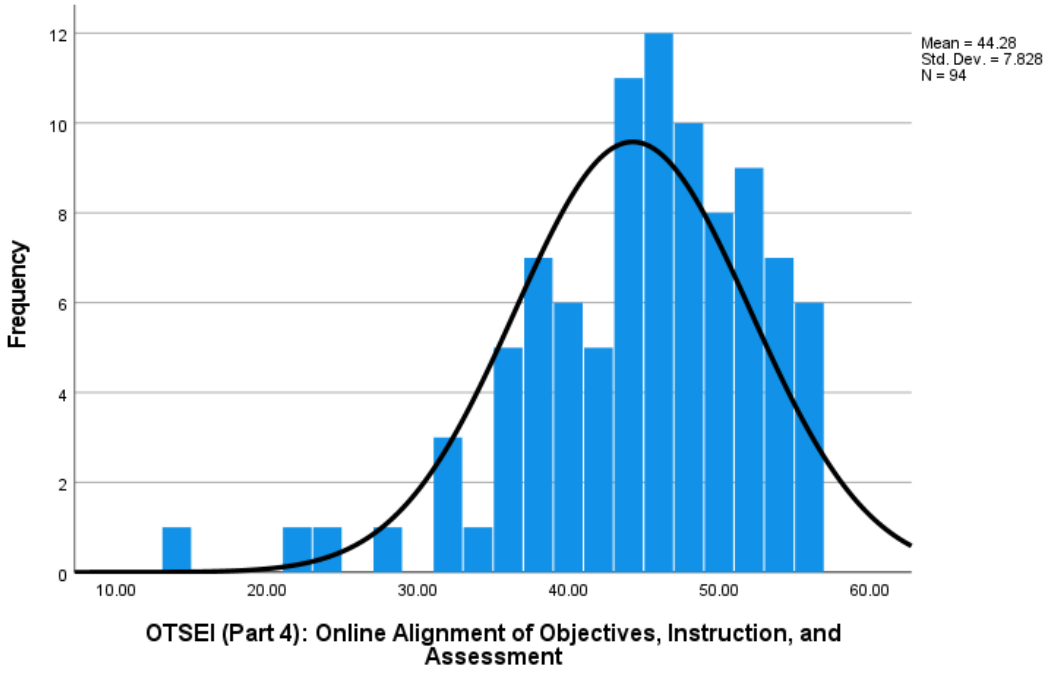
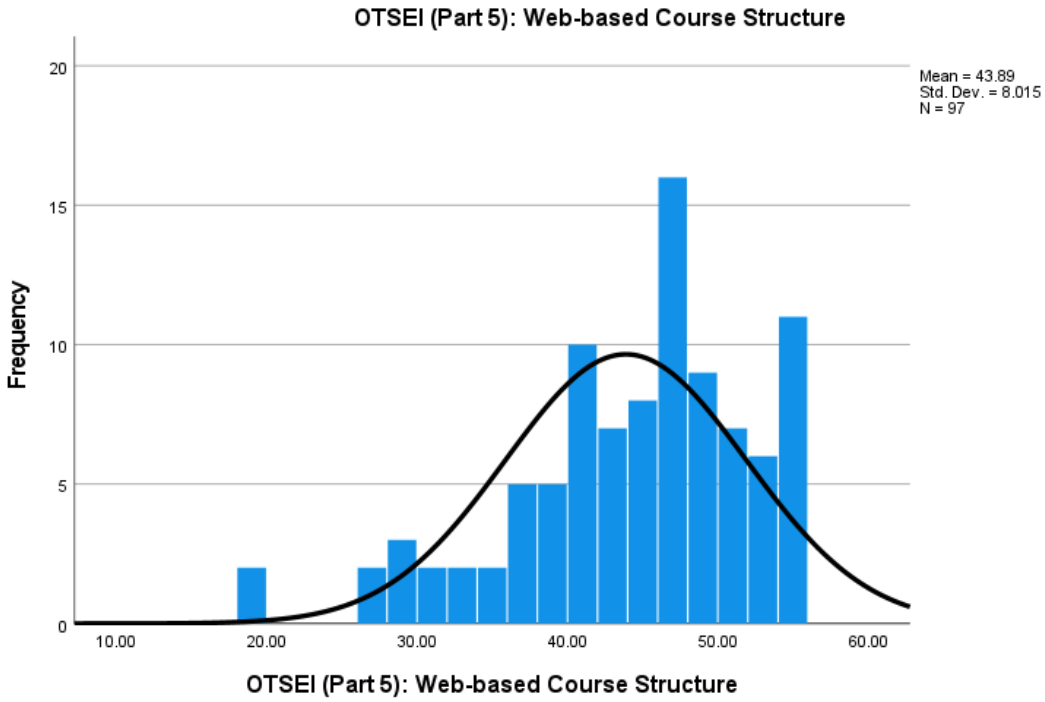


Figure 12 represents the score distribution for the OTSEI Part 5: Web-based Course Structure. This section of the OTSEI included 11 items that asked the participants to assess their ability to construct and design an online course that includes a clear organizational structure, facilitates straightforward navigation and communication guidelines, is consistent and aligned with an institution's mission, and complies with the Americans with Disabilities Act (ADA). Out of the 97 responses, the lowest score reported was 19 with the highest 55 out of a possible 55 points. The mean score of the OTSEI, Part 5 was 43.89 (*SD* = 8.01). The median was 46.0. Part 5 had the third-highest scores within this participant group.

Figure 12

OTSEI (Part 5): Web-based Course Structure



Comments Specific to COVID-19 Pandemic Participants. The seven New-Online participants who completed the questionnaire reported lower levels of online teaching self-efficacy than did the individuals who were already teaching online. The mean OTSE score reported by the newly online due to COVID-19 participants was 157.29 (*Mdn* = 172, *SD* = 41.05) as compared to the primary study participants who had a mean score of 182.41 (*Mdn* = 188, *SD* = 31.35). Table 13 summarizes these score differences.

Table 13

Comparison of OTSE Scores: New-Online (Pandemic) versus Primary Study Participants

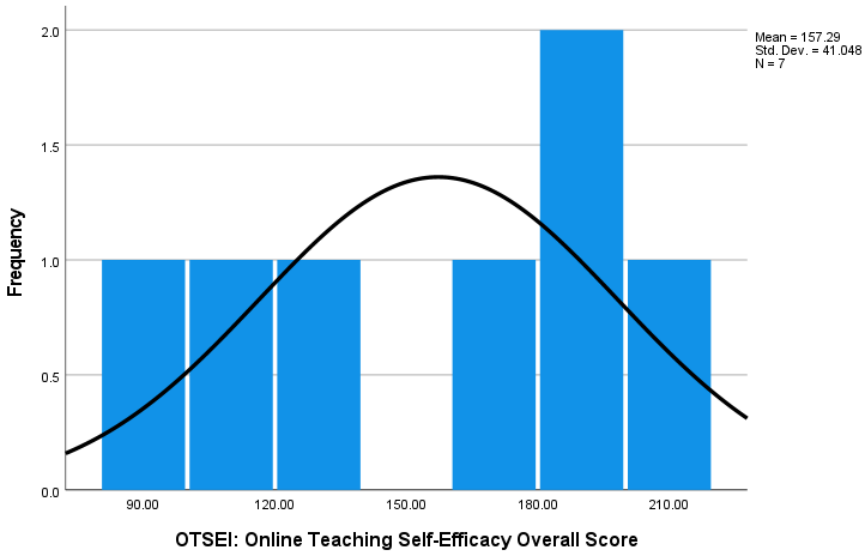
	OTSE Scores*		
	Newly Online Due to COVID-19 *n* = 7	Online Course Before COVID-19 *n* = 90	All *n* = 97
Mean	157.29	182.41	180.60
Median	172	188	186
Std. Deviation	41.05	31.35	32.55

Note: *Minimum possible score = 0; Maximum possible score = 235

A Mann-Whitney U was performed to determine if there were differences between the New-Online group and the primary study participants. A description of the rationale for using Mann-Whitney U tests is provided on page 106. OTSE scores for the New-Online (n = 6, mean rank = 32.57) and the primary study participants (n = 90, mean rank = 50.28) were not statistically significantly different, U = 430, z = 1.604, p = .109. Figure 13 illustrates the OTSE score distribution for the New-Online group. Mean scores ranged from 90 – 202 (M = 157.29, Mdn = 172, SD = 41.05) with two of the seven reporting scores above the median OTSE score of 188 that the primary study participants reported.

Figure 13

OTSE Overall Score Distribution: Newly Online Due to Pandemic



The scores for each of the five parts of the OTSEI were also explored. Mean scores for each part were lower for the New-Online group than for the primary Phase I participants, however, the same two individuals who reported overall high OTSE scores also reported higher scores for each of the five parts of the OTSEI than the mean or median scores reported by the 90 individuals in the Phase I participant group. Shared demographic characteristics of these two individuals who reported higher online teaching self-efficacy than those with online teaching experience were that both were adjunct, new to higher education teaching, new to online teaching, had previously been an online student, and had completed 0 – 10 hours of professional development to prepare them to teach online. One was a university faculty while the other was a community college faculty.

Table 14 summarizes the means, medians, and standard deviations for each part of the OTSEI for the 7 New-Online faculty. Of note was that the Part 2: Virtual Interaction median

score (M = 36.14, Mdn =43) for the 7 New-Online faculty is higher than both the mean and median scores (M = 38.91, Mdn = 40) reported by the primary study participants. Mean and median scores of the newly online faculty for the other four parts were lower than the means and medians of the reported scores of the main study participants. Additionally, the distribution of the scores by OTSEI parts was different for these participants. The OTSE scores of the New-Online group versus the primary study group are presented in Table 14.

Table 14

OTSE Scores for New-Online Due to COVID-19 Pandemic

	OTSEI: Online Teaching Self-Efficacy Score	OTSEI (Part 1): Selection of Technological Resources	OTSEI (Part 2): Virtual Interaction	OTSEI (Part 3): Course Content Migration	OTSEI (Part 4): Online Alignment of Objectives, Instruction, and Assessment	OTSEI (Part 5): Web-based Course Structure
Mean	157.29	23.43	36.14	22.43	40	35.29
Median	172	22	43	22	41	37
Std. Deviation	41.05	6.43	10.17	7.93	9.27	10.77
Lowest Score	96	16	23	12	25	20
Highest Score	202	32	45	33	50	46
Minimum possible score	0	0	0	0	0	0
Maximum possible score	235	40	50	35	55	55

Note. n = 7

A comparison was made between the primary group and the New-Online group based on how they rated their self-efficacy. Across the five parts, the scores for both groups indicated *Part 1: Selection of Technological Resources* was an area where they had the lowest self-efficacy, and the scores for *Part 5: Web-based Course Structure* fell in the middle of the ranked scores. The New-Online group rated their efficacy on *Part 4: Alignment of Objectives, Instruction, and Assessment* the highest, followed by *Part 2: Virtual Interaction.* The primary group participants

rated their self-efficacy highest in the area of *Part 3: Course Content Migration*, followed by *Part 4: Alignment of Objectives, Instruction, and Assessment.* Table 15 displays these differences in the rating of the online teaching self-efficacy by the five parts of the OTSEI.

Table 15

Comparison of OTSE Scores by each OTSEI Part from High to Low Between Groups

OTSEI Parts	Comparison of Ranked Scores	
	Primary Participants (n = 90)	New-Online Participants (n = 7)
Part 1: Selection of Technological Resources	5	5
Part 2: Virtual Interaction	4	2
Part 3: Course Content Migration	1	4
Part 4: Alignment of Objectives, Instruction, and Assessment	2	1
Part 5: Web-based Course Structure	3	3

Note. Rated high to low with 1 being highest and 5 being lowest

Research Question 3

To what degree do particular demographics impact levels of online teaching self-efficacy and ratings of the importance of online teaching competencies?

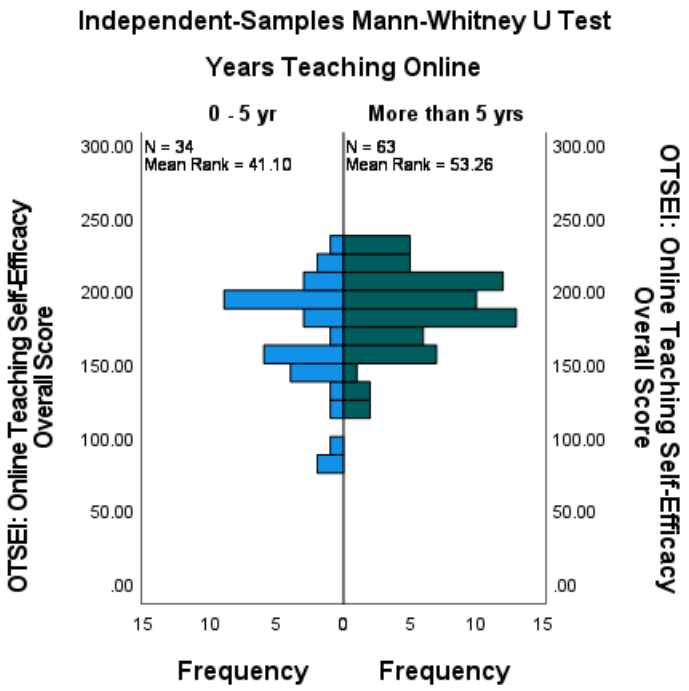
The results for research questions one and two indicated that there is a statistically significant relationship among the main study variables and that the distribution of scores meant to determine online teaching self-efficacy was negatively skewed. Research question #3 looked at specific demographic characteristics including online teaching experience, hours of professional development completed, gender, institution type, whether or not the participant has participated in a Quality Matters official course review, and whether or not the participant had experience as an online student. These variables were explored to determine how any of those things impact not only online teaching self-efficacy (OTSE), but also to determine if any of these

variables impact the importance the participants placed on these online teaching competencies (IOC) that comprise the OTSEI instrument.

Mann-Whitney U tests were performed to make comparisons based on various demographic characteristics. For each comparison, there was no relationship between the observations in each group which meant that there was no violation of the *independence of observations* assumption. Additionally, before performing each of these Mann-Whitney U tests, the score distributions for the variables being analyzed were examined and were determined not to be similar based on a visual inspection. Figure 14 illustrates the distribution shape comparison for the *Years of Online Teaching Experience* variable. The shapes of the score distributions were not similar. This same type of comparison was performed for each of the variables being compared (i.e., gender, type of institution, hours of professional development completed, experience as an online student, and QM review experience). Because the distributions were not similar in shape (i.e., skewness, kurtosis) for each comparison, the mean ranks were reported rather than the median score for all Mann Whitney-U tests performed.

Figure 14

Illustration of Distribution Shape Comparisons for Mann-Whitney U Test



Comparing Gender Results. Mann-Whitney U tests were run to determine if there were differences between women and men in the OTSE scores and the IOC scores. OTSE scores for women (mean rank = 46.09) and men (mean rank = 40.38) were not statistically significantly different, $U = 533.5$, $z = -.819$, $p = .413$. IOC scores for women (mean rank = 49.36) and men (mean rank = 39.67) were also not statistically significantly different, $U = 543$, $z = -1.355$, $p = .75$.

Comparing 2-year Faculty to 4-year Faculty. Mann-Whitney U tests were run to determine if there were differences between 2-year (community college) or 4-year (university) higher education faculty in their OTSE scores and IOC scores. OTSE scores for 2-year college faculty (mean rank = 49.94) were statistically significantly higher than for 4-year university

faculty (mean rank = 37.05), $U = 652.5$, $z = -2.225$, $p = .026$. Cohen's effect size value ($d = .48$) suggested a small to intermediate effect for practical significance. The IOC scores for 2-year college faculty (mean rank = 48.8) and 4-year university faculty (mean rank = 47.89) were not statistically significantly different, $U = 1004.5$, $z = -.152$, $p = .879$.

Comparing Novice versus Experienced Online Faculty. To determine the impact of faculty online teaching experience on both the OTSE and IOC scores, two groups were created for comparison: those who reported 5 or fewer years of online teaching experience and those who reported greater than 5 years of online teaching experience. Mann-Whitney U tests were performed to analyze the distribution of scores for OTSE scores and IOC scores. OTSE scores for those with less than 5 years of online teaching experience (mean rank = 39.06) were not statistically significantly lower than for those with more than five years of online teaching experience (mean rank = 48.26), $U = 1024.5$, $z = 1.532$, $p = .125$. IOC scores for those with less than 5 years of online teaching experience (mean rank = 46.67) were not statistically significantly lower than for those with more than five years of online teaching experience (mean rank = 49.33), $U = 1045$, $z = .435$, $p = .664$.

Comparing Hours of Professional Development Completed. Mann-Whitney U tests were used to determine if there were differences in the OTSE and IOC scores depending on the number of hours of professional development completed. On the questionnaire, participants were asked to indicate the number of hours of professional development completed specifically related to how to design and teach online courses. Data from the answers provided were grouped into two categories for analysis. The determination for how the groupings were made was based on preliminary analysis of all of the professional development data and was purposefully chosen to create two categories that were likely to yield the most impact. The two categories created for

analysis were *0 – 20 hours* and *more than 20 hours*. The median OTSE score for those with more than 20 hours of professional development was 195 (n = 51, M = 193.96, SD = 65.10), while the median score for those with fewer than 20 hours was 174 (n = 39, M = 167.31, SD = 32.95). OTSE scores for those who had participated in more than 20 hours of professional development (mean rank = 55.1) were statistically significantly higher than for those who reported completing 0 – 20 hours (mean rank = 32.95), U = 1484, z = 3.987, p = .000. Cohen's effect size value (d = .93) suggested a large effect for practical significance.

When evaluating the IOC scores, the scores for those reporting completions of more than 20 hours of professional development (mean rank = 54.95) were statistically significantly higher than for those who reported completion of 0 – 20 hours (mean rank = 39.85), U = 1482, z = 2.627, p = .009. Cohen's effect size value (d = .56) suggested an intermediate effect for practical significance.

Comparing Individuals with QM Review Experience. Mann-Whitney U tests were completed to determine if there were differences in the OTSE and IOC scores for those who had participated in an official QM course review and those who had not. The median OTSE score for those who had participated in a QM review was 197 (n = 31, M = 195.52, SD = 24.91), while the median score for those who had not was 182 (n = 59, M = 175.53, SD = 32.36). OTSE scores for those who had participated in an official QM course review (mean rank = 56.45) were statistically significantly higher than for those who had not (mean rank = 39.75), U = 575, z = -2.883, p = .004. Cohen's effect size value (d = .64) suggested an intermediate effect for practical significance.

The median IOC score for those who had participated in a QM review was 212 (n = 33, M = 210.06, SD = 13.75), while the median score for those who had not was 201 (n = 63, M =

200.35, *SD* = 18.99). IOC scores for those who had participated in an official QM course review (mean rank = 58.44) were statistically significantly higher than for those who had not (mean rank = 43.29), $U = 711.50$, $z = -2.531$, $p = .011$. Cohen's effect size value ($d = .54$) suggested an intermediate effect for practical significance.

Comparison Based on Experience as an Online Student. Participants were also asked on the questionnaire if they had previous experience as an online student which many reported they had. To determine if there were differences in the OTSE or IOC scores for those who had experience as an online student and those who did not, Mann-Whitney U tests were performed. OTSE scores for those who had experience as an online learner (mean rank = 47.13) were not statistically significantly higher than for those who did not have this experience (mean rank = 37.33), $U = 440$, $z = -1.327$, $p = .185$. The OIC scores for those with experience as an online learner (mean rank = 49.18) were not statistically significantly higher than for those with no experience as an online student (mean rank = 44.83), $U = 552.5$, $z = -.555$, $p = .579$.

Summary of Compared Results. A detailed description of the specific findings for each variable was provided including statistical significance and effect sizes. Effect sizes were calculated for Mann-Whitney U tests as described by Lenhard and Lenhard (2016). A summary of the results obtained after performing each Mann-Whitney U test is presented in Tables 16 (p. 111) and 17 (p. 112). Of the variables compared, statistically significant differences with intermediate effects of practical significance were found with two variables. Results indicated that there was a significant impact on OTSE and IOC scores when more than 20 hours of professional development were completed. There was a similar impact on OTSE and IOC scores when individuals had participated in an official QM course review.

Table 16

Summary of Particular Demographics on OTSE using the Mann-Whitney U test

Demographic Characteristic	Online Teaching Self-Efficacy (OTSE)					
	n	*Mean*	*SD*	*Mean Rank*	*Median*	*p* value[a]
Gender	89	182.41	31.35	--	188.0	.413
Women	72	182.76	33.02	46.09	189.0	
Men	17	179.59	24.27	40.38	178.0	
Institution Type	90	182.41	31.35	--	188.0	**.026***
2 – Year Institution	59	187.27	31.81	49.94	192.0	
4 – Year Institution	31	173.16	28.73	37.05	179.0	
Years of Online Teaching Experience	90	182.41	31.35	--	188.0	.125
0 – 5 years	27	172.56	38.48	39.06	185.0	
More 5 years	63	186.63	27.01	48.26	191.0	
Hours of Professional Development	90	182.41	31.35	--	188.0	**.000***
0 – 20 hours	39	167.31	32.65	32.95	174.0	
More than 20 hours	51	193.96	25.01	65.10	195.0	
QM Official Course Review	90	182.41	31.35	--	188.0	**.004***
Yes	31	195.52	24.91	56.45	197.0	
No	59	175.53	32.36	39.75	182.0	
Online Student Experience	90	182.41	31.35	--	188.0	.185
Yes	75	184.91	29.39	47.13	189.0	
No	15	169.93	38.51	37.33	168.0	

Note. a. Asymptotic significance is displayed for all *p* values.

* The significance level is .050.

Table 17

Summary of Particular Demographics on IOC using the Mann-Whitney U test

Demographic Characteristic	Importance of Online Competencies (IOC)					
	n	*Mean*	*SD*	*Mean Rank*	*Median*	*p* value
Gender	94	203.69	17.90	--	207.5	.175
Women	76	205.07	17.18	49.36	208.0	
Men	18	197.72	20.99	39.67	201.0	
Institution Type	96	203.69	17.90	--	207.5	.879
2 – Year Institution	64	204.06	17.83	48.80	207.0	
4 – Year Institution	32	202.94	18.32	47.89	209.0	
Years of Online Teaching Experience	96	203.69	17.90	--	207.5	.664
0 – 5 years	30	201.87	19.80	46.67	207.5	
More 5 years	66	204.52	17.07	49.33	207.5	
Hours of Professional Development	96	203.69	17.90	--	207.5	**.009***
0 – 20 hours	41	197.56	20.51	39.85	199.0	
More than 20 hours	55	208.25	14.24	54.95	210.0	
QM Official Course Review	96	203.69	17.90	--	207.5	**.011***
Yes	33	210.07	13.75	58.44	212.0	
No	63	200.35	18.99	43.29	201.0	
Online Student Experience	96	203.69	17.90	--	207.5	.579
Yes	81	204.07	17.75	52.17	207.0	
No	15	201.6	19.20	51.19	208.0	

Note. a. Asymptotic significance is displayed for all *p* values.

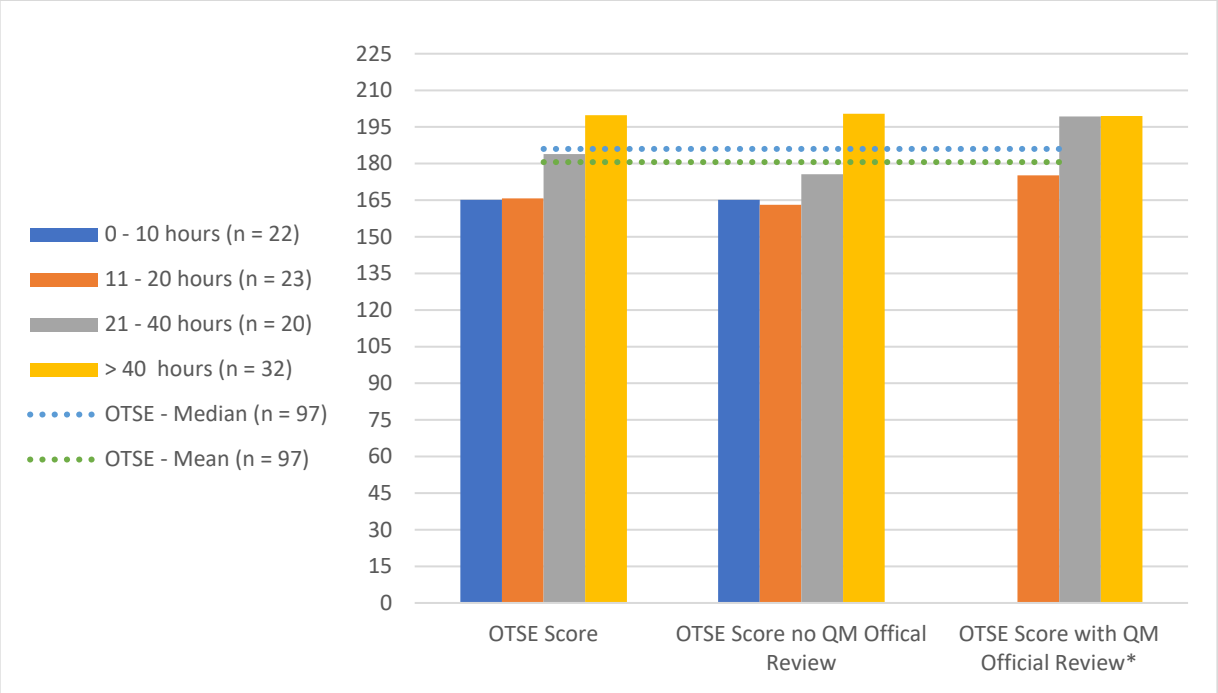
* The significance level is .050.

Because the two variables with the greatest impact on OTSE were hours of professional development completion and participation in an official QM course review, these two variables were analyzed further. For this comparison, four categories of professional development completion were created including 0 – 10 hours, 11 – 20 hours, 21 – 40 hours, and more than 40 hours. For the purposes of this comparison, all participant scores were analyzed including the New-Online group. Mean scores for the OTSE ($n = 97$, $M = 180.6$, $Mdn = 186$) were compared to mean scores by the number of hours of PD completed for those with and without QM review

experience. This showed that the mean score for the OTSE for those with greater than 40 hours of PD was similar whether they had QM review experience or not. Differences were apparent for those with less than 40 hours of PD. More specifically, those who had participated in a QM course review and who had greater than 40 hours of PD had an OTSE mean score of 199.47 (n = 19, Mdn = 197, SD = 24.17) and those without review experience had a mean score of 200.38 (n = 13, Mdn = 197, SD = 16.24). Those with 21 – 40 hours of PD and QM review experience reported an OTSE mean score of 199.29 (n = 7, Mdn = 205, SD = 23.12) while those without QM review experience had a mean score of 175.62 (n = 13, Mdn = 179, SD = 27.19). Participants with 11 – 20 hours of PD and QM review experience reported a OTSE mean score of 175.2 (n = 5, Mdn = 164, SD = 24.69) and those without review experience reported a mean score of 163.11 (n = 18, Mdn = 179, SD = 37.99). Figure 15 illustrates the score comparisons between these three variables.

Figure 15

OTSE Scores Compared Based on Hours of PD and QM Course Review Experience



Note. Scores of all participants including New-Online.

*Mean OTSE score by hours of professional development of the 33 participants who reported QM Official course review experience. There were none in the *0 – 10 hours* group.

Research Question 4

To what degree do particular demographics impact self-perception of implementation of effective online course design practices?

The previous question looked at how various demographic variables impact the perception of the importance of online teaching competencies (IOC) and the online teaching self-efficacy (OTSE) score. This question looks at how demographics impact the self-assessed effective online course design practices (EOCDP) score. Section 3 of the Phase I questionnaire included 11 questions that were based on the summary statement from each of the eight general

standards in the Quality Matters Higher Education Rubric. Participants were asked to identify and reflect on a specific online course they had designed and, if they had designed more than one course, to reflect on the one most recently designed. Next, they were asked to answer a multi-select question related to the course design supports they used when creating the course. Finally, they were asked to rank their implementation of the EOCDP listed using a 5-point Likert scale. The scores were added together to arrive at a total EOCDP score for each participant. The total possible points were 55. The lowest reported score was 27 with the highest reported score being 55. Eleven individuals reported a score of 55. Figure 5 (p. 87) illustrates the distribution of scores for this variable. The mean score was 47.52 (*Mdn* = 49.0, *SD* = 6.32). Because the scores were not normally distributed and were negatively skewed, non-parametric tests were chosen to perform analysis for this variable. As described previously, assumptions for use of the tests chosen were examined and were determined to be met.

Specific demographic characteristics were explored to determine how they were related to the EOCDP score including online teaching experience, hours of professional development completed, gender, institution type, whether or not the participant had participated in a Quality Matters official course review, and whether or not the participant had experience as an online student. A Mann-Whitney U test was performed for each of the demographic characteristics. Prior to performing each of these Mann-Whitney U tests, the score distributions for each variable were examined and were determined not to be similar based on a visual inspection. Because the distributions were not similar, the assumption of normal distribution was violated. This means that for each test, mean rank scores were reported for comparison rather than the median scores.

Comparing Gender Results. A Mann-Whitney U test was run to determine if there were differences in the EOCDP scores between women and men. There was not a statistically significant difference between the score for women (mean rank = 48.63) and men (mean rank = 44.5), $U = 674.5$, $z = -.443$, $p = .658$.

Comparing 2-year Faculty to 4-year Faculty. A Mann-Whitney U test was run to determine if there were differences in the EOCDP scores between 2-year (community college) or 4-year (university) higher education faculty. The EOCDP score for 2-year college faculty (mean rank = 53.17) was statistically significantly higher than for 4-year university faculty (mean rank = 40.53), $U = 769$, $z = -2.084$, $p = .037$. Cohen's effect size value ($d = .43$) suggested a small effect for practical significance.

Comparing Novice versus Experienced Online Faculty. To determine the impact of faculty online teaching experience on EOCDP scores, two groups were compared: those who reported 5 or fewer years of online teaching experience and those who reported greater than 5 years of online teaching experience. The Mann-Whitney U tests found that the EOCDP scores for those with less than 5 years of online teaching experience (mean rank = 39.71) were statistically significantly lower than for those with more than five years of online teaching experience (mean rank = 53.36), $U = 1311$, $z = 2.233$, $p = .026$. Cohen's effect size value ($d = .47$) suggested a small to intermediate effect for practical significance.

Comparing Hours of Professional Development Completed. To determine if there were differences in EOCDP scores based on the number of hours of professional development completed, a Mann-Whitney U test was completed. Participants were asked to indicate the number of hours of professional development completed specifically related to how to design and teach online courses. The two categories were "0 – 20 hours" and "more than 20 hours." The

EOCDP scores for those who had participated in more than 20 hours of professional development (mean rank = 59.42) were statistically significantly higher than for those who reported completing 0 – 20 hours (mean rank = 34.77), $U = 1731.5$, $z = 4.272$, $p = .000$. Cohen's effect size value ($d = .96$) suggested a large effect for practical significance.

Comparing Individuals with QM Review Experience. A Mann-Whitney U test was run to determine if there were differences in the EOCDP scores for those who had participated in an official QM course review and those who had not. The EOCDP score for those who had participated in an official QM course review (mean rank = 68.67) was statistically significantly higher than for those who had not (mean rank = 38.86), $U = 407$, $z = -4.954$, $p = .000$. Cohen's effect size value ($d = 1.164$) suggested a large effect for practical significance.

Comparison Based on Experience as an Online Student. To determine if there were differences in the EOCDP scores for those who had experience as an online student versus those who did not, a Mann-Whitney U test was performed. The EOCDP scores for those who had experience as an online learner (mean rank = 51.60) were statistically significantly higher than for those who did not have this experience (mean rank = 34.77), $U = 401$, $z = -2.135$, $p = .033$. Cohen's effect size value ($d = .46$) suggested a small to intermediate effect for practical significance.

Summary of Compared Results. A detailed description of the specific findings for each variable was provided including statistical significance and effect sizes. Effect sizes were calculated for Mann-Whitney U tests as described by Lenhard and Lenhard (2016). A summary of the results obtained after performing each Mann-Whitney U test is presented in Table 18.

Table 18

Summary of Particular Demographics on EOCDP Scores

Demographic Characteristic	Effective Online Course Design Practices					
	n	*Mean*	*SD*	*Mean Rank*	*Median*	*p* value[a]
Gender	95	47.52	6.32	NA	49.0	.658
Women	76	47.55	6.41	48.63	49.0	
Men	19	47.16	6.23	45.50	49.0	
Institution Type	97	47.52	6.32	NA	49.0	**.037***
2 – Year Institution	65	48.22	6.52	53.17	50.0	
4 – Year Institution	32	46.09	5.72	40.53	46.0	
Years of Online Teaching Experience	97	47.52	6.32	NA	49.0	**.026***
0 – 5 years	31	45.35	7.11	39.71	47.0	
More 5 years	66	48.53	5.69	53.36	50.0	
Hours of Professional Development	97	47.52	6.32	NA	49.0	**.000***
0 – 20 hours	41	44.27	6.90	34.77	46.0	
More than 20 hours	56	49.89	4.63	59.42	51.0	
QM Official Course Review	97	47.52	6.32	NA	49.0	**.000***
Yes	33	51.52	3.73	68.67	53.0	
No	64	45.45	6.41	38.86	46.0	
Online Student Experience	97	47.52	6.32	NA	49.0	**.033***
Yes	82	48.18	5.81	51.60	49.5	
No	15	43.87	7.87	34.77	43.0	

Note. a. Asymptotic significance is displayed for all *p* values.

* The significance level is .050.

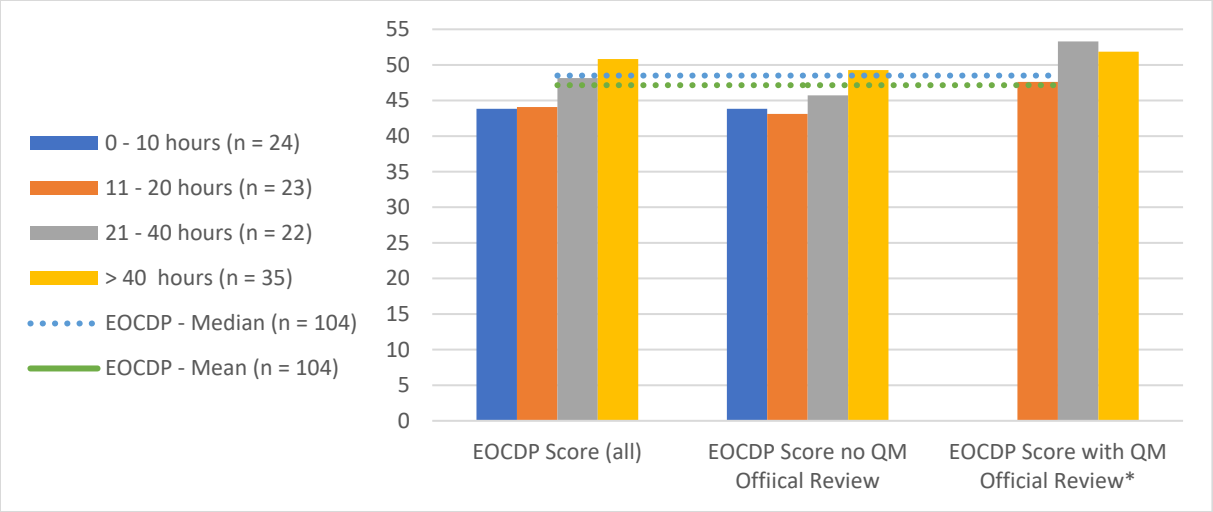
Of the variables compared, statistically significant differences with large effects of practical significance were found with two variables. These include having completed more than 20 hours of professional development and participation in an official QM course review. These two variables were analyzed further using four categories of professional development completion. Four groupings were created including 0 – 10 hours, 11 – 20 hours, 21 – 40 hours, and more than 40 hours. This set of groupings was created because it provided a category for

those with a very limited number of hours of PD including "0." For the purposes of this comparison, all participant scores were analyzed including the New-Online group.

Mean scores for the EOCDP (n = 104, M = 47.15, Mdn = 48.5) were compared to mean scores by the number of hours of PD completed for those with and without QM review experience. This comparison showed differences between the groups. More specifically, those who had participated in a QM course review and who had greater than 40 hours of PD had an EOCDP mean score of 51.86 (n = 21, Mdn = 52, SD = 2.99), and those without review experience but with greater than 40 hours of PD had a mean score of 49.29 (n = 14, Mdn = 51, SD = *3.69*). Those with 21 – 40 hours of PD and QM review experience reported an EOCDP mean score of 53.29 (n = 7, Mdn = 53, SD = 1.38) while those without QM review experience but with 21 – 40 hours of PD had a mean score of 45.73 (n = 15, Mdn = 45, SD = 5.48). Participants with 11 – 20 hours of PD and QM review experience reported a EOCDP mean score of 47.6 (n = 5, Mdn = 46, SD = 6.19) and those without review experience but with 11 – 20 hours of PD reported a mean score of 43.11 (n = 18, Mdn = 43, SD = 6.93). Figure 16 illustrates the score comparisons between these three variables. There were no participants with 0 – 10 hours of PD and review experience.

Figure 16

EOCDP Scores Compared Based on Hours of PD and QM Course Review Experience



Note. Scores include ALL participants

*Mean EOCDP score by hours of professional development of the 33 participants who reported QM Official course review experience

Because there was variation in how the individuals answered the specific items on the EOCDP depending on how many hours of professional development they had completed, a comparison was made of the responses to the EOCDP items based on hours of professional development completed. Figure 17 (p. 122) illustrates the differences among answers for each group based on each of the 11 items on the EOCDP. It shows that the individuals with greater than 40 hours of PD had mean scores between 4.43 and 4.83 which indicated they had answered *probably yes* or *definitely yes* to each of the items. It also showed that individuals with 0 – 10 hours of PD completion had mean scores between 3.67 and 4.33 which means they also often answered "probably yes" to the questions on the EOCDP. The EOCDP item with the lowest mean score out of the 11 items was *My course demonstrates a commitment to accessibility for all*

students with scores ranging from 3.67 for those with the least PD to 4.57 for those with the greater number of PD hours.

Faculty online teaching experience of more than 5 years had a small to intermediate practical effect on the EOCDP scores. A comparison of individual item scores of the EOCDP was made based on 5 categories of experience intervals including *1 year or less*, *2 – 3 years*, *4 – 6 years, 7 – 10 years*, and *greater than 11 years*. Figure 18 (p. 123) illustrates the differences by each question. It shows that the individuals with the least amount of online teaching experience (i.e., less than 1 year) have mean scores ranging from 3.55 to 4 (3 = *might or might not*, 4 = *probably yes*) to each of the items. Participants with 2 or more years of online teaching experience had mean scores on the 11 items between 3.79 and 4.57. Those with 11 or more years of online teaching experience had mean scores between 4.23 and 4.64. The EOCDP item with the lowest mean score out of the 11 items was the item *My course demonstrates a commitment to accessibility for all students* with scores ranging from 3.55 for those with the least online teaching experience to 4.23 for more than 11 years of online teaching experience.

Figure 17

Comparison of EOCDP Question Scores by Hours of Professional Development Completed

Note. $n = 104$

Figure 18

Comparison of EOCDP Item Scores Based on Years of Online Teaching Experience

Note. $n = 104$

As previously noted, the analysis showed that experience as an online student had a small to intermediate practical effect on the EOCDP. The majority of the 104 participants (n = 86, 84.5%) reported that they had experience as an online student. The Phase I questionnaire included an open-ended question that asked *If you have been an online student, do you feel that experience contributed to your perception of how you wanted to conduct your own online class? If so, how?* Almost all responded that the experience as an online student did contribute to and provide them with ideas of what they did or did not want to do in the design and teaching of their online class. A common theme in the responses was that the experience as an online student showed them what not to do. Another common theme related to why it was important to have this experience. Table 19 provides a sample of the participant comments based on those two themes.

Table 19

Sample Comments Regarding Contributions of Online Student Experience on Course Design

Theme	Comments
Why the online student experience was important	"Taking online courses helped me be clearer and more organized and communicate better with my own students." (Participant 28)
	"Having been in an online class really opened my eyes to how confusing it can be to navigate online learning. Coming out of that experience, I wanted to design a course that had a very simple and consistent format. I also spent time thinking about how to most effectively communicate the how the course was set up to students. I also experienced the challenge of trying to manage my time in an online course. It made me realize that students need to know that time management and staying on track is a critical part of online course success." (Participant 65)
	"My experience as an online learner absolutely contributed to my perception of how I wanted to conduct my own online class. I intended to respond promptly to student inquiries, communicate frequently with students, offer frequent and prompt feedback on submitted work, conduct a highly organized online learning environment, and establish clear learning objectives linked to learning materials-activities-assessments. The nature of the list stems from my experience of the

Theme	Comments
	exact opposite happening in my experience as an online learner." (Participant 15)
How experience as an online student impacted their design	"There were many things I didn't like about my online classes, so I made sure that my classes didn't follow the courses that I didn't like or didn't find easy to navigate." (Participant 47)
	"Seeing the student perspective of an online course is invaluable. I have been a student in horribly designed courses that lack outcomes, or rubrics. That experience reinforced my desire to be completely transparent and communicate effectively with my students." (Participant 46)
	"I learned a lot about what I would NOT do! I took many online classes across disciplines and institutions and found various experiences that felt like 'hurdles' to jump in comparison to the art of learning." (Participant 31)
	"I have seen some very messy interfaces and some better ones, but I have yet to experience a very clean, intuitive, friendly, and good-looking interface. By this I mean, as a visual thinker and learner and a former website designer myself, I find almost all online course software to be very clunky. Some of this is due to the large and tightly templated software itself, but most is due to the haphazard insertion of information into them by instructors like me. Vastly different type hierarchies, type and image styles, text alignments and so forth, contribute to a confusing and inelegant interface. This is very much at odds with the types of elegant interfaces that we interact with in other spheres, ie business and shopping, news and blogs, entertainment. To me the arrangement and presentation of the content is as much of a hurdle as the creation of the content itself." (Participant 88)

Note. Sample comments from over 80 responses.

Completion of professional development was shown to have a relationship with both the EOCDP score and the OTSE score. One question on the Phase I Questionnaire asked the participants *What are your most preferred methods for improving your knowledge about designing and teaching online courses, even if they are not available to you?* The question was a multi-select question that allowed the participants to choose all that they preferred. The differences in the responses based on the frequency of responses by institution type are reported

in Table 20. The item *Experimenting with teaching strategies and observing results* was selected most frequently by both 2-yr faculty and 4-yr faculty (76.5% and 75%, respectively). *Talking with colleagues from your own institution* was also frequently selected with 76.5% of 2-yr faculty and 61.1% of 4-yr faculty indicating that preference. For 2-yr faculty, their next most frequently selected items were *Using web-based resources* (61.8%) and *Talking with colleagues from outside your institution* (60.3%). These items were ranked much lower by the 4-yr faculty (both items were at 36.1%). Items ranked higher by the 4-yr faculty were *Reading research literature on teaching and learning* (52.8% versus 2-yr faculty at 39.7%) and *working one-to-one with an instructional designer* (36.1% versus 2-yr faculty at 22%).

Table 20

Professional Development Preferences

	2 – Year Institution (*n* = 68)			4 – Year Institution (*n* = 36)		
Participant Preferences*	Rank	*n*	%	Rank	*n*	%
Experimenting with teaching strategies and observing results	1	52	76.5%	1	27	75%
Talking with colleagues from your own institution	1	52	76.5%	2	22	61.1%
Using Web-based resources	3	42	61.8%	7	13	36.1%
Talking with colleagues from other institutions	4	41	60.3%	7	13	36.1%
Participating in online workshops hosted by your institution	5	35	51.5%	4	18	50%
Participating in online workshops hosted outside of your institution	6	34	50%	4	18	50%
Attending face-to-face workshops and conferences outside your institution	6	34	50%	10	11	30.6%
Attending face-to-face workshops and conferences within your institution	8	33	48.5%	6	14	38.9%
Reading research literature on teaching and learning	9	27	39.7%	3	19	52.8%
Following guidance from a faculty mentor	9	27	39.7%	12	7	19%
Serving as a mentor or course peer reviewer at my institution	11	21	30.9%	13	3	8.3%
Reproducing the teaching strategies used by your instructors when you were a student	12	17	25%	14	8	22.2%
Working one-to-one with an instructional designer	13	15	22%	7	13	36.1%
Seeking new teaching strategies via social media	14	14	20.6%	13	6	16.7%

Note. n = 104 (Includes New-Online Faculty)

*This was a multi-select question.

Research Question 5

What are the differences between online course design practices of higher education online instructors with a perceived high or low sense of online teaching self-efficacy based on the type of professional development completed and course design supports used prior to designing an online course?

The previous questions looked at the overall scores for all participants across different variables. This question takes a narrower view and looks specifically at two subgroups of participants: those who reported high self-efficacy and those who reported low self-efficacy. To determine the composition of the two groups, the participant scores were divided based on the mean score for the OTSE score (M = 182.41) plus or minus one standard deviation (SD = 31.35). Those with scores above 213.76 were classified as *high* self-efficacy while those with scores below 151.06 were classified as *low* self-efficacy. The high self-efficacy group included 13 individuals with a mean OTSE score of 224.46 (SD = 6.53). The low self-efficacy group included 11 individuals with a mean OTSE score of 123.91 (SD = 24.95). The majority of participants who reported high self-efficacy were women (84.6%), from 2-year institutions (92.3%), and had experience as an online student (92.3%). The average age of the high self-efficacy group was 54.62 years (SD = 9.19). Years of online teaching experience averaged 12 years (SD = 6.27). The majority of the participants in the low self-efficacy group were also mostly women (81.8%), from 2-year institutions (54.5%), and reported having experience as an online student (63.6%). The low self-efficacy group average age was 54.6 (SD = 11.32) with 6.27 years (SD = 5.27) of online teaching experience. The demographic characteristics of the individuals in these two groups are summarized in Table 21.

Table 21

High and Low Self-Efficacy Groups Composition

	High Self-Efficacy		*Low* Self-Efficacy	
Participant Characteristic	*n*	%	*n*	%
Gender				
Women	11	84.6	9	81.8
Men	2	15.4	2	18.2
Institution Type				
2-year institution	12	92.3	6	54.5
4-year institution	1	7.7	5	45.5
Employment				
Full-time	11	84.6	10	90.91
Adjunct	2	15.4	1	9.1
Hours of PD Completed				
0 – 10 hours	1	7.7	5	45.5
11 – 20 hours	0	0	5	45.5
21 – 30 hours	1	7.7	1	9.1
31 – 40 hours	2	15.4	0	0
greater than 50 hours	9	69.2	0	0
QM Course Review				
Yes	8	61.5	0	0
No	5	38.5	11	100
Online Student Experience				
Yes	12	92.3	7	63.6
No	1	7.7	4	36.4

Participant Characteristics	*M*	*Mdn*	*SD*	*M*	*Mdn*	*SD*
Age	54.62	58	9.19	54.6	55.5	11.32
Years of Higher Education Online Teaching Experience	12	14	6.27	6.27	5	5.27
OTSE Score	224.46	224	6.53	123.91	131	24.95
EOCDP Score	53.15	54	1.95	36.81	39	5.88

Note: High Self-Efficacy $n = 13$; *Low* Self-Efficacy $n = 11$

This research question explored the professional development completed and course design supports used to create an online course by those with *high* or *low* self-efficacy. Those with a high OTSE score reported completion of a much higher number of professional development hours related to teaching online than did low OTSE scores. Nine of the thirteen (69.2%) individuals in the *high* self-efficacy group reported completion of greater than 50 hours

of professional development related to teaching online and three in this group (23/1%) reported completion of between 31 – 50 hours of professional development. Conversely, all in the low self-efficacy group reported completion of fewer than 30 hours of professional development with five of them (45.5%) reporting 0 – 10 hours and five (45.5%) reporting 11 - 20 hours. The number of hours of professional development completed is summarized in Table 20. Another course design support provided by some institutions is the opportunity to participate in a QM official course review. The high self-efficacy group included 8 individuals (61.5%) who indicated participation in an official course review while none of the individuals in the low self-efficacy group reported this type of experience.

In addition to the professional development hours reported in Table 18, participants were asked to indicate the types of course design supports or institutional resources they had used. Through completion of a multi-select item on the questionnaire, participants could select as many of the supports or resources as they felt applied to them. Table 22 summarizes the course design support types reported by the two groups. Completion of professional development was listed as the most commonly used support for both groups. The high self-efficacy group also listed faculty/ peer mentoring, accessing web resources, and using instructional videos. In addition to professional development completion, the low self-efficacy group indicated they commonly used instructional videos, faculty/ peer mentoring, and accessing web resources. Two individuals in the high self-efficacy group and one in the low self-efficacy group reported using no course design supports. For the individuals who reported “other” as a response, in the high self-efficacy group, two individuals indicated they made design choices based on their previous course designs. One individual in the low self-efficacy group reported that no support was available at their institution.

Table 22

Course Design Support Types Reported Used by Individuals with High- or Low-Self-Efficacy

	High Self-Efficacy (*n* = 13)		*Low* Self-Efficacy (*n* = 11)	
Course Design Supports Used*	*n*	%	*n*	%
Professional Development workshops & webinars	5	38.5	5	45.5
One-on-one consultation with Instructional Designers	2	15.4	2	18.2
Seeking advice from online learning experts	2	15.4	3	27.3
Faculty/ peer mentoring	5	38.5	4	36.4
Accessing web resources or tutorials for teaching online	5	38.5	4	36.4
Using instructional videos or other documentation	5	38.5	5	45.5
Online help-desk or support	0	0	3	27.3
Student teaching assistants	0	0	1	9.1
Other	5	38.5	2	18.2
Used no course design supports	2	15.4	1	9.1

Note. Responses were provided to a multi-select question so totals do not equal 100%.

*Course design supports based on a recent course design.

Participants were also asked to identify the types of resources or supports available at their institution to support them in creating their online course/s. Table 23 (p. 132) provides a listing of the types of support available to participants whether or not they used the support. For the majority of the items listed, participants in the high-self-efficacy group reported greater availability of various supports including professional development opportunities, faculty mentoring, instructional design support, and opportunities to receive feedback on their course design through peer feedback.

Table 24 (p. 133) lists the types of design supports by institution type as reported by the study participants. The biggest difference between the resources and supports offered by the 2-year and 4-year institutions is that the 2-year institutions were more likely to offer faculty/ peer mentoring while the 4-year institutions were more likely to offer instructional design support.

Table 23

Online Course Design Supports Available

	All Participants		*High* Self-Efficacy		*Low* Self-Efficacy	
Course Design Supports Available	*n*	%	*n*	%	*n*	%
Online course/s focused on online teaching and/or course design	57	58.8%	8	61.5%	3	27.3%
Face-to-face course/s focused on online teaching and/or course design	23	23.7%	3	23.1%	0	0%
Online workshops focused on online teaching and/or course design	66	68%	9	69.2%	4	36.4%
Face-to-face workshops focused on online teaching and/or course design	39	40.2%	7	53.8%	2	18.2%
Faculty mentoring and/or peer support	55	56.7%	7	53.8%	4	36.4%
Instructional design support	42	43.3%	5	38.5%	3	27.3%
Release time to develop an online course	8	8.2%	0	0%	1	9.1%
Extra compensation to develop an online course	21	21.6%	4	30.8%	2	18.2%
Opportunity to participate in a course review process where individuals from my institution give feedback on the design of my course	24	24.7%	4	30.8%	0	0%
Opportunity to participate in a course review process where individuals external to my institution give feedback on the design of my course	23	23.7%	7	53.8%	0	0%
I don’t know	1	1%	0	0%	0	0%

Table 24

Online Course Design Supports Available by Institution Type

	All Participants		2-Year Institution		4-Year Institution	
Course Design Supports Available	*n*	%	*n*	%	*n*	%
Online course/s focused on online teaching and/or course design	57	58.8%	38	58.5%	19	59.4%
Face-to-face course/s focused on online teaching and/or course design	23	23.7%	17	26.2%	6	18.8%
Online workshops focused on online teaching and/or course design	66	68%	43	66.2%	4	36.4%
Face-to-face workshops focused on online teaching and/or course design	39	40.2%	29	44.6%	23	71.9%
Faculty mentoring and/or peer support	55	56.7%	40	61.5%	15	46.9%
Instructional design support	42	43.3%	21	32.3%	21	65.6%
Release time to develop an online course	8	8.2%	5	7.7%	3	9.4%
Extra compensation to develop an online course	21	21.6%	14	21.5%	7	21.9%
Opportunity to participate in a course review process where individuals from my institution give feedback on the design of my course	24	24.7%	21	32.3%	3	9.4%
Opportunity to participate in a course review process where individuals external to my institution give feedback on the design of my course	23	23.7%	17	26.2%	6	18.8%
I don’t know	1	1%	1	1.5%	0	0%

Comments Specific to COVID-19 Pandemic Participants. Table 25 lists the course design supports used by the 7 participants in the New-Online group. Most in this group indicated using multiple types of supports to prepare their online course. The most common type of support mentioned was accessing web resources or tutorials for teaching online (100%), followed by using instructional videos and other documentation (72.42%), and professional development workshops and webinars (71.42%).

Table 25

Course Design Support Types Reported by New-Online Participants

	Participant Newly Online Due to COVID-19 pandemic	
Course Design Supports Used	*n*	%
Professional development workshops & webinars	5	71.42
One-on-one consultation with Instructional Designers	3	42.86
Seeking advice from online learning experts	3	42.86
Faculty/ peer mentoring	3	42.86
Accessing web resources or tutorials for teaching online	7	100
Using instructional videos or other documentation	5	71.42
Online help-desk or support	2	28.57
Student teaching assistants	0	0
Other	1	14.28

Note. Course design supports were reported based on a recently designed course.

Participant Comments Related to Course Design Supports. An open-ended question provided all participants with an opportunity to share what types of supports they wish had been available to them. Table 26 (p. 136) lists the comments shared by both the *Low* and *High* Self-Efficacy groups as well as the New-Online group. Table 27 (p. 137) provides the demographic information for these participants. The comments have been grouped by topic. One of the *Low* Self-Efficacy group said they wish “any of the above” had been available to them. Others expressed a desire for additional professional development opportunities, mentoring or a learning community, release time or stipends, access to example courses, and a course review process. In

contrast, three in the *High* Self-Efficacy group indicated that no additional supports were needed. Of the individuals who included a suggestion, release time and additional course design supports were recommended. The type of additional course design supports suggested by the *High* Self-Efficacy group were related to a more specific issue (e.g., help with publisher materials) than the comments from the *Low* Self-Efficacy group which were focused more on overall design support. The comments provided by the New-Online group were similar to the comments of the low-self-efficacy group.

Table 26

High & Low Self-Efficacy Groups and New-Online: Comments Regarding Course Design Supports Desired

Group	Topic	Sample Quotes
Low Self-Efficacy Group	No Topic	"Any of the above" *(This comment was referring to a list of items on the questionnaire which are summarized in both Tables 21 and 22.)* (Participant 44)
	Professional Development	"An online or face to face (or both) course on teaching online and course design/template" (Participant 93)
		"Offer both online and f2f workshops" (Participant 40)
		"Mentoring" (Participant 25)
		"I'd like a structured faculty learning community" (Participant 13)
	Compensation	"Release time and extra compensation" (Participant 48)
		"Release time or stipends to develop courses or take training" (Participant 28)
		"Extra compensation (expecting instructors to develop online materials … while off contract and uncompensated is inappropriate)" (Participant 51)
	Course Design Support	"Help with identifying how to identify ways to translate instructions and formatting as well as content into the different modalities in online classes. Help with supporting students who had even less experience than me with online classes and further had limited or unreliable computers or access to

Group	Topic	Sample Quotes
		internet. Help was available during daytime hours at the school but all my students were working full time and taking evening classes." (Participant 87)
		"a course review process" (Participant 51)
		"Access to example courses" (Participant 95)
High Self-Efficacy Group	No Topic	"We had every option available" *(This comment was referring to a list of items on the questionnaire which are summarized in both Tables 21 and Table 22.)* (Participant 9)
		"Nothing" (Participant 7)
		"None" (Participant 8)
	Compensation	"Release time to develop initial courses" (Participant 85)
	Course Design Support	"It would have been nice to see examples of high-quality online course structures" (Participant 47)
		"As an adjunct I struggle with keeping up with the university-specific policies (ex: do you use shaded grading). I've found across multiple colleges and universities that this information is either difficult to find or buried under a ton of other less important information" (Participant 8)
		"Publisher materials pre-approved for integration with campus learning management system" (Participant 20)
New - Online Group	Compensation	"Release time to prepare" (Participant 6)
		"More time" (Participant 16)
	Course Design Support	"Instead of the approach of "here are all sorts of things you can try" I would have liked a list of "you must do these things to communicate clearly with students." More direction and less experimentation (although I appreciate the freedom, sometimes it hinders my teaching if there is already a best practice established that I don't know about)" (Participant 103)
		"Individual co-designer/counselor to help organize, demonstrate best practices, test, and review. Mentor program" (Participant 88)

Note. High Self-Efficacy $n = 13$; *Low* Self-Efficacy $n = 11$; New-Online $n = 7$

Table 27

Participants' Demographic Information with Comments

Participant	Age	Gender	Institution Type	Yrs Teaching Online	Hours of PD	Online Student Exp.	QM Review Exp.	Self-Efficacy Group
6	60 – 69	Woman	4 – Yr	6 – 10	> 40	Yes	No	-
8	40 – 49	Woman	4 – Yr	11 – 15	> 40	Yes	No	High
9	40 – 49	Woman	2 – Yr	> 16	21 – 40	No	No	High
13	30 – 39	Woman	2 – Yr	11 – 15	21 – 40	Yes	No	Low
20	50 – 59	Woman	2 – Yr	6 – 10	> 40	Yes	Yes	High
27	60 – 69	Woman	2 – Yr	6 – 10	0 – 10	Yes	No	-
28	50 – 59	Woman	2 – Yr	> 16	> 40	Yes	Yes	-
31	30 – 39	Woman	2 – Yr	6 – 10	> 40	Yes	No	-
40	40 – 49	Man	2 – Yr	0 – 5	0 – 10	Yes	No	-
41	60 – 69	Woman	2 – Yr	> 16	> 40	Yes	No	High
44	Unknown	Man	2 – Yr	0 – 5	0 – 10	Yes	No	Low
45	40 – 49	Man	2 – Yr	> 16	21 – 40	Yes	Yes	-
46	40 – 49	Woman	2 – Yr	6 – 10	21 – 40	Yes	Yes	High
47	60 – 69	Woman	2 – Yr	> 16	> 40	Yes	Yes	-
51	50 – 59	Woman	4 – Yr	0 – 5	0 – 10	Yes	No	Low
64	40 – 49	Woman	2 – Yr	0 – 5	21 – 40	Yes	No	-
65	30 – 39	Woman	2 – Yr	0 – 5	11 – 20	Yes	No	-
73	30 – 39	Woman	2 – Yr	11 – 15	21 – 40	No	No	-
84	50 – 59	Woman	2 – Yr	> 16	21 – 40	Yes	No	-
85	60 – 69	Woman	2 – Yr	0 – 5	> 40	Yes	Yes	High
87	> 70	Woman	2 – Yr	0 – 5	11 – 20	No	No	Low
88	40 – 49	Man	4 – Yr	0 – 5	0 – 10	Yes	No	-
93	60 – 69	Woman	2 – Yr	> 16	11 – 20	No	No	Low
95	60 – 69	Woman	2 – Yr	11 – 15	> 40	Yes	No	High
102	50 – 59	Woman	2 – Yr	6 – 10	> 40	Yes	Yes	-
103	30 – 39	Woman	2 – Yr	6 – 10	11 – 20	Yes	No	-
107	60 – 69	Woman	2 – Yr	> 16	21 – 40	Yes	Yes	High
115	60 – 69	Woman	4 – Yr	0 - 5	21 – 40	Yes	No	-
116	30 – 39	Woman	4 – Yr	0 - 5	> 40	Yes	No	-

Research Question 6

How does the course design by higher education online instructors with a perceived high sense of online teaching self-efficacy correlate to nationally recognized effective online course design practices?

This research question is related to Phase II of the study. In Phase II, individuals who completed the Phase I questionnaire were invited to volunteer for a course review. The criteria for participation in the course review were that these volunteers would have reported high self—efficacy and would not have previously had a course they designed undergo a QM official course review. Because only participants who did not have a course undergo a QM review were eligible for Phase II, an adjustment to the definition of high self-efficacy for this analysis was necessary because many in the high self-efficacy group had QM review experience. Using the original definition (i.e., those with OTSE scores higher than one standard deviation above the median score), there were only three potential participant volunteers for Phase II of the study with a high self-efficacy score. Of the three, only one indicated no QM course review experience which meant the other two were excluded from the Phase II group. To invite broader participation, the definition for high self-efficacy for this question was then broadened to include any participant with an OTSE score above the median score. Of those who met the revised criteria, an additional five participants were invited to participate. While all five initially indicated they would participate, three individuals had to opt-out due to COVID-related changes in workload and family health issues. The participant criteria were then modified an additional time to include participants whose scores fell above the mean, which generated 3 additional individuals to invite for Phase II.

The courses submitted by the six Phase II participants were identified using the letters A – F. The participants who submitted the courses for reporting purposes are referred to as *Course Creator* or *CC* along with the letter that represents their respective course. The six participants in the Phase II group included 3 adjunct faculty and 3 full-time faculty. Three of the participants reported faculty employment at a 2-year institution with 3 reporting employment at a 4-year institution. The age range of the volunteers was 30 – 60 years. The courses submitted for review included a mix of courses in the following disciplines: health sciences, natural science, language arts, and education. The courses submitted included two first-year or 1000-level courses, two 4000-level courses, and one each at the 2000- and 3000- level. These six participants reported differences in the amount of professional development completed with three reporting having completed 11 – 20 hours (CC-D, CC-E, and CC-F), one reporting 31 – 40 hours (CC-C), and two reporting greater than 50 hours (CC-A and CC-B). All Phase II participants reported having experience as an online student. In terms of the types of support available to support their efforts in the design of their online course/s, five of the six (83.3%) reported that their institution offered both online and face-to-face workshops and courses for how to develop online courses and faculty mentoring. Four of the six (66.67%) indicated that instructional design support was provided at their institution. Additionally, participants A, B, C, and E all reported some type of involvement in peer reviewer activities as peer reviewer/mentors at their institution or as having received advice from an internal peer reviewer at their institution at some point (but not necessarily for the course being submitted for review for Phase II of this study). Table 28 summarizes the demographic characteristics for the Phase II participants.

Table 28

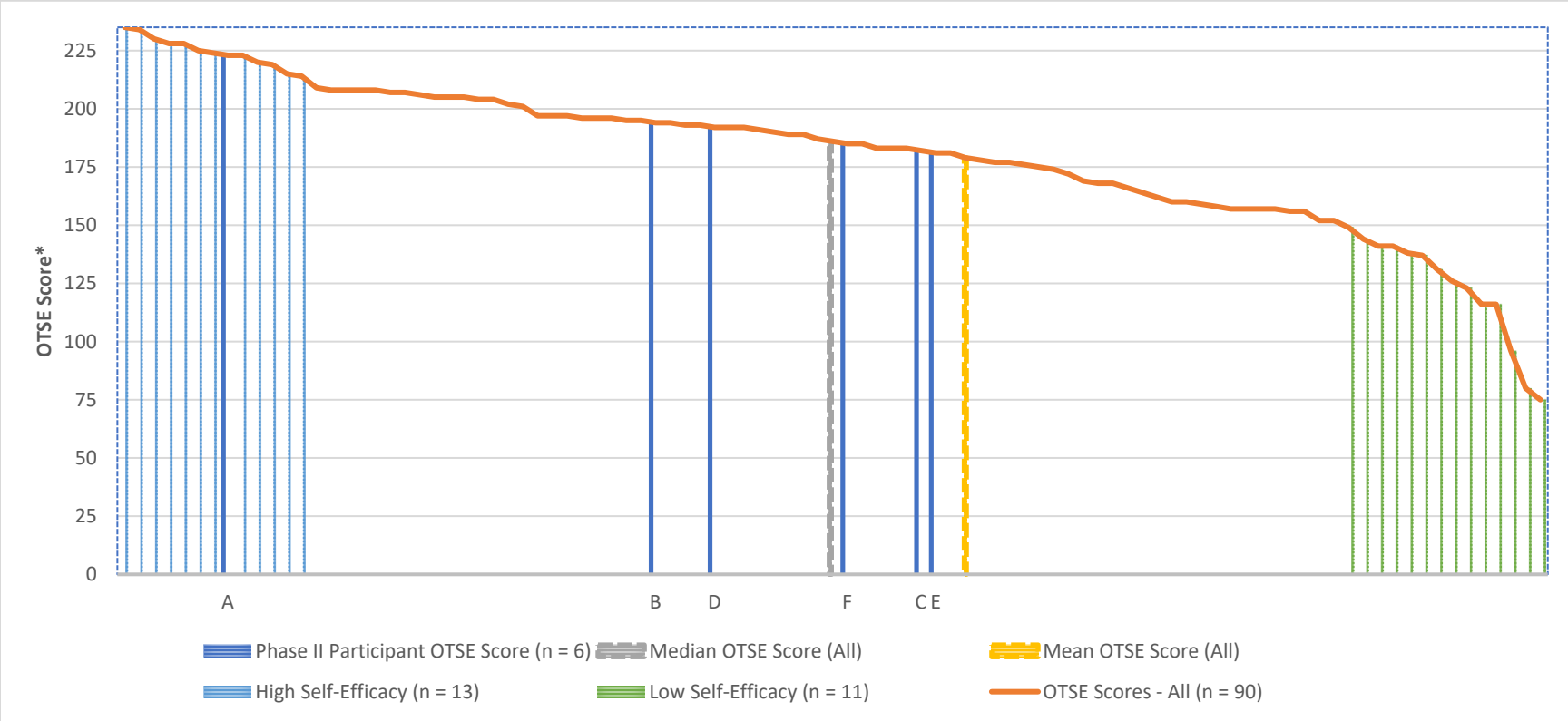
Demographic Characteristics: Phase II Participants

Characteristic	CC-A	CC-B	CC-C	CC-D	CC-E	CC-F
Gender: Women	x	x	x	x	x	x
Age						
< 40 yr			x		x	x
> 40 yr	x	x		x		
Institution Type						
2 – yr institution			x	x	x	
4 – yr institution	x	x				x
Years Online Teaching Experience						
0 – 5 yr						x
6 – 10 yr		x	x		x	
More than 10 yr	x			x		
Hours of Professional Development						
11 – 20 hours				x	x	x
More than 20 hours	x	x	x			
Online Student Experience: Yes	x	x	x	x	x	x

To explore this question, data from the Phase I Questionnaire including demographic information, the online teaching self-efficacy (OTSE) score, and the effectiveness of online course design practices (EOCDP) score were used. Since the invitation to participate in Phase II was based on the OTSE score, a comparison of Phase II participant OTSE scores to the scores of all participants was completed. The median OTSE score for all participants was 186 (n = 90; M = 180.56; SD = 32.55). The OTSE scores for the Phase II participants ranged from 181 – 223 with the scores of 5 of the 6 individuals falling in the middle range of all OTSE scores. One Phase II participant (CC-A) had an OTSE score that placed her in the original *high* self-efficacy group, two participants had scores above the median OTSE score (CC-B and CC-D), and three had OTSE scores above the mean but lower than the median (CC-C, CC-E, and CC-F). Figure 19 illustrates the OTSE score distribution for all participants and highlights the Phase II participant scores comparisons to the *high* self-efficacy group, and *low* self-efficacy group.

Figure 19

Phase II Participants OTSE Scores Compared to Overall OTSE Scores



Note. Letters A – F represent the courses that were submitted by the Phase II participants (i.e., the *Course Creators*)

* Maximum possible OTSE score is 235.

Next, the EOCDP scores were reviewed for the Phase II participants. This information was used in two ways to answer research question #6. One was to do a simple comparison to how the scores of the Phase II participants compared to the full list of participant scores. The second way was to create a composite self-assessment score to compare with the course review score. The EOCDP questions were part of the Phase I Questionnaire (Appendix B). On the questionnaire, participants were asked to reflect on the design of an online course they had recently completed and then to answer a series of questions about whether or not their course included that design element. Answer choices were presented using a 5-point Likert scale (1 = *definitely not*, 2 = *probably not*, 3 = *might or might not*; 4 = *probably yes*, or 5 = *definitely yes*). The mean score on the EOCDP scale was highest among the previously identified high self-efficacy group (n = 13, M = 53.15, *Mdn* = 54.0, SD = 1.95) and lowest among the Phase II group (n = 6, M = 45.33, *Mdn* = 43.0, SD = 6.25) with the entire Phase I group reporting a score slightly higher than the Phase II group (n = 97, M = 47.52, *Mdn* = 49.0, SD = 6.32). The EOCDP mean score for the New-Online group was 42.14 (n = 7, *Mdn* = 44.0, SD = 7.27). Table 29 summarizes these scores.

Table 29

Comparison of EOCDP Scores Across Groups

	Mean	Median	Standard Deviation
Phase I Group (n = 97)*	47.52	49.0	6.32
Phase II Group (n = 6)**	45.33	43.0	6.25
High Self-Efficacy Group (n = 13)	53.15	54.0	1.95
Low Self-Efficacy Group (n = 11)	36.82	39.0	5.88
New-Online Group (n = 7)	42.14	44.0	7.27

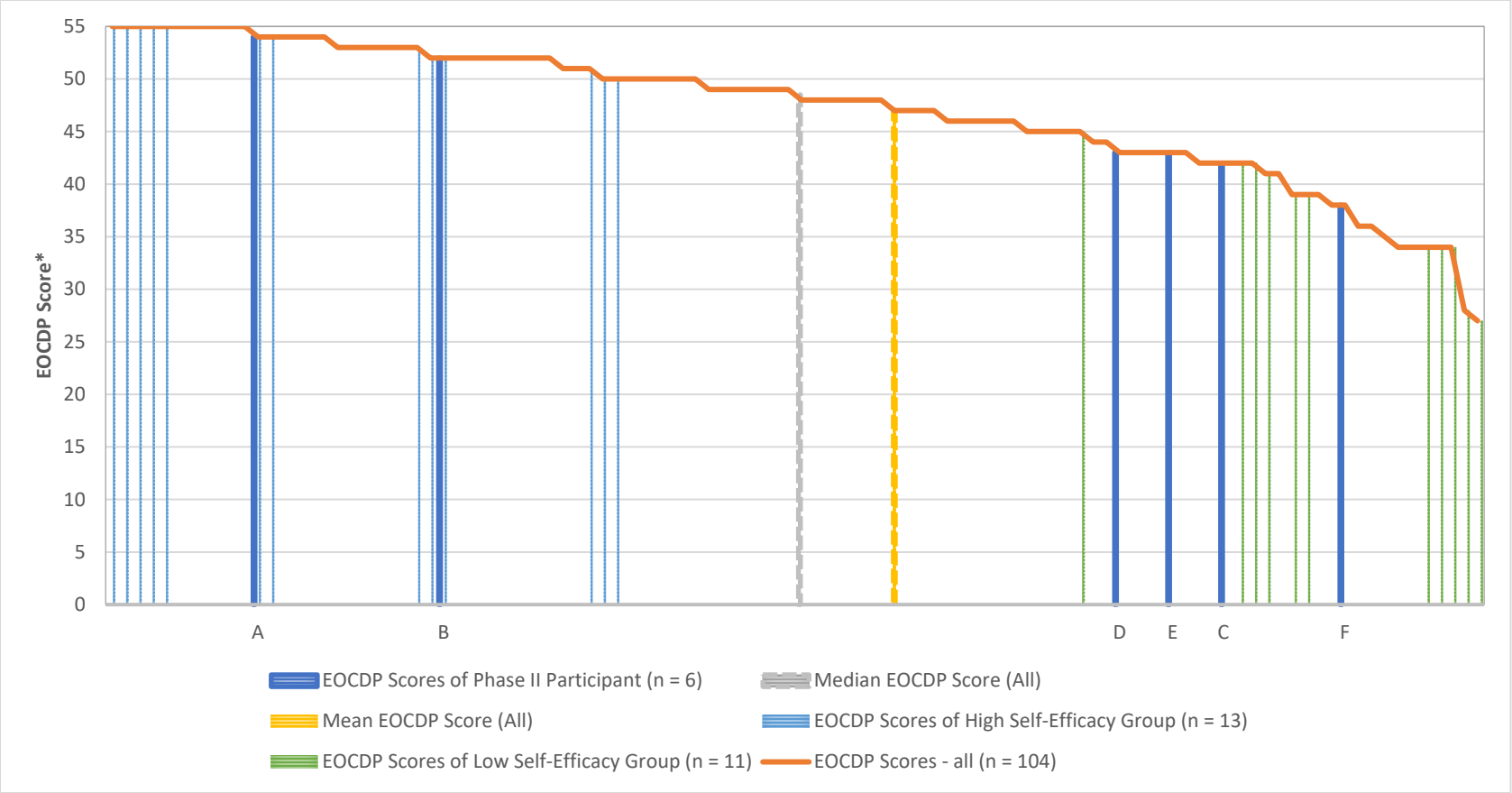
Note. *Except for the New-Online Group, all other groups are subparts of the Phase I group.

**One individual in the Phase II group was also part of the High Self-Efficacy group.

To better understand where the Phase II participant EOCDP scores fell within the distribution of all EOCDP scores, the scores were plotted on a graph to create a visual representation of this data. This graph compared the EOCDP scores for the Phase I group, the Phase II group, the High Self-Efficacy group, and the Low Self-Efficacy group along with the mean and median EOCDP scores for all 104 participants. The EOCDP scores for the six Phase II participants ranged from 38 – 54. Scores for four of the participants, Course Creators C – F, were below the mean and median EOCDP scores for all participants (M = 47.5, Mdn = 48) with scores as follows: CC-C = 42, CC-D = 43, CC-E = 43, and CC-F = 38. These four scores were scattered within the EOCDP scores range of the individuals who reported *low* OTSE scores (i.e., self-efficacy). This indicates that these four Course Creators ranked their implementation of effective course design practices (EOCDP) quite low. The EOCDP scores for Course Creators A and B were within the score range of those who reported *high* OTSE scores (i.e., self-efficacy) with EOCDP scores of 54 and 52, respectively. Figure 20 illustrates the relationship of the OECDP scores among the various groups.

Figure 20

Comparison of EOCDP Scores of Phase II participants to Other Groups



Note. Letters A – F represent the courses that were submitted by the Phase II participants (i.e., the *Course Creators*)

* Maximum possible EOCDP score is 55.

The mean scores for each of the 11 questions on the EOCDP were then compared among the *high* and *low* self-efficacy groups (based on the OTSE scores), the entire Phase I group, the Phase II group, and the New-Online group. For most items, the reported scores were from lowest to highest in this order: *Low* Self-efficacy Group, New-Online Group, Phase II participants, Phase I participants, and *High* Self-efficacy Group. Interestingly, the mean scores for the New-Online group were higher than the *low* self-efficacy group for all questions. Additionally, the New-Online group scores for questions related to online assessment, instructional materials, and accessibility (i.e., items 4, 5, and 6, respectively) had scores higher than the Phase II participants. Figure 21 provides a visual illustration of the scores by EOCDP item for these groups.

Figure 21

Illustration of mean EOCDP Item Scores Compared by Participant Groups

A significant element of Phase II of the study was the course reviews of the Phase II participant courses. The course review processes were completed in October and November of 2020. Access to the courses was provided by each Phase II participant to the two course evaluators. This access provided the course evaluators the opportunity to log in to the course and experience the course from a student's perspective. The courses that were reviewed were copies of a course recently designed by each Phase II participant and included no student data.

An evaluation instrument that included 23 items was used by the course evaluators to assess the extent to which each course demonstrated the implementation of the item. This 23-item instrument was aligned with the 11 items on the EOCDP and included more specific statements that could be used for review of each course. An alignment matrix for the 11-item EOCDP and the 23-item course design evaluation instrument is included in Appendix G. The course evaluators accessed each course independently from the other to review each course and assigned scores for each item using a 5-point Likert scale. Scores from each evaluator for each course were combined to create a composite course review score. The highest possible score that a course might be assigned was 115. The evaluators' composite scores for these six courses ranged from 67.0 – 91.0. Scores assigned by the two evaluators were analyzed to determine the proportion of rater agreement. As noted by Shattuck et al. (2014), "Individual ratings given by a QM peer review in course reviews reflect, to at least some extent, that particular reviewer's professional/pedagogical opinion, and, therefore, may vary from the ratings of the other individual reviewers" (p. 31) and therefore, "the term proportion of rater agreement is used as it explicitly describes the analyses performed as opposed to inter-rater reliability" (p. 32). The percentage of exact and adjacent rater agreement of the course evaluator ratings for these six courses was 86%.

The EOCDP scores from the Phase I Questionnaire were used to create a composite score that represented the self-rating of the Phase II participants. Comparisons were made between the participant self-assessed score and the evaluators' composite scores. Four of the participants rated their course design significantly higher than the evaluators (CC-A, CC-B, CC-D, and CC-E); one rated their course similar to the evaluators' rating (CC-C); and, one rated their course lower than the evaluators (CC-F). Total scores displayed as a raw score as well as a percentage score for the evaluators' course review scores as well as the participant scores on the EOCDP are reported in Table 30.

Table 30

Overall Course Review Scores Compared to EOCDP Score by Course

Course	Course Review Score			EOCDP Score		
	Evaluators' Avg. Score	Max. Possible	%	Participant Score	Max. Possible	%
Course A	91.0	115	79.13	54	55	98.18
Course B	88.0	115	76.52	52	55	94.55
Course C	88.5	115	76.96	42	55	76.36
Course D	76.5	115	66.52	43	55	78.18
Course E	67.0	115	58.26	43	55	78.18
Course F	91.0	115	79.13	38	55	69.09

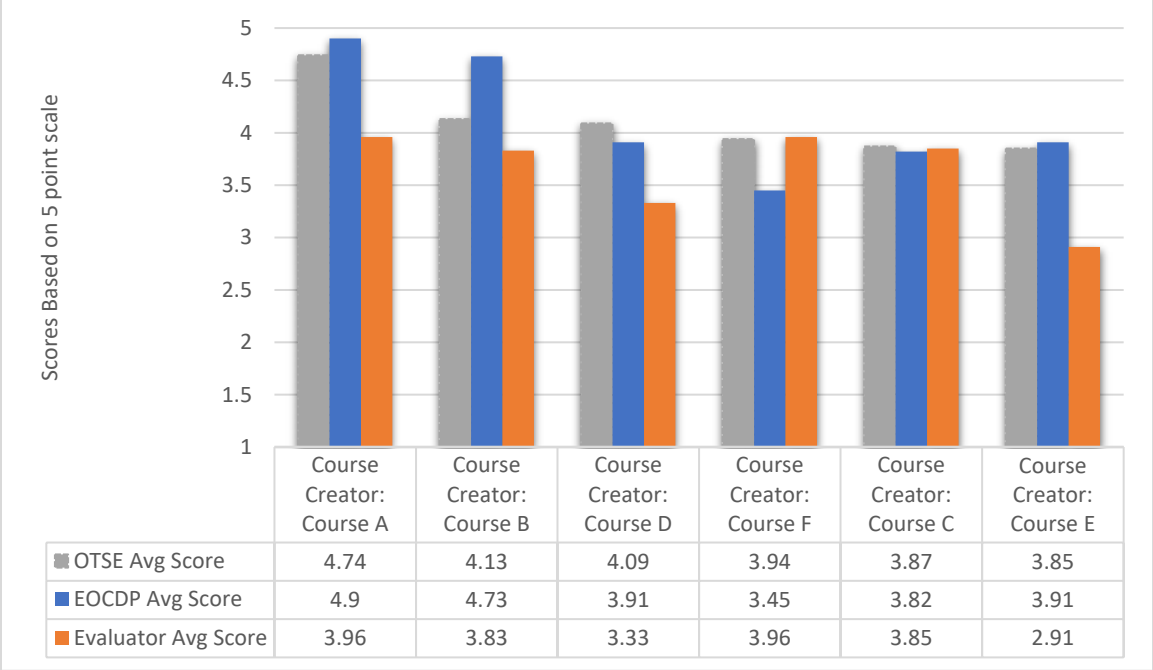
Note: Scores listed from high to low based on the participant's EOCDP score.

Next, a visual comparison was made of the OTSE score and the EOCDP score for each of the Phase II participants. To accomplish this, scores for each of the measures (OTSE, EOCDP, and evaluators' scores) were transformed into a single score for each measure based on a 5-point scale. Figure 22 illustrates the comparison between the EOCDP score and OTSE score of each Phase II participant as compared to the Evaluator composite score. The illustration displays the courses from left to right based on the OTSE score of the Phase II participants. The illustration shows that there were differences not only among how these participants rate their self-efficacy and their use of effective practices but also with how the courses were rated by the evaluators.

For example, Course Creator C had similar scores for OTSE and EOCDP and the evaluators' composite review score was also similar. Course Creators A and E had similar scores for all three measures however the evaluators' composite review score was significantly lower for each course. There does not appear to be a consistent or meaningful relationship among these variables for these six individuals.

Figure 22

Phase II: Comparison of OTSE Score, EOCDP Score, and Course Review Scores by Course



	Course Creator: Course A	Course Creator: Course B	Course Creator: Course D	Course Creator: Course F	Course Creator: Course C	Course Creator: Course E
OTSE Avg Score	4.74	4.13	4.09	3.94	3.87	3.85
EOCDP Avg Score	4.9	4.73	3.91	3.45	3.82	3.91
Evaluator Avg Score	3.96	3.83	3.33	3.96	3.85	2.91

Note. Scores for each of the measures were transformed into a single score based on a 5-point scale for illustration. The order of courses listed is based on OTSE score from high to low, left to right.

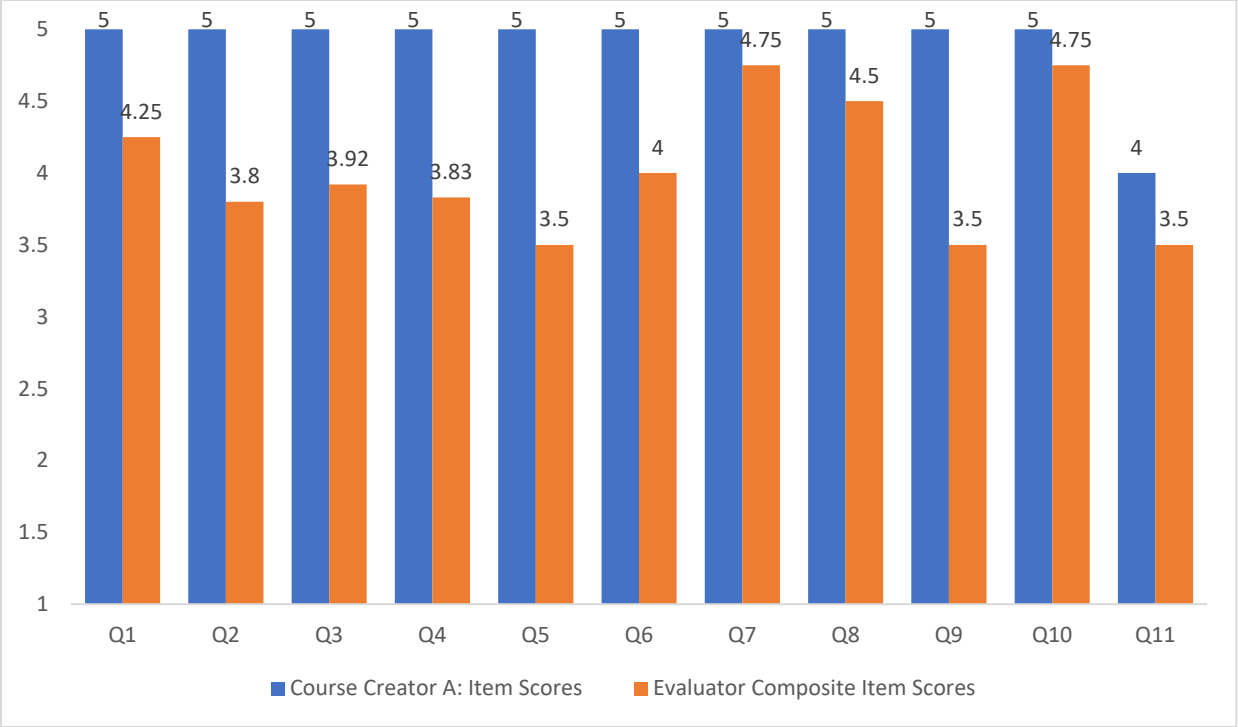
Comparisons between the participant EOCDP score for each item in the instrument and the evaluators' composite ratings were also made. Figures 23 – 37 illustrate the differences by course and by item between the course creator rating and the composite review rating. Across all

items, Course Creators A and B tended to have assigned self-ratings of their course design that were higher than the course evaluators. Course Creator F rated their course design lower than the course evaluators. The comparison between ratings of the Course Creators C, D, and E have a greater variety of differences with some higher and some lower than the course evaluators.

Course Creator A had an overall course score of 4.9 and the evaluator composite course score was 3.96. Course Creator A had consistently high self-assessed scores across all items on the EOCDP with only one question, question 11, marked less than a full 5 points. The evaluators' composite scores were lower for all 11 question areas. The smallest difference noted was a .25-point difference for item 7 and the largest difference noted was for item 5 where the ratings were 1.5 points apart. Course Creator A was a university faculty member who reported more than 10 years of online teaching experience and more than 20 hours of professional development. Figure 23 illustrates the comparison between the scores for each item for Course Creator A.

Figure 23. Phase II: Course Creator A Scores

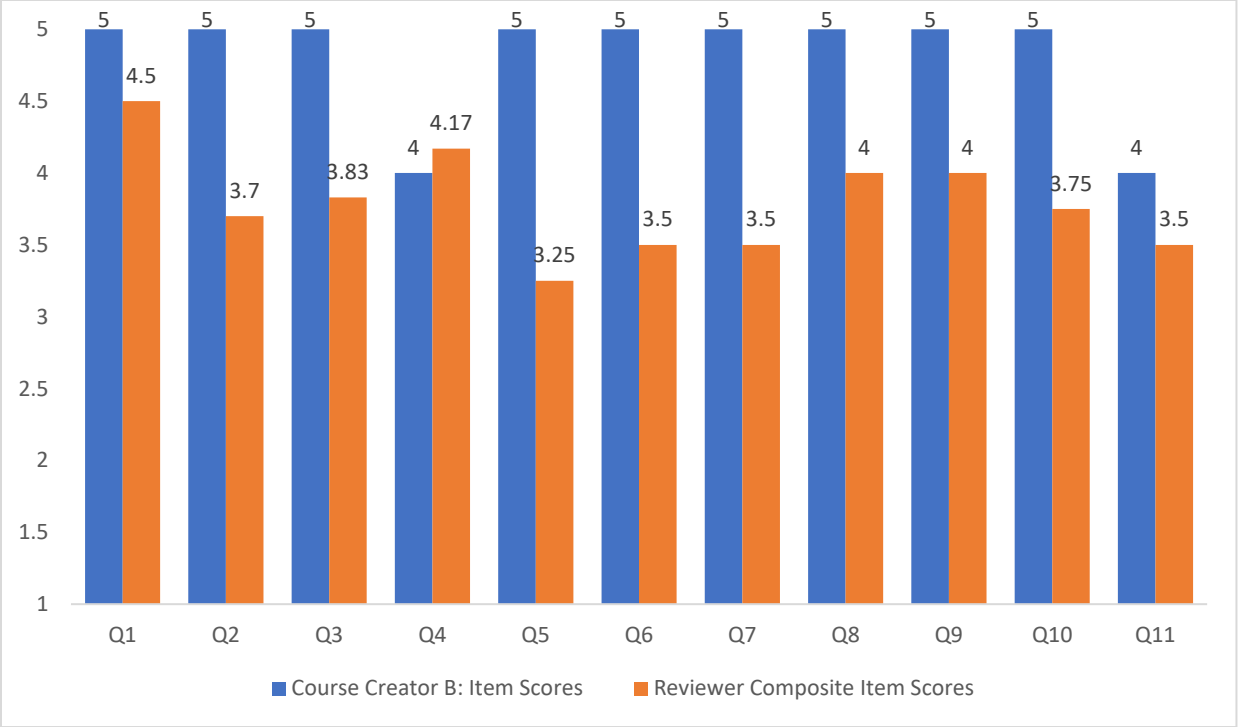
Phase II: Course Creator A Scores on EOCDP Compared to Evaluator Composite Rating



Course Creator B had an overall course score of 4.73 and the evaluators' composite course score was 3.83. This course creator had consistently high self-assessed scores across all items on the EOCDP with all but two questions, questions 4 and 11, marked at a full 5 points. The two questions that were rated lower were rated at 4 points. The evaluators' composite rating scores were lower for 10 of the question areas. The evaluators' composite score was .17 point higher on question #4 than the score of 4 from the course creator. For the remaining items where the course creator rated the question higher, the scores were quite different ranging from a difference of .5 point for questions 1 and 11 to differences for most other questions of between 1 and 1.75 points out of 5 points. Course Creator B was a university faculty member who reported 6 – 10 years of online teaching experience and more than 20 hours of professional development. Figure 24 illustrates the comparison between the scores for each item for Course Creator B.

Figure 24. Phase II: Course Creator B Scores

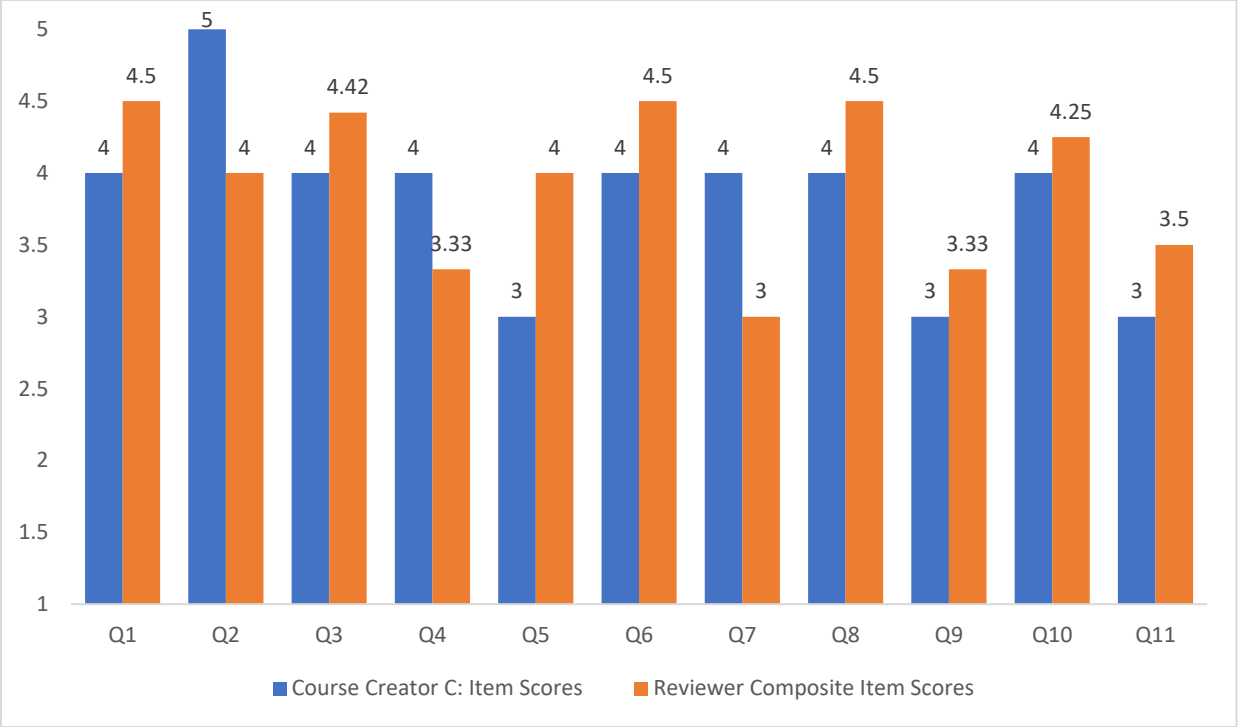
Phase II: Course Creator B Scores on EOCDP Compared to Evaluator Composite Rating



Course Creator C had an overall average course score of 3.82 and the evaluators' composite course score was 3.85. This was one of the two courses evaluated where the course creator score was lower than the evaluators' score. For this course, the two overall scores were similar however the score comparisons across the 11 question areas showed variation with the course creator rating themself lower on all questions except questions 2, 4, and 7. The biggest differences were between the scores for questions 2, 5, and 7 where there was a full point difference. For question 2, the course creator score was a full point higher than the evaluator composite score. For questions 5 and 7, the evaluators' composite rating was a full point higher. Figure 25 illustrates the comparison between the scores for each item for Course Creator C. Course Creator C was a community college faculty with 6 – 10 years of online teaching experience and more than 20 hours of professional development.

Figure 25. Phase II: Course Creator C Scores

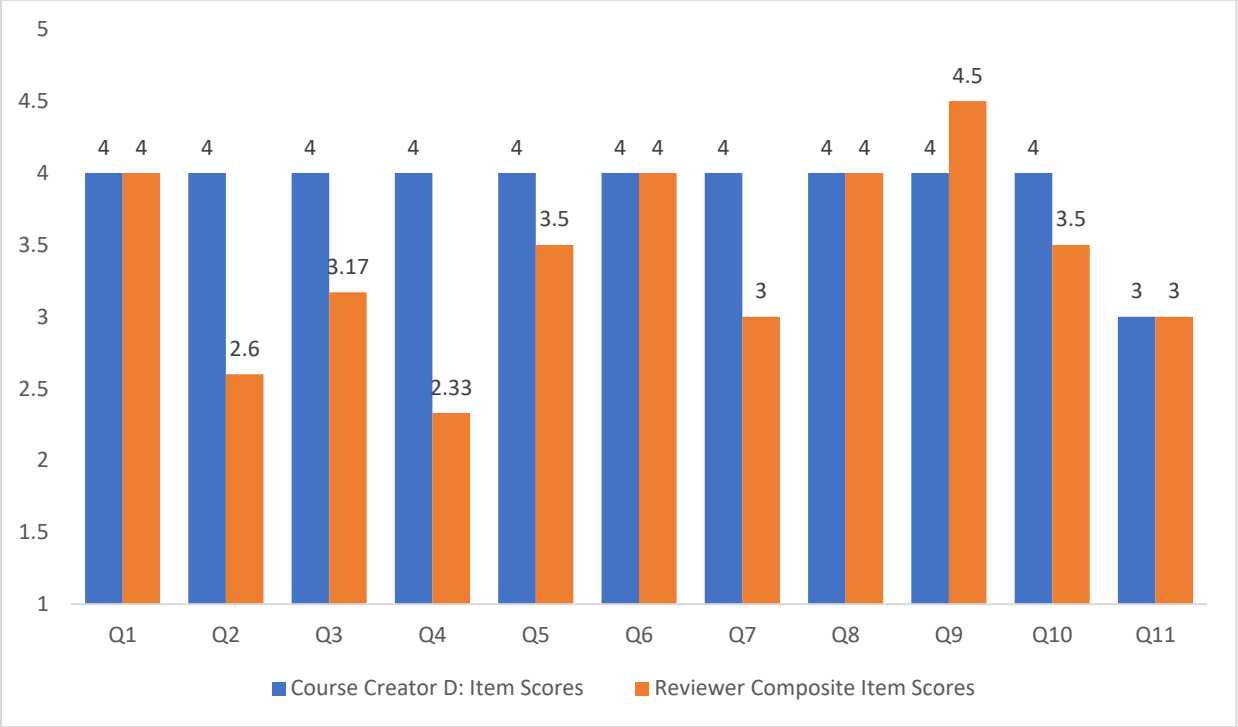
Phase II: Course Creator C Scores on EOCDP Compared to Evaluator Composite Rating



Course Creator D had an overall average course score of 3.91 and the evaluators' composite course score was 3.33. The ratings for this course showed a mix of consistent ratings as well as ratings with significant differences between how the course creator rated the course and how the evaluators rated the course. Questions 1, 6, 8, and 11 had identical scores between the course creator and the evaluators. For questions 2 – 5, 7, and 10, the course creator rated the course higher than the evaluators with the biggest difference a 1.7-point difference for question 4 and the smallest difference a 0.5-point difference for questions 5 and 10. For question 9, the evaluators rated the course higher than did the course creator. Course Creator D was a community college faculty with more than 10 years of online experience. They reported completion of fewer than 20 hours of professional development. Figure 26 illustrates the comparison between the scores for each item for Course Creator D.

Figure 26. Phase II: Course Creator D Scores

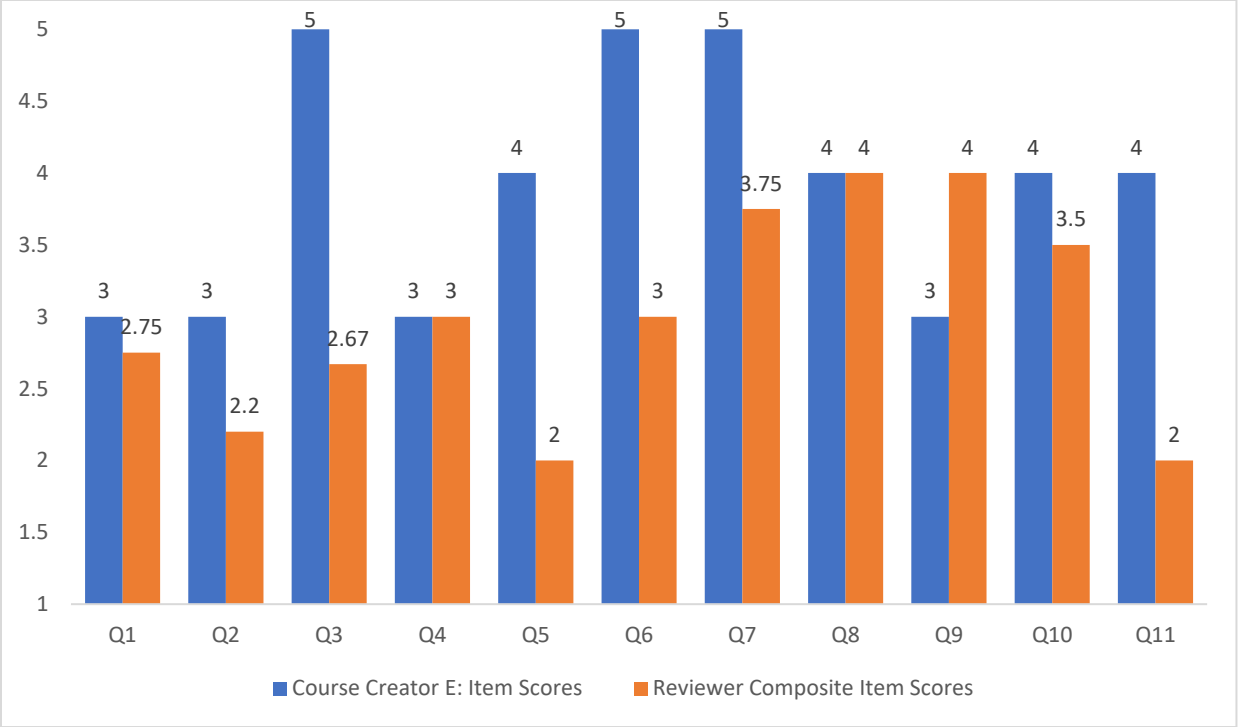
Phase II: Course Creator D Scores on EOCDP Compared to Evaluator Composite Rating



Course Creator E had an overall average course score of 3.91 and the evaluators' composite course score was 2.91. The ratings for this course showed the greatest variation from the evaluators' composite scores. Two questions, questions 4 and 9 showed equal ratings. Questions 3, 5, 6, and 11 showed a large difference with the course evaluators rating those questions 2 points less than the course creator rated the course. Question 9 was the only question where the evaluators rated the course higher than the course creator. Course Creator E was a community college faculty with less than 20 hours of professional development and with 6 – 10 years of online teaching experience. Figure 27 illustrates the comparison between the scores for each item for Course Creator E.

Figure 27

Phase II: Course Creator E Scores on EOCDP Compared to Evaluator Composite Rating

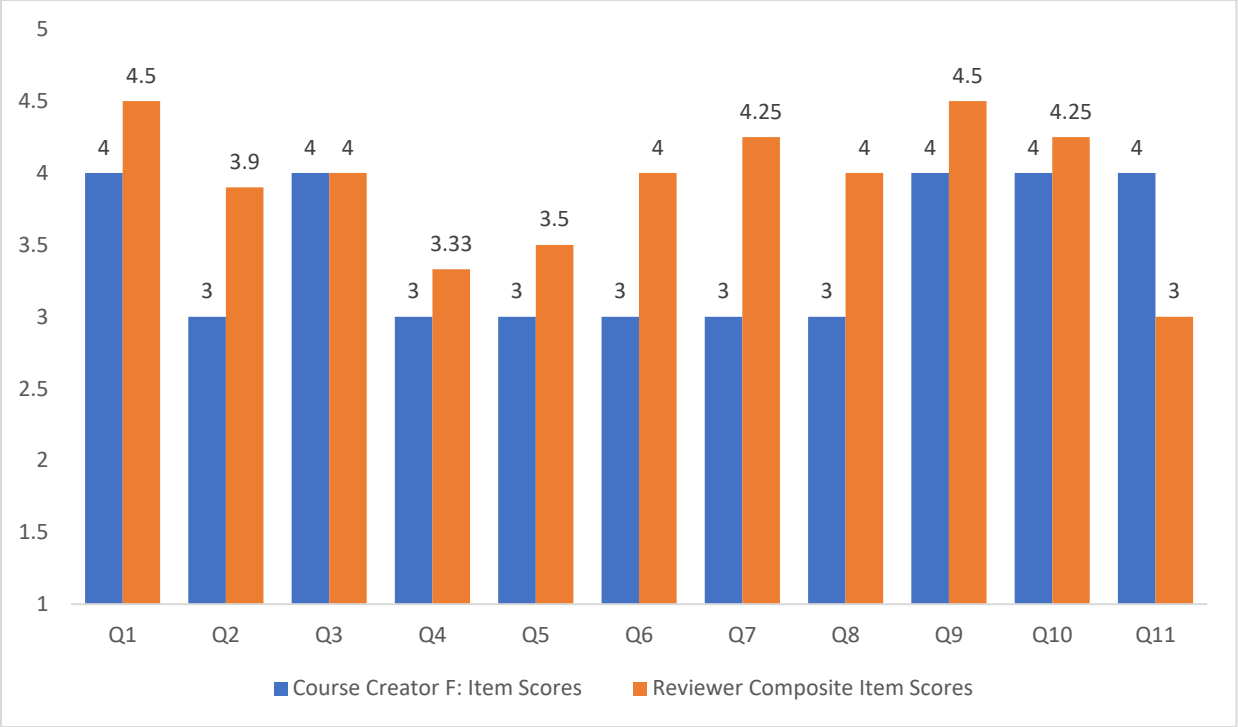


Course Creator F had an overall average course score of 3.45 and the evaluators' composite course score was 3.96. For this course, for all but two questions, the course creator rated the course lower than or equal to the course evaluators. The question with an equal rating was question 3. The question where that was rated higher by the course creator was question 11.

Course Creator F was a university faculty with 0 – 5 years of online teaching experience and less than 20 hours of professional development. Figure 28 illustrates the comparison between the scores for each item for Course Creator F.

Figure 28

Phase II: Course Creator F Scores on EOCDP Compared to Evaluator Composite Rating

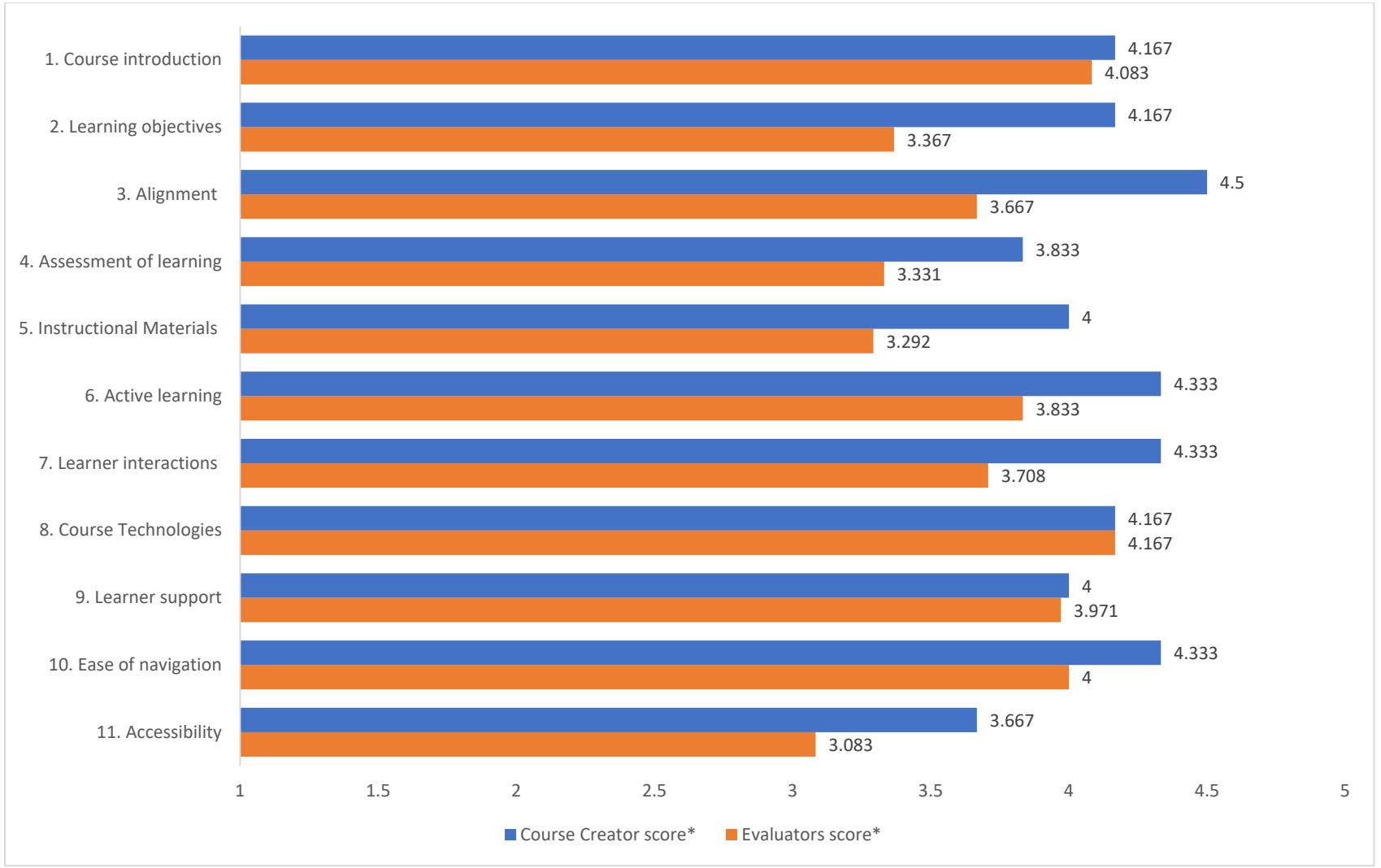


Given that there was significant variation among the course evaluation scores as compared to the course creator scores, a comparison was made between the averaged item scores across the six courses for each of the questions on the EOCDP scale. The purpose of this analysis was to determine if there were specific topics where the mismatch between the course creator scores and the scores assigned by the evaluators where the differences were greater. To accomplish this, all of the scores for each of the EOCDP item scores for the six course creators were averaged to create one course creator score per item. Next, a similar conversion of the evaluator scores for each topic area was completed to arrive at a single score per topic. This approach yielded 11 topic scores which showed that for all 11 topics (i.e., items on the EOCDP), the course creator score was higher than the evaluators' composite score for all but one topic which had an equal score to the evaluators' score. The difference between the Evaluators'

average scores and the Course Creators' average scores are illustrated in Figure 29 as a bar chart to highlight where the larger gaps between scores exist. It shows that the biggest differences were for the following questions: (a) *My course assessments, instructional materials, and learning activities are clearly aligned with the learning* objectives; (b) *My learning objectives are measurable and clearly stated. They establish a foundation upon which the rest of the course is based*.; (c) *My instructional materials are sufficiently comprehensive in providing the necessary foundation for successfully mastering the course learning objectives and competencies for my course.*; (d) *The forms of interaction incorporated in my course motivate students and promote learning.*; and, (e) *My course demonstrates a commitment to accessibility for all students.*

Figure 29

Phase II: Evaluators' Scores Compared to Course Creators' EOCDP Scores



Each topic or item addressed in Figure 29 is described in detail below starting with the topics with the largest differences and concluding with the topics with smaller differences.

Question 3 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *My course assessments, instructional materials, and learning activities are clearly aligned with the learning objectives.* The evaluators looked for evidence in the courses that there was consistent alignment among the instructional materials, the learning activities, and the assessments used in the course to measure the stated objectives. The Course Creators' average score was .83 points lower than the Evaluators' average score for this item (CC average score = 4.5; Evaluators' average score = 3.67).

Question 2 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *My learning objectives are measurable and clearly stated. They establish a foundation upon which the rest of the course is based.* The evaluators looked for evidence of measurable course and unit-level objectives. They also looked for whether or not the learning objectives were clearly stated for the students to access from within the course to provide the foundational information students need to focus their efforts. The Course Creators' average score was .80 points lower than the Evaluators' average score for this item (CC average score = 4.17; Evaluators' average score = 3.37).

Question 5 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *My instructional materials are sufficiently comprehensive in providing the necessary foundation for successfully mastering the course learning objectives and competencies for my course.* The evaluators looked for evidence that the instructional materials provided supported the learning objectives and that they included clear information regarding how they were meant to be used by the students. The Course Creators'

average score was .71 points lower than the Evaluators' average score for this item (CC average score = 4.0; Evaluators' average score = 3.29).

Question 7 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *The forms of interaction incorporated in my course motivate students and promote learning.* The evaluators looked for evidence that various types of learning interaction were built into the design of the course including learner – instructor, learner – content, and learner – learner interaction. The evaluators also looked for the type of information provided to students regarding whether or not the instructor had explained the extent of their planned interaction in the course including the length of time to respond to questions or provide feedback on assignments. The Course Creators' average score was .62 points lower than the Evaluators' average score for this item (CC average score = 4.33; Evaluators' average score = 3.71).

Question 11 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *My course demonstrates a commitment to accessibility for all students.* The evaluators looked for evidence that the text and images in the course were accessible according to Web Content Accessibility Guidelines (WCAG). For example, they looked to determine if the course HTML pages and documents were formatted using consistent heading and body styles (i.e., style sheets), that alternative text was used with all images and graphs, that tables were created using headings, and that PDFs in the course were not image scans. The Course Creators' average score was .59 points lower than the Evaluators' average score for this item (CC average score = 3.67; Evaluators' average score = 3.08).

Question 4 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *I assess my students in a manner that not only allows*

me to have a broad perspective of the students' mastery of the content, but also allows students to measure their own learning throughout the course. The evaluators looked for evidence in each course that the assessments listed would measure the learning objectives. They also looked for whether or not the students had been provided with clear information regarding the grading policies and the specific grading criteria for required student work. The Course Creators' average score was .5 points lower than the Evaluators' average score for this item (CC average score = 3.83; Evaluators' average score = 3.33).

Question 6 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *I provide engaging activities for my students to be active and persistent learners.* The evaluators looked for evidence that learning activities were provided that were aligned with the learning objectives and that those activities provided the students with opportunities for active learning activities that would prepare them to meet the learning objectives. The Course Creators' average score was .5 points lower than the Evaluators' average score for this item (CC average score = 4.33; Evaluators' average score = 3.83).

Question 10 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *My course has been designed to support ease of navigation for all students.* The evaluators looked for evidence that the course navigation was consistent, logical, and efficient. They also looked for links that were working and were appropriately named, that course pages and files were labeled with easy-to-understand names, and that heading styles had been consistently used to create pages and materials. The Course Creators' average score was .33 points lower than the Evaluators' average score for this item (CC average score = 4.33; Evaluators' average score = 4.0).

The remaining questions had either no or a small difference between the course creator and evaluator ratings. Question 1 on the EOCDP portion of the Phase I questionnaire asked participants to indicate the extent to which this statement was true of their online course: *My course introduction is effective in explaining the overall design of the course, as well as, setting the tone for the course, letting students know what to expect, and providing guidance to ensure they get off to a good start*. The evaluators looked for whether or not clear instructions were provided for the students about how to start the course, where to find various course components, as well as whether or not clear explanations regarding the design and structure of the course were provided. The Course Creators' average score was .09 points lower than the Evaluators' average score for this item (CC average score = 4.17; Evaluators' average score = 4.08).

Question 9 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *My course facilitates student access to institutional support services essential to student success such as technology support, accessibility support, academic services support, and student services support.* The evaluators looked for evidence that students were being provided with information to help them quickly and easily locate contact information for technology support, accessibility support, and academic services support. The Course Creators' average score was .03 points lower than the Evaluator's average score for this item (CC average score = 4.0; Evaluators' average score = 3.97).

The scores for question 8 were the same between the course creators and evaluators. Question 8 on the EOCDP asked participants to indicate the extent to which this statement was true of their online course: *The technologies in my course support student engagement and ensure access to course components. These technologies do not impede student progress.* The evaluators looked for evidence that the types of technology or tools used in the course were

meant to support the achievement of the learning objectives. The evaluators also looked for whether or not adequate instructions for how to use those tools were provided. The Course Creators' average score and the Evaluators' average score for this item were equal at 4.17.

Summary of Phase II Results. Comparisons between the evaluators' composite ratings and the EOCDP scores of the Course Creators by course illustrated that there was a mismatch between how the Phase II participants rated themselves in their implementation of effective online course design practices and how the evaluators rated the courses. Each of the items on the EOCDP scale represented a different topic or area of focus that represented effective course design practices. The inconsistencies between how the evaluators rated the courses and the course creators rated the courses persisted as the individual items were compared.

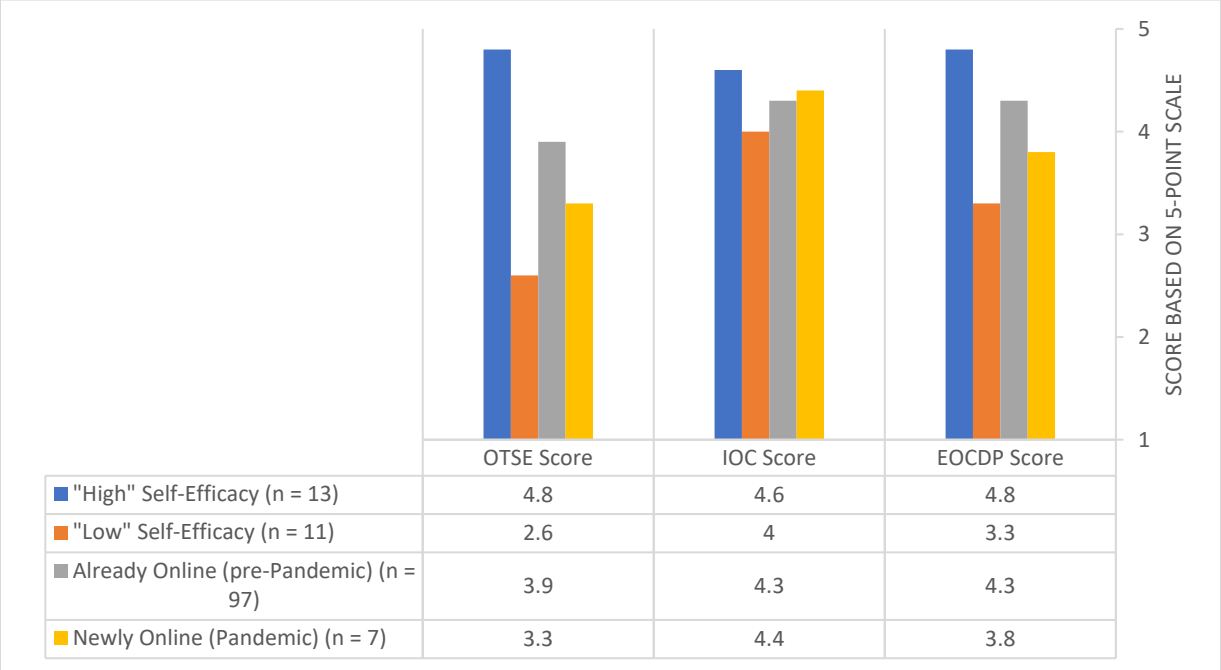
Overall Results Summary

Where applicable, an analysis was made of the responses for the 7 individuals who were new to online teaching due to the COVID-19 pandemic. The following short section provides an overall results summary for the results with the greatest significance or interest.

Comparisons Across Groups. The preceding questions focused on specific variables such as OTSE, IOC, and EOCDP scores. To make this comparison across groups for these variables, the OTSE scores, the EOCDP scores, and the IOC scores were transformed into a single score on a 5-point scale. Figure 30 displays a graphic comparison among the scores for the New-Online group, the individuals in the high and low self-efficacy groups, as well as the primary study participants. This comparison shows that the newly online due to the COVID-19 pandemic had IOC scores that were similar to the primary study participants as well as its sub-groups (i.e., low and high self-efficacy groups). It also shows that the New-Online group had OTSE and EOCDP scores that were higher than the low-efficacy group.

Figure 30

Comparison of OTSE, IOC, and EOCDP scores for Online Instructors Pre-pandemic and New-Online Due to Pandemic



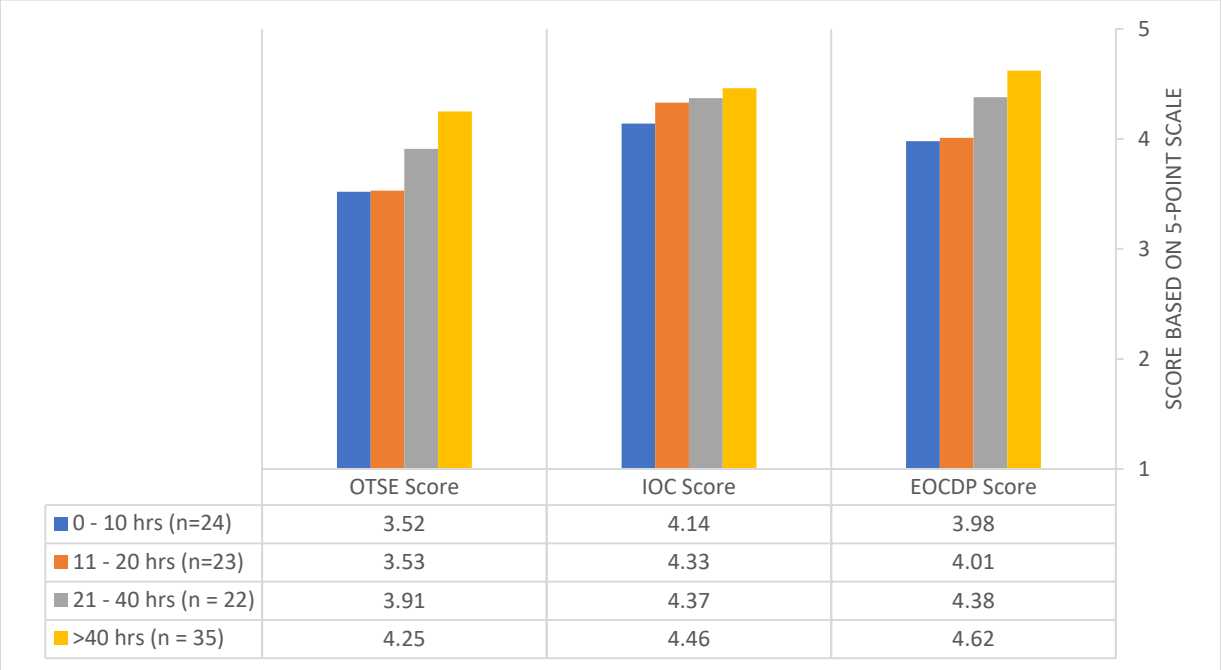
	OTSE Score	IOC Score	EOCDP Score
"High" Self-Efficacy (n = 13)	4.8	4.6	4.8
"Low" Self-Efficacy (n = 11)	2.6	4	3.3
Already Online (pre-Pandemic) (n = 97)	3.9	4.3	4.3
Newly Online (Pandemic) (n = 7)	3.3	4.4	3.8

Note. Scores for each of the measures were transformed into a single score based on a 5-point scale for each item for illustration.

Next, comparisons across groups for these same scores were made based on the number of hours or professional development completed. To make this comparison, the OTSE scores, the EOCDP scores, and the IOC scores were transformed into a single score on a 5-point scale. Figure 31 provides a graphic comparison of the OTSE, IOC, and EOCDP scores based on the hours of completed professional development related to online teaching and learning. The illustration shows that the mean score for each scale is higher for the groups reporting more hours of professional development completion.

Figure 31

Comparison of Mean OTSE, IOC, and EOCDP Scores Based on Hours of Professional Development Completed



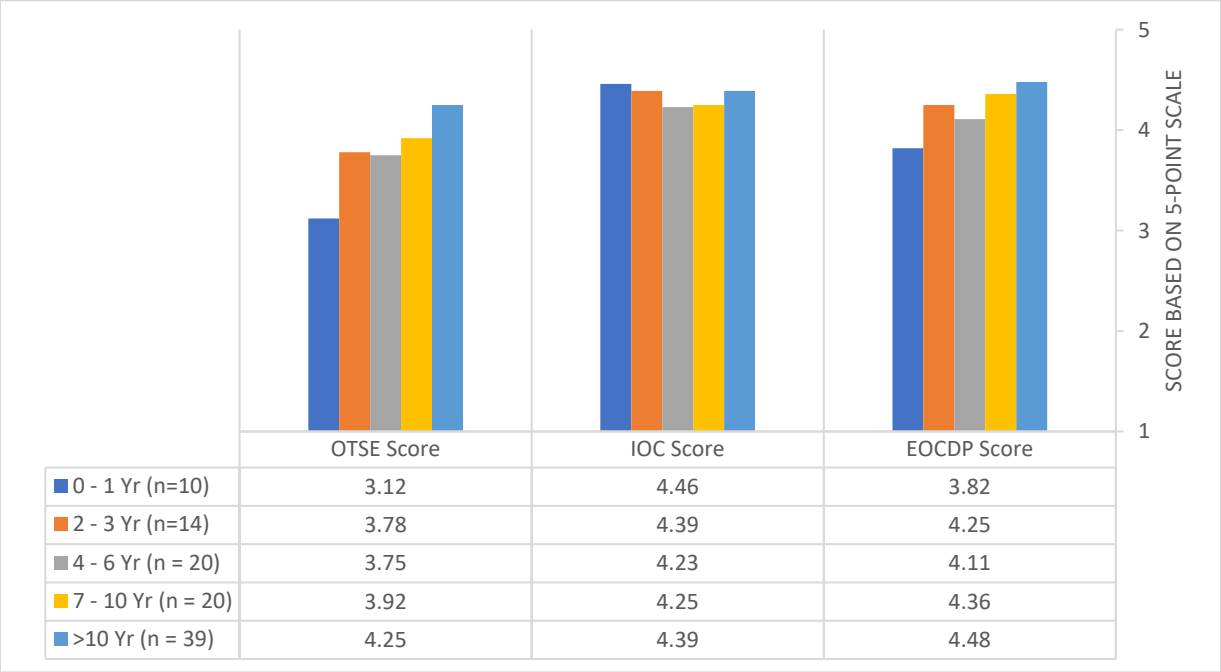
	OTSE Score	IOC Score	EOCDP Score
0 - 10 hrs (n=24)	3.52	4.14	3.98
11 - 20 hrs (n=23)	3.53	4.33	4.01
21 - 40 hrs (n = 22)	3.91	4.37	4.38
>40 hrs (n = 35)	4.25	4.46	4.62

Note. Scores for each of the measures were transformed into a single score based on a 5-point scale for each item for illustration. Chart includes all participants including the New-Online.

Finally, a comparison across groups was made based on the years of online teaching experience. To make this comparison, the OTSE scores, the EOCDP scores, and the IOC scores were transformed into a single score on a 5-point scale. Figure 32 illustrates the comparison of mean OTSE, IOC, and EOCDP scores based on years of online teaching experience. The mean OTSE score for the individuals with less than 1 year or less of online teaching experience was significantly lower than the mean OTSE scores for those with more than one year of online teaching experience. The mean IOC scores were similar for all groups regardless of years of online teaching experience with those with the least teaching experience reporting ratings slightly higher than those with more teaching experience.

Figure 32

Comparison of Mean OTSE, IOC, and EOCDP Scores Based on Years of Online Teaching Experience



	OTSE Score	IOC Score	EOCDP Score
0 - 1 Yr (n=10)	3.12	4.46	3.82
2 - 3 Yr (n=14)	3.78	4.39	4.25
4 - 6 Yr (n = 20)	3.75	4.23	4.11
7 - 10 Yr (n = 20)	3.92	4.25	4.36
>10 Yr (n = 39)	4.25	4.39	4.48

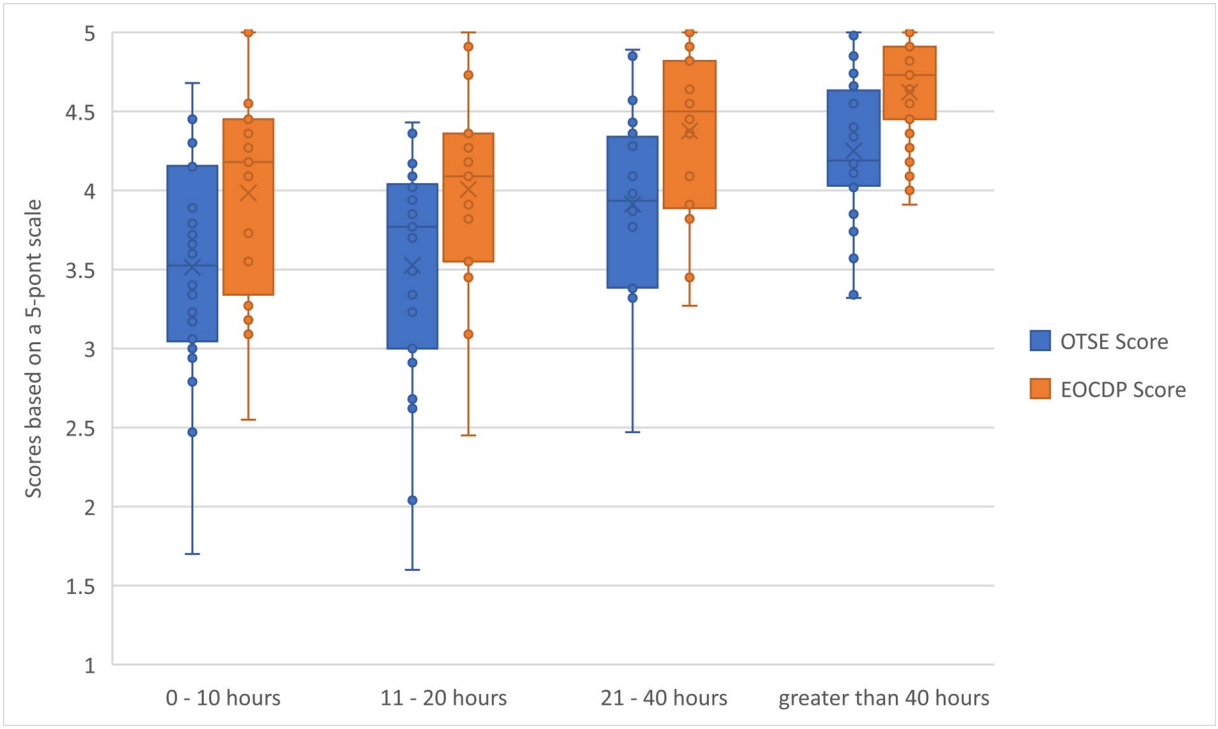
Note. Scores for each of the measures were transformed into a single score based on a 5-point scale for each item for illustration. n = 104; Chart includes ALL participants.

Comparisons by Variables with Significant Impacts. The results for the six research questions included statistically significant results with practical significance for some variables. These included the impact on effective online course design practices based on the number of hours of professional development completed, whether or not the individual had been an online student, the number of years of online teaching experience, and whether or not the participant had ever participated in a QM course review. Online teaching self-efficacy was impacted by professional development and whether or not the participant had ever participated in a QM course review.

As described in the results for research questions 3 and 4, the number of hours of professional development related to online teaching and learning had a statistically significant impact on both the OTSE and EOCDP scores. To summarize the differences in scores based on professional development, a box and whisker plot (Figure 33) was created to make a visual comparison for these two scales. It shows that the individuals reporting less than 20 hours of professional development have the widest distribution of scores. The score distributions include a wide distribution with the minimum and maximum scores far from the median scores. The differences between those with 0 – 10 and 11 – 20 hours of professional development were minimal. When comparisons were made for those between 0 – 10 and 11 – 20 hours and those with higher reported hours of professional development (i.e., 21 – 40 hours and greater than 40 hours) the distribution patterns were quite different. The differences were most pronounced for those reporting greater than 40 hours of professional development. For those in this group, the distribution patterns for both OTSE scores and especially for EOCDP scores were much smaller with much less variability between the minimum, maximum, and median scores, especially for the EOCDP scores.

Figure 33

EOCDP and OTSE Scores by Hours of Professional Development Completed

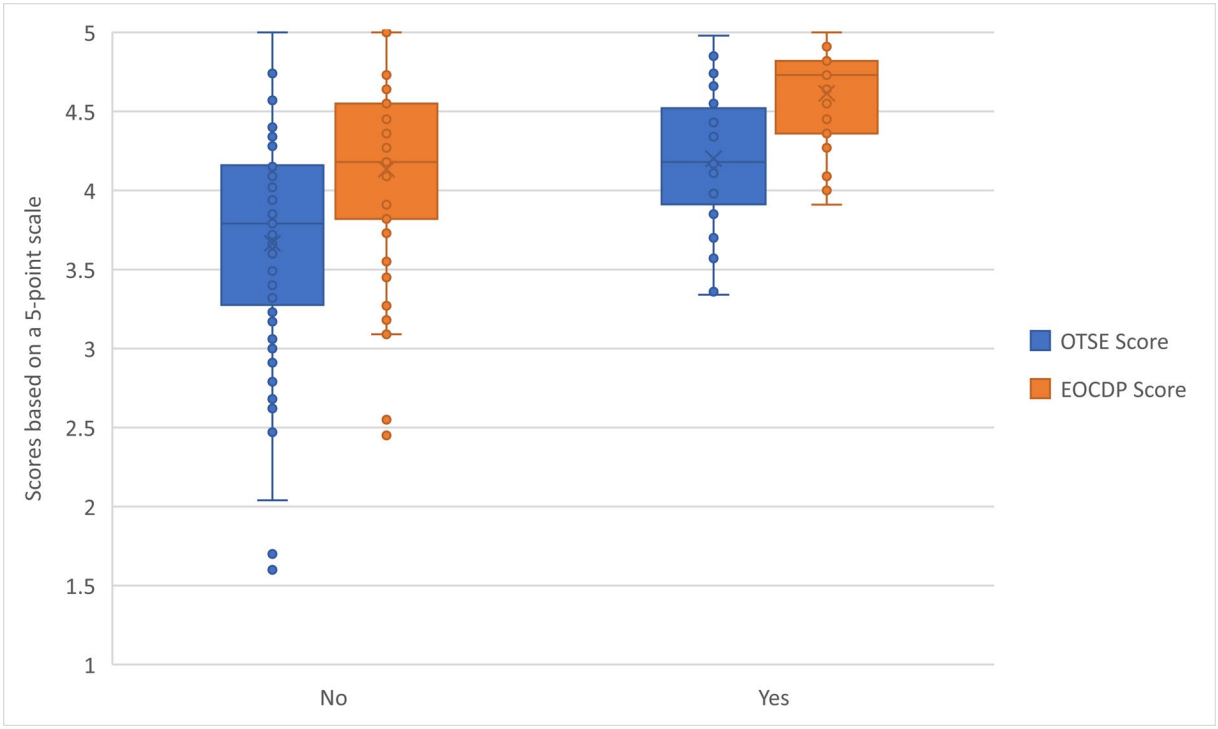


Note. n = 104 (0 – 10 hours, n = 24; 11 – 20 hours, n = 23; 21 – 40 hours, n = 22; greater than 40 hours, n = 35)

As described in the results for research questions 3 and 4, participation in a QM course review also had a statistically significant impact on both the OTSE and EOCDP scores. To summarize the differences in scores based on QM course review experience, another box and whisker plot (Figure 34) was created. It shows that those without review experience have a wider distribution of scores for both the OTSE and EOCDP scores. Those with QM review experience have a narrower distribution of scores and less variation between the minimum, maximum, and median scores. This is especially true for the EOCDP score.

Figure 34

OTSE and EOCDP Scores by QM Review Experience

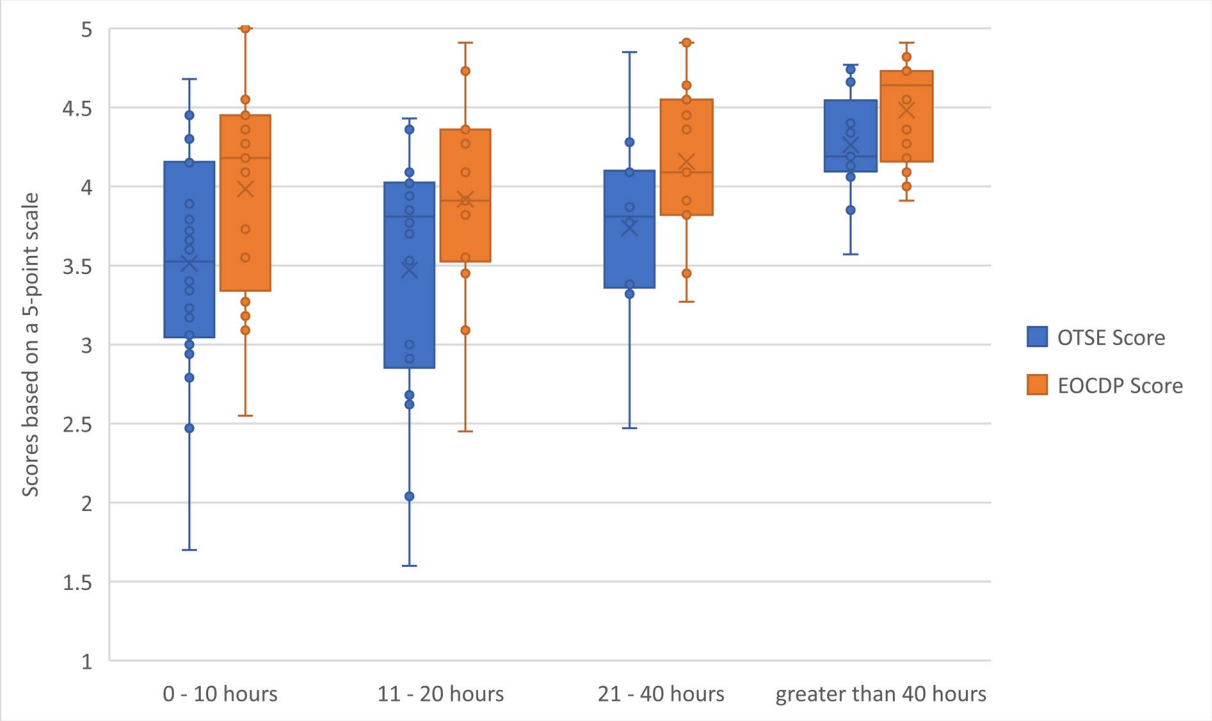


Note. n = 104 (No for QM Review Experience, n = 71; Yes for QM Review Experience, n = 33)

Because participation in a QM official course review could be considered to be a type of professional development, an additional box and whisker plot was created that looked only at the participants with no QM review experience to see how professional development impacted their OTSE and EOCDP scores (Figure 35). It showed that completion of a greater number of professional development hours meant to prepare the individual for online teaching yields a narrower distribution of scores for both the OTSE and the EOCDP scales with less variance between the minimum, maximum, and median scores.

Figure 35

OTSE and EOCDP Scores by Hours of PD for Individuals with no QM Review Experience



Note. $n = 71$ (0 – 10 hours, $n = 24$; 11 – 20 hours, $n = 18$; 21 – 40 hours, $n = 13$; greater than 40 hours, $n = 16$)

Conclusion

This chapter presented the statistical results for the data analysis. Analysis indicated that there was a statistically significant relationship among online teaching self-efficacy, higher education instructors' online teaching experience, hours of professional development completed, and implementation of effective online course design practices. A more detailed analysis related to these variables was presented. Chapter 5 will provide an interpretation of the findings along with recommendations for practice and concludes with suggestions for further research.

CHAPTER 5. CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Many factors have an impact on the quality of an online course and the preparedness of faculty to create and deliver a quality learning experience is one of those factors (Ali et al., 2005; Meyer & Murrell, 2014; Stupnisky et al., 2018). Faculty may not be well prepared or supported to create and successfully deliver courses that use technology given that forty percent of United Stated higher education institutions do not require their faculty to complete any type of professional development to teach online (Garrett et al., 2020). Various studies have found that things like student satisfaction, student perception of learning, or the achievement of student learning outcomes are impacted by the course design and organization, course interaction and engagement, instructive feedback, clear learning objectives, and appropriate assessment strategies (Barcyzyk et al., 2017; Jaggars & Xu, 2016; Joosten & Cusatis, 2019). Higher education institutional leaders and faculty developers are interested in what is needed to best to prepare and support faculty to design and teach online courses that take into consideration the many factors that contribute to a quality online learning experience. It is also a topic of personal and professional interest for the researcher.

The purpose of this study was to investigate what relationships exist between the self-efficacy ratings for online higher education faculty when compared to their teaching experience levels, their professional development, and the degree to which they have implemented effective online course design practices as compared to nationally recognized effective online course design practices. This study sought to gain an understanding about how online faculty perceive their online teaching competencies and their ability to effectively design online courses when compared to their teaching experience and professional development. The topic of this study is especially pertinent in today's higher education environment as institutions struggle to find the

best approach for supporting and preparing faculty to improve their online teaching practice. Many public institutions in higher education do not have the resources, support, or professional development to provide a consistent approach to the design and delivery of online courses which may result in faculty who find themselves teaching online with limited preparation, professional development, and support. Beginning in March 2020, faculty teaching campus-based classes were forced to pivot to some version of online delivery due to the COVID-19 pandemic. This created a situation where basically all higher education faculty were teaching some version of online courses. Due to the nature of this emergency, this rapid shift occurred with limited time and support which highlighted and exacerbated existing gaps that in how institutions were able to prepare and support their online faculty.

The literature includes many studies about faculty motivation to complete professional development (Hardre, 2012; Lian, 2014; Mohr & Shelton, 2017; Stupnisky et al., 2018), the role of faculty in designing online courses (*EDUCAUSE 2019 Horizon Report Preview*, 2019; Hardre, 2012; Horvitz et al., 2014), and increasingly provides insights into the role of instructional designers in supporting faculty. There have also been multiple attempts to list the competencies needed by online faculty to be successful in their efforts (Baldwin et al., 2018; Diehl, 2016; Jaggars & Xu, 2016). Additionally, there have been many studies examining the role of self-efficacy in relation to how faculty feel about their ability to teach online courses or their willingness to move to an online delivery modality the role of self-efficacy in faculty assessment of their ability to teach online courses (Anderson et al., 2016; Corry & Stella, 2018; Fishback et al., 2015; Horvitz et al., 2014; Magda, 2019; Richter & Idleman, 2017). This study was meant to bridge an existing gap in the literature regarding how faculty self-efficacy for online teaching and faculty experience or background, professional development completion,

online teaching experience, and the implementation of effective online course design practices were related. It was also meant to provide information that might be used by institutions and/or faculty developers to consider when planning for or providing professional development or support for faculty who are teaching online.

Summary of Study Methodology

This was a non-experimental quantitative correlational explanatory study. Six research questions were formulated that were meant to explain how various factors are related to course design decisions. The first research question (RQ1) looked specifically at the relationships among online teaching self-efficacy, higher education instructors' teaching experience, professional development, and implementation of effective online course design practices. From this primary research question, five secondary research questions were developed to explore in more detail the extent of the relationships that were found. Secondary research questions included (RQ2) determining the levels of online teaching self-efficacy faculty possess; (RQ3) explaining how various demographics impact levels of online teaching self-efficacy as well as the ratings of the importance of online teaching competencies; (RQ4) explaining how various demographics impact self-perception of implementation of effective online course design practices; (RQ5) a comparison of the differences between online course design practices of higher education online instructors with a perceived high or low sense of online teaching self-efficacy based on the type of professional development completed and course design supports they reported they had used prior to designing an online course; and, (RQ6) an analysis of how self-reported course design practices of higher education online instructors with a perceived high sense of online teaching self-efficacy compare to nationally recognized effective online course design practices.

Data were gathered in two phases. In Phase I, a questionnaire was broadly distributed to higher education faculty at a large public system of higher education located in the Midwest. This system includes both state universities and community colleges. The Phase I Questionnaire (Appendix B) included a 22-item demographics section, a 47-item section for the Online Teaching Self-Efficacy Inventory (OTSEI) instrument created by Dr. Kevin Gosselin (Gosselin, 2009), and an 11-item section based on the *Standards from the Quality Matters Higher Education Rubric, 6th Edition* that asked about effective online course design practices (EOCDP). The second phase included an abbreviated review of a small number of courses to determine if there were consistent ratings between the faculty self-assessment of their implementation of effective online course design practices in a course of their creation and the ratings from two external reviewers who were both Quality Matters certified MRs. The Phase II course evaluation instrument is included in Appendix C.

There were 104 respondents to the questionnaire including 7 individuals who were teaching online for the first time due to the shift to remote learning that resulted from the COVID-19 pandemic. Due to the violation of statistical assumptions, data from the Phase I Questionnaire were analyzed using nonparametric tests including Spearman's rank-order correlation, Kendall's Tau-b correlation, and Mann Whitney U tests (see Chapter 4 for more information). Nonparametric tests were used because the score distributions for the primary study variables (i.e., online teaching self-efficacy and effective online course design practices) were skewed or non-normal. Effect sizes were calculated for Mann-Whitney U tests as described by Lenhard and Lenhard (2016). A total of six courses were included in the second phase of the study.

Summary of Findings

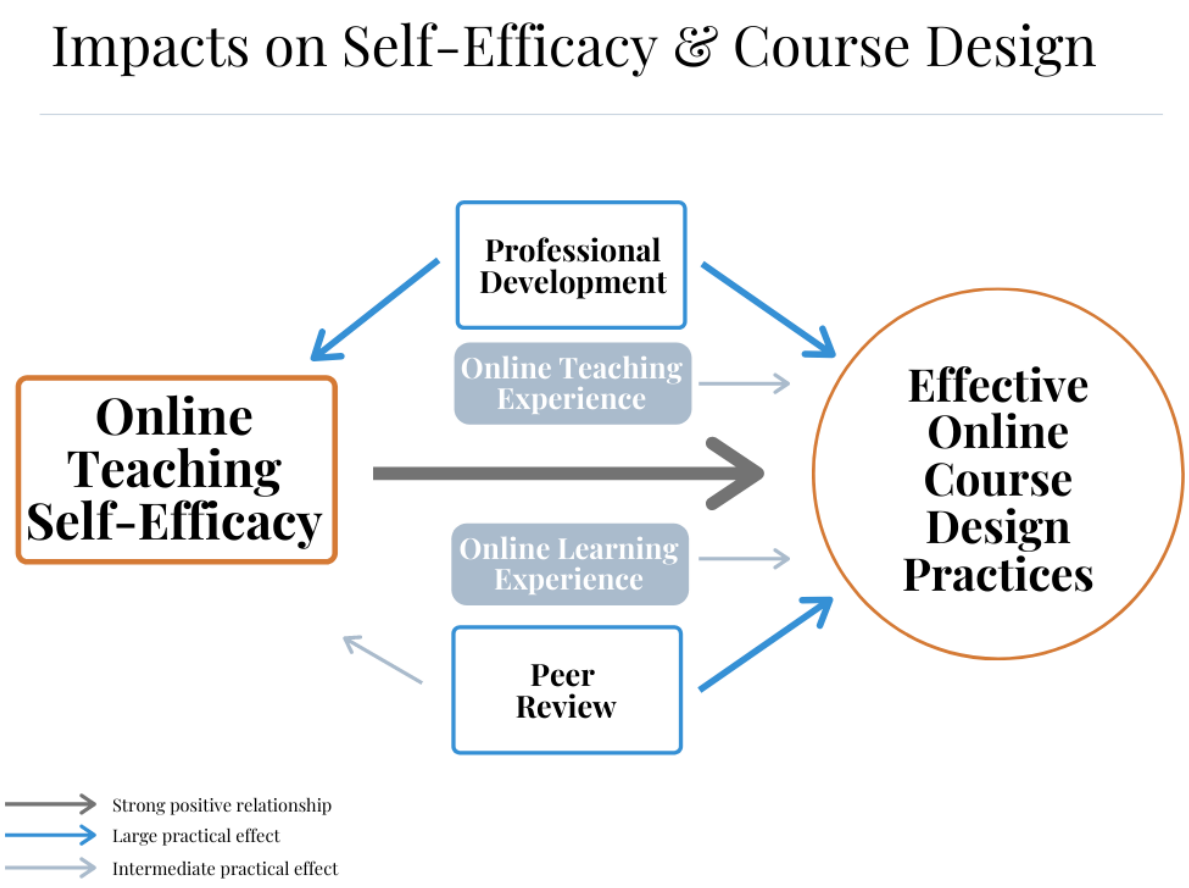
This study sought to investigate the relationship of several variables including online teaching self-efficacy, online teaching experience, online learning experience, demographics, professional development completion, and the implementation of effective online course design practices. The results for research question 1 demonstrated that there were statistically significant relationships between each of the primary study variables of online teaching self-efficacy, effective online course design practices, professional development, online teaching experience. The secondary research questions provided information to further explain the relationships as well as to determine effect sizes. As each of the secondary research questions was addressed, the data were explored in various combinations using nonparametric inferential and descriptive statistics with the intent of identifying patterns or trends in how variables' relationships manifested in the data. Because the different variables were analyzed multiple times and in multiple ways, the discussions and conclusions are presented by variable rather than by research question. While the results suggest correlation among several variables, the findings cannot be used to suggest causation.

What the overall results indicated was that online teaching self-efficacy (referred to as OTSE for the remainder of this chapter) had a strong positive correlation to the self-reported implementation of effective online course design practices (referred to as EOCDP for the remainder of this chapter). Completion of professional development (PD) had a large effect size on both OTSE and EOCDP. Participation in course peer review activities had a large effect size on EOCDP and an intermediate effect size on OTSE. Online teaching experience and online learning experience had an intermediate effect size on EOCDP but limited effect on OTSE. No correlations with OTSE or EOCDP were found with age or gender. Figure 36 provides a

summary illustration of the relationships among the variables including the strength or significance of these relationships. Each of the variables will be discussed in detail in the next section.

Figure 36

Illustration of Effects on Self-Efficacy and Effective Course Design



Online Teaching Self-Efficacy

Corry and Stella (2018) describe teaching self-efficacy as "a measure of the degree to which a teacher believes he/she has the ability to perform correctly the tasks suggested as best practices for teaching" (p. 8). Online teaching self-efficacy (OTSE) includes the knowledge, skills, and abilities needed by teachers to be effective in the online context. The present study

focused on the relationships among OTSE, completion of professional development (PD), online teaching experience, and the extent that the faculty implement effective online course design practices (EOCDP). Participants in this study, whether newer to online teaching or highly experienced with online teaching, reported generally high levels of OTSE.

The two variables that were strongly associated with OTSE were hours of professional development completion and participation in official QM course reviews. Completion of a greater number of hours of PD was related to higher OTSE. For the purposes of analysis, participants were classified as having *high* OTSE or *low* OTSE if their OTSE score was at least one standard deviation higher or lower than the mean OTSE score. Nearly 70% of the 13 participants who had *high* OTSE reported completion of greater than 50 hours of PD. Conversely, nearly all in the *low* self-efficacy group reported completion of fewer than 20 hours of PD with about 45% of them reporting 0 – 10 hours. This finding was similar to the work of Wise (2019) who also found that online faculty reported high OTSE and that completion of professional development appeared to be related to higher OTSE scores. This study did find that more years of online teaching experience were related to higher OTSE although the effect size was small. This is consistent with Anderson et al. (2016) who found that self-efficacy or confidence increases over time based on faculty experience. However, in this study, there was no statistically significant difference between the OTSE scores for novice (<5 years) versus experienced (>5 years) online instructors.

Interestingly, in this study, there were individuals with high self-efficacy and relatively little online (or face-to-face) teaching experience or limited professional development. The significant difference in OTSE scores became apparent when the participants had completed greater than 20 hours of PD. However, even those with fewer than 10 hours of professional

development reported generally high levels of OTSE while some with a high number of hours of PD reported low OTSE. Additionally, there were individuals with low OTSE who had significant amounts of online teaching experience or greater amounts of professional development. In other words, while completion of a greater number of hours of PD or having more years of online teaching experience was correlated to having higher OTSE, this was not consistent for all individuals. This phenomenon raises the question of whether or not some of these faculty have over-estimated or under-estimated their abilities and therefore their confidence to perform online teaching competencies. This question is supported by Pajares (1996), who indicated that faculty may not accurately perceive their abilities when appraising their self-efficacy.

Participation in an official QM course review was one of the variables that was related to higher OTSE. More than half of the individuals in the *high* self-efficacy group indicated participation in an official QM course review while none of the individuals in the *low* self-efficacy group reported this type of experience. One of the sources of building self-efficacy is through mastery experiences (Bandura, 1994). Participation in a Quality Matters official course review may lead to greater feelings of self-efficacy due to the external validation of mastery related to course design decisions that this experience provides. Additionally, those who completed the greatest number of hours of professional development and had successful online teaching experience over time may also have experienced mastery that led to greater self-efficacy.

Participants in this study rated their online teaching self-efficacy highest in the areas of *Course Content Migration* and *Alignment of Objectives, Instruction, and Assessment*. This would seem to indicate that these participants were confident in the foundational teaching skills that faculty are expected to possess related to choosing and providing appropriate content and

ensuring that the primary course components such as objectives, assessments, activities, and strategies for instruction were aligned. This is important to consider because faculty make decisions about where to spend limited resources (time and funds) on professional development based on their confidence in their knowledge, skill, or ability in a given area. If they are not accurately appraising their ability but are feeling confident that they are knowledgeable or skilled enough, it is possible choices regarding participation may not be based on what might be most beneficial.

Effective Online Course Design Practices

The researcher expected to find that several variables might together contribute to OTSE and that this would ultimately be related to the implementation of effective online course design practices (EOCDP). This study found that the following variables were related to EOCDP: OTSE, PD, online learning experience, online teaching experience, and participation in QM course reviews. While the findings cannot be used for prediction, they seemed to indicate that faculty with a higher sense of OTSE were more likely to report that they have implemented EOCDP in the online courses they have created. The findings also indicated that those individuals who have completed more than 20 hours of PD, who had more online teaching experience, who had experience as an online student, and/or who had previously had a course reviewed using the Quality Matters course review process were more likely to report that they use EOCDP. The results showed that there were relationships among these variables, however, they were not related in an easily defined way. There was an indication that, in combination, these variables were related to the higher EOCDP scores. In other words, an individual who had more PD, had online student experience, had online teaching experience, and had participated in

a QM review was likely to have a higher EOCDP score than a participant who did not have one of those experiences.

In the Phase I group, the topical areas rated with higher EOCDP scores were related to *course alignment*, *measurable learning objectives*, *course navigation*, *sufficient instructional materials,* and *learner engagement*. The Phase I group rated the item related to *accessible course design* lowest. These scores on EOCDP would seem to indicate that these participants were confident in both the foundational design skills (e.g., navigation) as well as the teaching skills that higher education faculty are expected to possess. It is not a surprise that these are the same areas or topics for which participants reported higher levels of OTSE. The Phase I participants who completed more professional development reported generally higher EOCDP scores overall and they also had a much smaller range of scores regardless of whether or not they had participated in a QM course review. This is likely because those with more PD had a better understanding of not only what each question was asking them to consider but also of how to implement it in their course. However, because their courses were never evaluated there is no way to confirm whether their own beliefs are actually reflected in the design of their online courses.

In order to gain some understanding of whether or not individuals were accurately appraising their course design abilities, the evaluation of six courses was conducted in Phase II of the study. None of the individuals in the Phase II participant group had previously participated in a QM course review. The mean scores of the Phase II participants were generally slightly lower than the mean overall and by item EOCDP scores of the Phase I participants who indicated they had not participated in a QM review. Similar to the Phase I group, the topical areas rated with higher EOCDP scores by the Phase II participants were related to *course navigation*,

measurable learning objectives, *course alignment*, *active learning*, and *learner engagement*. The Phase II group also rated the item related to *accessible course design* lowest.

Phase II consisted of an abbreviated course review of six online courses using an evaluation instrument that was based on the essential standards of the Quality Matters Higher Education Rubric, 6th Edition. The courses were evaluated by two QM-Certified Master Reviewers who used a 23-item instrument (Appendix C) that was aligned with the 11 items on the EOCDP. Comparisons between the evaluators' composite ratings and the EOCDP scores of the Phase II faculty who created each course illustrated that there were inconsistencies between how the faculty rated themselves in their implementation of EOCDP and how the evaluators rated the courses. Four of the Phase II participants rated their course design significantly higher than the evaluators' ratings, one rated their course similar to the evaluators' rating and, one rated their course lower than the evaluators. The inconsistencies were most evident when looking at the specific topical areas that were evaluated. For example, the topics where the greatest variance between scores existed were related to (a) having measurable learning objectives; (b) having sufficient instructional materials; (c) learner interaction and engagement; (d) accessibility; and, (e) course alignment among assessments, learning objectives, instructional materials, and learning activities.

Because the number of courses that were reviewed was small, interpretations of what the findings may indicate are not possible. However, it is important to consider that the topical areas where inconsistencies were greatest between the Phase II participants' ratings of their course design and of the evaluators' ratings are related to the very course components that students value as being part of a quality learning experience; and, that impact their satisfaction and learning (Hixon et al., 2015; Joosten & Cusatis, 2019). Except for accessible course design

(which was rated lowest), both the Phase I and Phase II participants tended to rate themselves highest in the areas of *alignment*, *measurable learning objectives*, *learner interaction and engagement*, and *course navigation*. Designing for *accessibility* is also of critical importance. Does the fact that these were areas where there were greater discrepancies in the course review ratings indicate that faculty may not accurately assess their abilities to design effectively for the online environment? Administrators and those charged with planning for and providing faculty development meant to prepare faculty for teaching online should consider that faculty who rate their abilities high in these areas and who have not had an opportunity for professional development or for a review experience, may over-estimate or under-estimate their ability to successfully implement these skills in the online environment. It is possible some faculty may choose to forego professional development related to those topics when it is provided due to inaccurate self-assessment.

Study participants did express interest in learning about effective online course design practices. For example, one said "I would have liked to have known best practices in online teaching (rather than learning by trial and error)" (Participant 27), while another suggested that "More direction and less experimentation (although I appreciate the freedom), sometimes it hinders my teaching if there is already a best practice established that I don't know about" (Participant 103).

Faculty Online Teaching and Learning Experiences

This study found that EOCDP scores were higher for those participants who had more online teaching experience. This finding is consistent with the findings of Oleson and Hora (2013) who said, "the repertoire of teaching practices that faculty draw upon is largely developed through their own experiences in the classroom" (p. 41). They also found that faculty build their

knowledge of sound practices through experimentation or testing of new techniques and then reflecting on the effectiveness of the new approaches that were attempted. The practice of experimentation to learn what works was also evident in the present study. Seventy-five percent of the participants indicated that a preferred method for improving knowledge about designing and teaching online courses was *Experimenting with teaching strategies and observing results*. *Talking with colleagues from your own institution* was also frequently selected as a method for improving knowledge. This need to interact with other faculty was described by Dhilla (2016) and McQuiggan (2012). Dhilla (2016) suggested that providing opportunities for faculty to interact with others through online discussions, online teaching communities, or regular meetings is helpful for reducing alienation, creating community and collaboration, and for pedagogical and professional support. Several study participants mentioned a desire for opportunities to work with others within their discipline. For example, Participant 73 indicated a desire for "a peer group who was teaching online or developing a course to check-in with and use for support/advice."

The majority of the participants reported that they had experience as an online learner. This study found that having experience as an online learner had an intermediate effect on EOCDP. Oleson and Hora (2013) discovered that the experiences faculty have had in the classroom as learners do impact their teaching practices including not only through observation or imitation of their previous instructors' approaches but also through learning experiences from their formative years and throughout their careers. Asked to comment on how their experiences as an online learner impacted their course design, almost all responded that the experience as an online learner did contribute to and provide them with ideas of what they did or did not want to do in the design and teaching of their online class. A common theme in the responses was that

the experience as an online student showed them what *not* to do. For example, as one participant said,

> My experience as an online learner absolutely contributed to my perception of how I wanted to conduct my own online class. I intended to respond promptly to student inquiries, communicate frequently with students, offer frequent and prompt feedback on submitted work, conduct a highly organized online learning environment, and establish clear learning objectives linked to learning materials-activities-assessments. The nature of the list stems from my experience of the exact opposite happening in my experience as an online learner. (Participant 15)

Another common theme related to why it was important to have this experience to see first-hand how course organization and navigation impact the student learning experience. As a participant noted,

> With the online experiences I have had, it helped me with the student perception of how an online course should be constructed with the emphasis of organization!! I think any student of any program or major expects organization. Have a course organized and easy to follow will decrease confusion. Confusion = frustration = less chances of success. And on the flip side... organized course = satisfied student = success in the course!" (Participant 84)

Professional Development and Institutional Support

The differences reported between the types of resources and course design supports used by the participants were not surprising. There is significant variability among institutions regarding are able to provide for their faculty. For institutions where training and support are limited or non-existent (as some of the *low* OTSE participants reported), Riggs (2020) pointed

out that online faculty often learn from written resources, colleagues, mentors, learning communities of some sort, or simply by trial and error. For those participants in this current study who did report completion of professional development, completion of greater than 20 hours was needed to create a noticeable difference on OTSE and ECODP. This amount is similar to what Borup and Evmenova (2019) reported, that is, that a 6 – 7-week professional development course was effective for building faculty confidence in their ability to design and teach an online course. These authors also mentioned the importance of offering professional development using online delivery methods in order that faculty are provided with an opportunity to have an online student perspective.

Completion of PD was listed as the most commonly used support by participants to create their online course. Participants were also asked to identify the types of resources or support available at their institution. Participants in the *high* OTSE group reported greater availability of various supports including professional development opportunities, faculty mentoring, instructional design support, and opportunities to receive feedback on their course design through peer feedback. The *high* OTSE group also indicated that it would have been helpful if the institution had done more to provide not only examples of high-quality courses but also that having an opportunity to receive feedback from peers or an option for some type of review process would have been helpful. Dhilla (2016) also found that online instructors wished their institution provided more than very basic online training and that more professional development, as well as other types of support and resources, were available to assist their ongoing pedagogical growth and development.

Peer Review of Online Courses

Participation in peer review can be an opportunity for authentic professional development and professional growth for both new and experienced faculty due to the collegial nature of discussions and exchanges among peers as the peer review process is carried out (Linton, 2014, as cited in Shattuck, 2018). Through the reflection on and application of well-defined standards as embodied in the design of their course, faculty can build skills, knowledge, and confidence in their ability to design effective courses. Therefore, the fact that the individuals who reported having participated in an official QM course review had higher OTSE scores, as well as higher EOCDP scores, is not surprising. Several participants mentioned a desire for their institutions to provide some type of peer review as another type of institutional support. For example, Participant 64 indicated that "A review of my course would have been great!" while Participant 18 mentioned that a "review of my course for a standard format" would be helpful.

Comments Specific to New-Online Participants (COVID-19)

This study was designed just before the beginning of the COVID-19 pandemic which, in March 2020, resulted in a rapid shift or transition for most higher education faculty to teach all courses using some form of remote or online delivery. Because of this unique circumstance, the researcher chose to invite all higher education faculty in the system to participate in the study rather than the original target group which was going to be only online faculty. The questionnaire, which originally was meant for only online faculty, was modified slightly to include any faculty teaching a course with an online component. Data for the study were gathered within 4 – 6 months after the start of the remote delivery of courses due to the pandemic. Seven of the study participants (referred to as *New-Online*) identified as being newly online due to the COVID-19 pandemic. The inclusion of these new-online faculty provided an

opportunity to learn more about the OTSE and EOCDP scores of those who had not previously been teaching online courses.

The New-Online participants reported somewhat lower levels of online teaching self-efficacy (OTSE) than did the individuals who were already teaching online but this was not true across the board. Two of the seven had higher OTSE scores than many of the Phase I participant group even though these two New-Online participants reported that they were new to higher education teaching, new to online teaching, and had completed very limited or no professional development to prepare them to teach online. When asked about their approach to preparing to teach online due to COVID-19, one of these individuals who had high OTSE and EOCDP scores said, “I just winged it” (Participant 14).

Generally speaking, the EOCDP scores for the New-Online group were lower than the scores of the Phase I participant group but they were significantly higher than the EOCDP scores for the *low* OTSE group. When considered together, this further seems to indicate that faculty may not accurately assess their ability to design online courses and that they may over-estimate their abilities as an online instructor.

Implications for Practice

The need to prepare and support faculty to create online learning experiences and courses has been well-documented in the literature. Also, well documented is the fact that many faculty are not adequately prepared in this regard before they begin teaching online. The need for higher education institutions to quickly respond to the COVID-19 pandemic with alternate delivery models did not create a new problem related to what is needed to support faculty who are designing online courses for the first time. It did, however, highlight the complexities of how best to support faculty in becoming successful online faculty. The uncertainty regarding the

trajectory and longevity of the current pandemic response means that institutions will continue to be faced with what amounts to an interrupted delivery of face-to-face courses on an ongoing or intermittent basis. This has resulted in courses being created so they can be taught either online or face-to-face depending on the specific needs of the pandemic situation in that region as well as the health status of the individual students and/or the instructor. This circumstance underscores the need for discussion about the factors that are related to the course design decisions made by faculty as they design and redesign their courses for alternate delivery formats.

The present study explored the relationships among several variables that were found to be related to the extent to which online faculty report implementation of effective online course design practices. The variables of professional development, online teaching self-efficacy, online learning experience, online teaching experience, and peer review all had a significant relationship to the self-reported implementation of effective online course design. The course review component of the study highlighted the fact that faculty may not accurately self-assess the extent to which they have implemented those effective practices. The findings of this study reinforce suggestions made by others for three broad strategies that working together would support faculty in designing effective online courses. These strategies, which will be described next, include:

- Adopting common quality assurance standards.
- Providing and requiring some type of minimum professional development that includes online delivery and opportunities for application that occurs well before teaching online.

- Providing opportunities for faculty to engage in self-review and peer review of their online courses before and on an ongoing basis to continue to fine-tune the design of their online courses.

Adopt Shared Quality Standards at the Institution Level

To create a common foundation upon which to strategically plan for, fund, and provide professional development offerings, to create and implement self-assessment and peer review processes, and with which to determine where additional resources and supports are required, the first recommendation is to adopt shared quality assurance standards for online courses at the institutional level.

Many authors and researchers have advocated for the adoption and use of course design standards or rubrics to inform professional development efforts, guide course design decisions, and support various types of peer review or self-assessment (Kelly & Zakrajesk, 2021; Riggs, 2019; Baldwin et al., 2018; Shattuck, 2018; Hixon et al., 2015; Britto et al., 2013). Rubrics meant to improve the quality of online courses share many characteristics (Jaggars & Xu, 2016; Baldwin et al., 2018). Six of the nationally or regionally known quality assurance instruments shared the following standards:

- Objectives are available.
- Navigation is intuitive.
- Technology is used to promote learner engagement/facilitate learning.
- Student-to-student interaction is supported.
- Communication and activities are used to build community.
- Instructor contact information is stated.
- Expectations regarding quality of communication/participation are provided.
- Assessment rubrics for graded assignments are provided.
- Assessments align with objectives.
- Links to institutional services are provided.
- Course has accommodations for disabilities.
- Course policies are stated for behavior expectations. (Baldwin et al., 2018, p. 56)

This list could serve as a starting point for institutions whether they intend to adopt a currently existing set of quality standards or modify a set of standards that already exist. Involving faculty in discussions about what is needed to support the online learners at the institution would acknowledge their expertise, might minimize barriers to adoption, and would acknowledge the diversity of experience and expertise that faculty already have. The inclusion of faculty in institutional conversations about quality assurance processes is supported by Britto et al. (2013) who stressed the importance of providing faculty with an opportunity to help shape the tools and processes the institution chooses. Including a broad constituent group in conversations about quality assurance helps to build an institutional understanding of what is valued and expected in the design of an online course. It would serve to build and improve the institutional literacy around online course design and teaching across the institution. Shared standards would be useful to inform institutional policy in various areas, would provide a baseline marker of the knowledge or skills needed for entry into online teaching practice, could be used to guide faculty development planning and programming, could create a framework around which to foster and support conversations among faculty groups in sharing best practices and exemplars, and would provide the foundation upon which to create ongoing processes for self-assessment and/or peer observations.

Provide and Require Professional Development and Institutional Supports

The second recommendation is to provide a required baseline level of professional development to support faculty with creating online learning experiences that are based on effective instructional design practices. Professional development that provides opportunities for faculty to implement and practice the behaviors and skills they have observed through the learning activities will be more successful if the participants have opportunities for hands-on

practice in the learning experiences or courses they are creating or revising (Borup & Evmenova, 2019; Riggs, 2020; Kelly & Zakrajsek, 2021). Having an opportunity for hands-on mastery may also improve OTSE beliefs especially if the workshops involve not only demonstration but also application. Organizing the foundation of any professional development programming around a shared set of quality standards would ensure that all online faculty have a shared understanding of what practices will best support their online students and would enhance their ability to accurately appraise their implementation of EOCDP. Delivering all or a portion of the professional development with online modalities will provide opportunities to experience tools, strategies, design structures, and activities from the student perspective.

Faculty who are newer to teaching online due to the COVID-19 pandemic will continue to need support with time and resources in order to move beyond the emergency remote instruction model and instead embrace a model that supports well-designed online learning experiences that are meant to fully support student success and learning. Faculty who have been teaching online must be supported in exploring and implementing course design practices that are based on research. For institutions of higher education to successfully provide online learning experiences meant to support student learning and success, careful thought must be given to providing appropriate professional development that supports *all* faculty and that leverages faculty experience and expertise in ways that build a quality culture that embraces greater collaboration, peer networking, and shared examples of best practice. As noted by Dhilla (2017), there are differences in the needs of novice and experienced faculty. Novice faculty need technical training and instructional design support while faculty with more experience may need different types of "pedagogical, social, and institutional support to progress and develop as online instructors" (p. 18). Britto et al. (2013) stressed the need for administrative support for a

range of support and professional development opportunities to support the individual needs of faculty.

A third recommendation relates to providing educational supports in the form of templates and shared example courses or course components that illustrate how best to implement course design components that are congruent with the adopted quality standards. Many of the faculty in the present study had significant experience with designing and teaching online courses. Building on the expertise faculty already have by supporting and encouraging the development or collation of shared resources, templates, and best practice guides is another type of support that institutions might consider providing (Canvas, 2020; Mancilla & Frey, 2021). One of the individuals with *high* self-efficacy noted, "It would have been nice to see examples of high-quality online course structures" (Participant 47). Other participants said, "access to example courses" (Participant 95) or "examples of existing high-quality courses from others in my discipline" (Participant 73) would be helpful. Faculty appreciate seeing examples of how others approach the complexities of creating a well-designed online course. The vicarious experience of seeing good examples, of participating in professional development that is offered online and demonstrates best practices, and of having opportunities to learn with and from peers may also be a source of building greater self-efficacy.

Implement a Process for Self-Assessment and Peer Review

A final recommendation is that institutions provide support and resources for online faculty that include opportunities for self-assessment of ability, as well as options for peer review of courses. In this study, those who had participated in peer review processes reported higher self-efficacy and were more likely to report greater implementation of effective online course design practices (EOCDP) in their courses. Riggs (2019) suggested that faculty complete a self-

assessment or self-study of their online course design and teaching practices to identify strengths and competencies they possess. She suggested that knowing strengths inspires confidence and that identifying weaknesses will help provide ideas or areas where growth or improvement are needed. This idea was echoed by Kelly and Zakrajsek (2021) who suggested that a process of self-assessment be implemented on an ongoing basis that included a before and after analysis of the course to look specifically for areas of improvement related to design, accessibility, Universal Design for Learning, inclusion, and equity. A checklist based on shared institutional quality standards would provide the tools necessary for that type of self-assessment, as well as informal peer review to occur. Self-assessment including reflection on current practice can be the first step for faculty who are seeking to identify the gaps that exist in their knowledge and skills set. For example, Mancilla and Frey (2021) explain how self-assessment in the area of digital accessibility of online courses and materials provides insights that can be used by faculty to set personal and professional development goals. Dhilla (2016) echoed the importance of reflection and self-assessment in developing professional goals that lead to improved strategies for teaching in the digital learning environment.

Peer review is often mentioned as a way to assure quality in an online course (Baldwin et al., 2018; Britto et al., 2013). This can be accomplished through an external review process such as the Quality Matters review process or could be through a less formal and internal peer review process. Stupnisky et al. (2018) noted that “not all faculty members use best practices when teaching despite their well-documented effectiveness” (p. 15) in improving the quality of teaching and improving student gains. A peer-review process, whether informal or a more formalized approach to looking at courses or course components would prompt faculty to identify and adopt the best practices that would support students in their particular discipline or

context. Comments from study participants mentioned a desire for some type of peer review experience. Providing opportunities for peer review provides social persuasion and support which is another source for building self-efficacy.

Summary of Implications for Practice

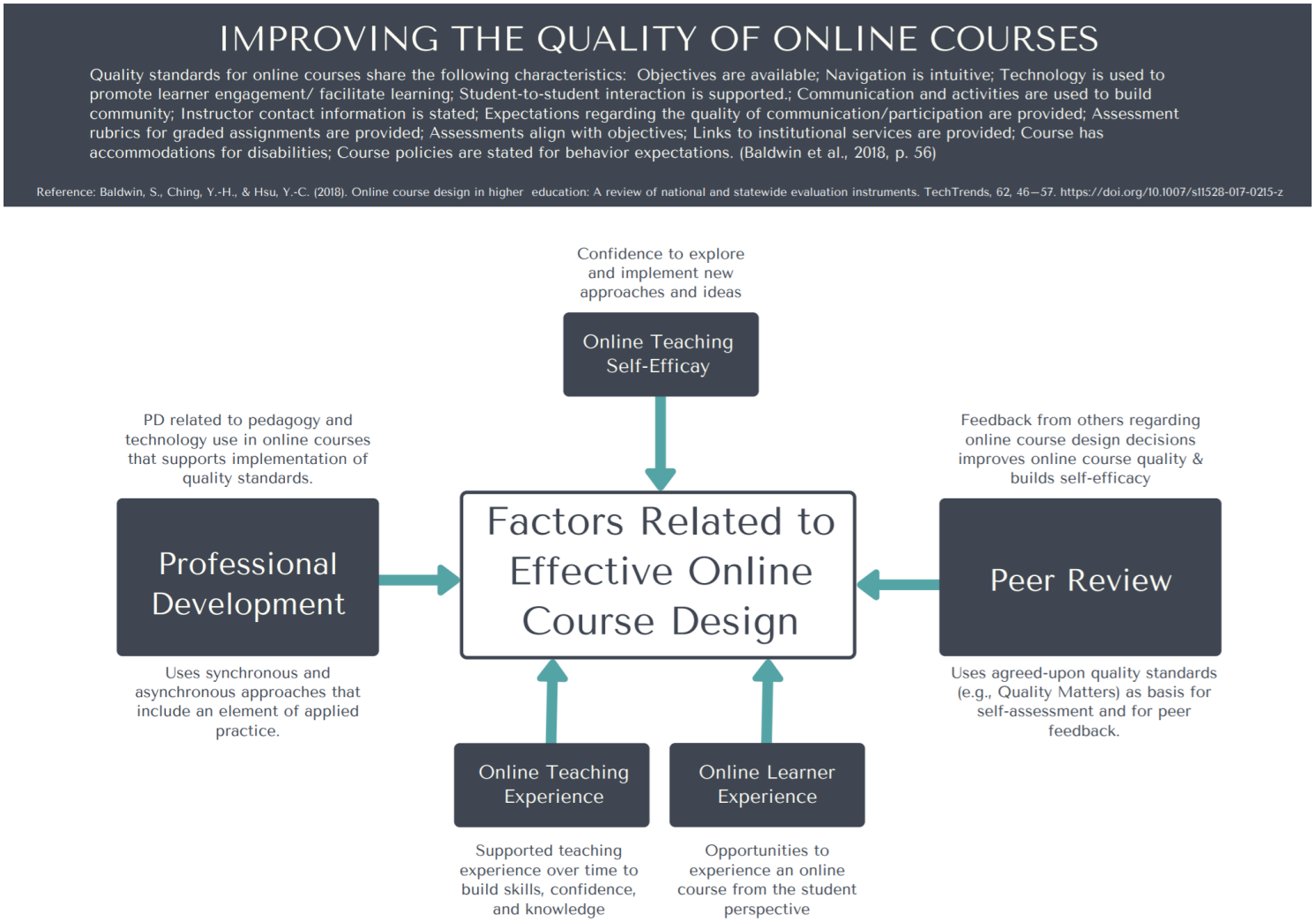
Various studies have recommended the need for providing professional development topics and delivery formats that have been carefully and strategically designed to meet the needs of the faculty (Mohr & Shelton, 2017; Dennis et al., 2017; Lian, 2014). This includes creating a pattern or plan for the offerings rather than a randomized collection of topics (Mohr & Shelton, 2017). The planned offerings must include topics to support the experienced faculty in addition to the novice faculty (Huston & Weaver, 2007, Elliott et al., 2015; Dennis et al., 2017).

The recommendations offered as a result of this study are meant to urge those who are planning for and providing professional development for faculty to consider a strategic multi-pronged approach for preparing and supporting those who are and who are preparing to be online educators. These suggestions may also be useful for institutions that are doing quality assurance implementation planning. From the educational leadership perspective, there is a need for institutions to plan for and provide the support, resources, and professional development for faculty so that the online components of courses are based on sound instructional design principles and effective practices. As Williams and Anderson (2020) pointed out, states and institutions must do more in terms of funding, oversight, and accountability processes to both develop and improve online learning programming. As stressed by Britto et al., (2013), “it is evident that consistently high-quality education requires shared standards, appropriate training, and adequate resources” (p. 21).

The recommendations for practice that are presented as a result of this study are meant to leverage the relationships among the study variables to affect improvements in the online course design practices of higher education faculty. Collectively, the recommendations to adopt quality standards, provide and require professional development, and implement processes for self-assessment and peer review work together to support faculty in their growth towards not only continual improvement of online course design practices, but also in reaching greater online teaching self-efficacy. These recommendations illustrated and summarized in Figure 37. The diagram includes a brief listing of commonly found items in currently existing quality assurance and course design rubrics. The image includes a central rectangle titled *Factors Related to Effective Course Design.* Surrounding this central area are the rectangles that are labeled by the different variables that this study found were related effective online course design practices. These include online teaching self-efficacy, professional development, online teaching experience, online learning experience, and peer review. Each of these variables is accompanied by a brief description along with a connection to the recommendations for practice. The purpose of the diagram is to provide an abbreviated illustration of the recommendations from this study in a visual format that could be used for discussion.

Figure 37

Summary of Implications for Practice



Limitations

This study had several limitations. This study used convenience sampling of online higher education instructors in a large system of public higher education institutions comprised of community colleges and universities located in the upper Midwest. While the potential pool of participants was very large (the system employs more than 15,000 faculty and staff), the sample represents only a very small percentage of faculty from the system. In addition to the low participation rate of faculty in this system, the nature of the system itself is a limitation. The faculty who participated were part of a system with (a) a lack of minimum requirements or professional development related to how faculty are prepared to teach online; (b) limited use of or availability of common resources or instructional design support; and, (c) faculty bargaining units in place that guide decisions regarding the extent to which it is possible to require professional development prior to teaching online. Therefore, the findings are not generalizable to all community college or university settings.

A significant limitation is related to the COVID-19 pandemic that began in 2020. While this study focused on online faculty, most faculty in this system teach both on campus-based (i.e., face-to-face) as well as online courses. Teaching solely online remains a rarity for the majority of the individuals who were potential participants. The questionnaire was distributed during the summer and early fall of 2020 during which time institutions and faculty were scrambling to adjust and adapt currently existing courses to accommodate for the variety of circumstances that the COVID-19 pandemic created for both students and faculty. The nature of the pandemic and the disruption caused to everyday life for every individual created difficulties in recruiting study participants for both phases of the study. Faculty were faced with multiple competing demands on their time as they worked to shift courses normally taught on campus to

some version of remote or online delivery. Because of this, the participation rate was likely much lower than might have occurred at another time. Because of the low participant rate, it is likely that the study participants, which included 7 individuals who were newly online due to the pandemic, were not representative of the levels of OTSE of the population being studied. While some participants had low OTSE scores, the scores overall were generally high. This could be because those who were more comfortable with online teaching and who had high OTSE felt more comfortable completing the study.

A third limitation related to the questionnaire that was developed for the study. A large portion of the questionnaire was based on a currently existing instrument, the OTSEI (Gosselin, 2009). This instrument was used to survey participants in order to determine their online teaching self-efficacy. This instrument was created more than 10 years ago. As explained in Chapter 3, the content evaluation panel had the least agreement around the importance and validity of the items on the part of the OTSEI related to *Selection of Technological Resources.* The fact that most study participants rated their self-efficacy low on that same part as compared to other parts may indicate that the wording of the questions in Part 1 was confusing, that the topics represented by those questions were not relevant, or it could mean that the participants had very low self-efficacy for this topic.

Another limitation in the questionnaire involved how the question related to effective online course design practices was presented for the participants. The item had broad statements related to components of a high-quality course against which participants rated their course. The lack of specificity may have created confusion for those with less knowledge of the components and may have led to inflated scores for those components. For example, one of the statements the participants were asked to rate in terms of the implementation in their course was related to

having a course that demonstrates *accessibility.* Faculty who have participated in professional development related to how to design accessible course materials would have a better understanding of what this entails, the time it takes, what it looks like in an online course, etc. Those with less PD in this area might believe they are committed to designing for accessibility but may not accurately assess the extent to which their course has achieved this goal.

For the most part, the data gathered for this study were self-reported data gathered using a questionnaire that required reliance on the participants to provide honest appraisals of their self-efficacy and their perceptions of course design ability. This presented another limitation. It was assumed that the participating faculty answered honestly after reflecting on their perceptions and practices however there is no way to ascertain the truthfulness of their responses. It is unknown if the study participants represented a higher number of individuals who were more confident in their abilities and therefore chose to complete the questionnaire and/or volunteer for the Phase II portion of the study.

Recommendations for Future Research

While this study was conducted in a system that included many different institutions, it must be acknowledged that this system has specific characteristics that make it unique, so the findings are not transferable. Therefore, the first recommendation is to replicate all or portions of the study within individual institutions or other systems of higher education to see how the results would differ.

A second recommendation is to do a similar study that includes a robust qualitative research component with focus groups of faculty at various levels of their career (i.e., novice, mid-career, and long-term faculty) that explores what types of professional development or institutional supports best support them as online faculty in their professional growth in the field.

For example, a study that investigates potential relationships between the types and topics of professional development as related to self-assessment of implementation of effective online course design practices would provide additional insights into how better to support faculty at various stages of their careers.

Due to the types of data that were available for this study, there was no inclusion of student perspectives as related to the design of online courses. Another direction to take this research would be to design a study that looks at student learning outcomes or satisfaction as compared to faculty OTSE scores and/or implementation of EOCDP (aka, "quality standards"). Numerous approaches could be considered for designing a study that looks at specific components within a course (e.g., accessibility, learner engagement, or alignment of assessments with objectives) rather than the overall online course design in order to examine efficacy, satisfaction, ease-of-use, or support for learning from the student perspective.

A fourth recommendation is to update the OTSEI. This study was based on the Online Teaching Self-Efficacy Inventory created by Dr. Kevin Gosselin (Gosselin, 2009). A content evaluation panel was used for this study to evaluate the content validity of the instrument. Further research is needed to create an updated and validated instrument that is based on current practices for both faculty and instructional design staff.

Lastly, it would be interesting to see the results of a study that delves into relationships among types and topics of professional development as related to OTSE and/or integration of quality standards. The wording of some of the questionnaire items related to professional development was intentionally broad given the amount of data being gathered for this study. For example, the question about professional development completion did not ask about specific types and topics. Taking a more targeted or nuanced approach to identifying specifically the

relationships among types and/or topics for professional development might yield more specific recommendations for how better to support faculty as they develop, practice, and continue to improve the skills and knowledge needed to design effective online courses.

Conclusion

This study sought to identify how various factors such as online teaching experience, online learning experience, or professional development completion (including participation in a Quality Matters Review) are related to online teaching self-efficacy (OTSE) and the choices a faculty makes in the design of an online learning experience. It looked at not only the levels of OTSE that faculty reported but also at the extent to which these same faculty indicate they have implemented various effective online course design practices into their online courses. The study found that higher education online faculty tended to report high OTSE and that completion of professional development and peer review experience was related to higher levels of OTSE. It also found that professional development, online teaching experience, online learning experience, and peer review experience were related to higher self-assessed scores for implementation of effective online course design practices.

The study also showed that there is wide variation in how individuals rate their OTSE and self-assess their implementation of EOCDP. The study did include a small number of individuals who were newly online due to the shift to online delivery created by the COVID-19 pandemic. Some of these individuals, as well as some of the other participants who indicated they were new online faculty and who had not completed much professional development and/or who had no experience as an online learner, reported relatively high OTSE and higher ratings of implementation of EOCDP. Conversely, some of the individuals who reported low OTSE or low ratings of EOCDP implementation had completed more significant amounts of professional

development. The study also included a component during which six courses were reviewed against a subset of standards of the Quality Matters Rubric to determine if the course ratings of the participants who submitted the courses were consistent with the two course evaluators. This phase of the study seemed to confirm that individuals with more professional development and online teaching experience were better able to assess their design capabilities, but also confirmed that there was significant variation across courses regarding where the discrepancies between the ratings of the participants and the evaluators.

The uniqueness and variety of faculty experiences and beliefs coupled with the complexities of designing effective online courses cannot be easily explained through the comparison of the variables examined in this study. In other words, even though more professional development and experiences (such as teaching experience, learner experience, or course review experience) are related to higher online teaching self-efficacy; and, high online teaching self-efficacy is related to faculty beliefs that they are implementing effective online course design, there is no prediction or causation implied.

Based on the findings, recommendations were included. These were: (a) adoption of quality standards at the institutional level, (b) creating a framework for self-assessment using checklists as well as peer review processes; and, (c) requiring and providing baseline professional development based on the quality standards and that encourages sharing best practices and exemplars within the institution.

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Appendix A: Permissions and IRB Approval

Online Teaching Self-Efficacy Inventory (OTSEI)

Dr. Steven P. Gosselin granted permission via email to use the Online Teaching Self-Efficacy Inventory (OTSEI) survey instrument via email on 7/10/19. His email granting permission for use is on file with the dissertation advisor, Dr. Ximena Suarez-Sousa, and has been reviewed by the IRB at Minnesota State University, Moorhead. The OTSEI is used in Section 2 of the Phase I instrument.

Quality Matters Higher Education Rubric, 6th Edtn.

Dr. Deb Adair, Quality Matters Executive Director, granted permission via email for use of language adapted from the Quality Matters *Higher Education Rubric Workbook Standards for Course Design (Sixth Edition for Online & Blended Courses)*. This adapted language from the QM Higher Education, 6th Edtn. Standards is used as Section 3 of the Phase I instrument. The email granting permission for use is on file with the dissertation advisor, Dr. Ximena Suarez-Sousa, and has been reviewed by the IRB at Minnesota State University, Moorhead.

MSUM IRB Approval

IRB Exempt Approval

Wenger, Karla

Tue 8/20/2019 2:26 PM

To: Suarez-Sousa, Ximena P <suarez@mnstate.edu>; McMahon, Elizabeth <elizabeth.mcmahon@go.mnstate.edu>
Cc: Karch, Lisa I <lisa.karch@mnstate.edu>

Date:	8/20/19
Principal Investigator:	Ximena Suarez-Sousa
Co-Investigator(s):	Elizabeth McMahon
Title of Study:	Designing effective online courses: a correlational study of the relationships among experience, professional development, efficacy beliefs, and online teaching expertise

Thank you for submitting your IRB Exempt Status Proposal. Your proposal has been reviewed and approved **Exempt research** under 45 CFR 46.104. You may proceed with your study after August 20, 2019.

The IRB will not conduct subsequent reviews of this protocol unless changes to the protocol occur. Any changes to the protocol will require a formal application to, and approval of, the IRB prior to implementation of the change. IRB applications are available on the Minnesota State University Moorhead IRB webpage: https://www.mnstate.edu/irb/

Best of Luck to you with your research!

Lisa Karch

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Appendix B: Phase I Questionnaire

Study title: Designing Effective Online Courses: Exploring the Relationships Amongst Teaching Self-efficacy, Professional Development, Faculty Experience, and Implementation of Effective Online Course Design Practices

Researcher: Elizabeth McMahon, MSEd, BSN, RN

I am inviting you to participate in a research study that is part of my doctoral program at Minnesota State University, Moorhead. Participation is completely voluntary. If you agree to participate, you can always change your mind and withdraw. There are no negative consequences, whatever you decide.

What is the purpose of this study?
The purpose of the study is to learn about the relationships between the level of faculty teaching experience, confidence levels for developing effective online courses, professional development, and the ability to design effective online courses.

Risks: There are no foreseeable risks involved in participating in this study. Your answers will be anonymous. Any personal data will not be shared with anyone outside of the research team (see the Confidentiality and data security section below).

Possible benefits: Although there are no monetary benefits to participating in the study directly, it is hoped that your participation may help you reflect on the effective online practices you have adopted, how you prepared yourself to be an effective online educator, and what you might determine is needed for your future professional development. Your participation in this study may inform the field of education on how to better support and prepare online teachers.

Estimated number of survey participants: 100 instructors for Phase I questionnaire.

What will I do as a participant?
Participants are asked to complete this online questionnaire (i.e., survey). This is divided into three sections. The first section asks you general demographic questions and also includes questions about your professional development completion and preferences. The second section focuses on your beliefs about your online teaching abilities. The third section asks more specific questions about the design of one of your online courses.

The very last question on the questionnaire asks you to consider volunteering for Phase II of the study. Phase II seeks volunteers who will agree to a more in-depth examination of their course design practices. Participation in Phase I does not obligate you to participation in Phase II.

How long will it take? The survey will take approximately 20 – 30 minutes to complete.

Future research: De-identified data (all identifying information removed) may be shared with other researchers. Future research study details are unknown at this time and will not be communicated out to participants in this study.

Confidentiality and Data Security
Identifying information such as your name, email address, or IP address will not be collected for this survey. Therefore, your responses will remain anonymous. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study.

At the end of the survey you will be asked if you are interested in participating in a follow-up course review. If you choose to provide contact information such as your phone number or email address, your survey responses may no longer be anonymous to the researcher. However, no names or identifying information would be included in any publications or presentations based on these data, and your responses to this survey will remain confidential.

Where will data be stored?
Data will be stored on the servers for online survey software (Qualtrics). Copies of the data will also be stored on the researcher's computer in a password protected file.

Who can see my data?
The researcher will have access to coded information that will be used to analyze the data. The researcher may share the findings in publications or presentations. If the results are shared, the results will be aggregated (grouped) data, with no individual results. If specific examples or quotes are used from the data gathered in Phase I or Phase II, pseudonyms (fake names) will be used.

Contact information: If you have questions about this research study, you may contact me at elizabeth.mcmahon@go.mnstate.edu or 701-741-8438.

For questions about the research, complaints, or problems: If you have questions at any time about the study or the procedures, you may contact my research supervisor, Professor Ximena Suarez-Sousa, at suarez@mnstate.edu or 218-477-2007.

For questions about your rights as a research participant, complaints, or problems: If you feel you have not been treated according to the descriptions in this form, or that your rights as a participant in research have not been honored during the course of this project, or you have any questions, concerns, or complaints that you wish to address to someone other than the investigators, you may contact the Minnesota State University, Moorhead IRB.

Contact information for the MSUM Institutional Review Board Chair:
Lisa Karch, PhD
218.477.2699
lisa.karch@mnstate.edu

Please print or save this screen if you want to be able to access the information later.
IRB Approval Date: 8/20/19

Eligibility Criteria

To participate in this study, you must be at least 18 years of age and must have recent online teaching experience either for a fully online course, a blended course, or a course transition to online delivery as a result of the COVID-19 pandemic. To indicate that you meet the criteria, mark the items that apply. [multi-select]

a. I am at least 18 years old.
b. I have current online teaching experience.
    - Currently teach at least one online or blended college or university course.
    - Have taught an online or blended college or university course in the last twelve (12) months.
    - Have taught a partially online course after transitioning from a face-to-face course as a result of the COVID-19 pandemic.

Agreement to Participate

If you would like to participate in this study, indicate your consent below. Remember, your participation is completely voluntary, and you're free to withdraw at any time.

a. I consent to participate.
b. I do not consent to participate.

Section I: Demographics, Teaching Experience, & Attitudes

Instructions: This section of the survey includes questions about your teaching experience and professional development. Please answer the questions using the prompts provided to the best of your ability.

Definitions
Use the following definitions as you answer the questions in Section I of this survey.

- Online course: More than 75% of the course occurs online with few, if any, face-to-face meetings
- Blended course: Approximately 25% to 75% of the course occurs face-to-face with significant portions of the course delivered online.
- F2F course: 100% of the course occurs face-to-face in regularly scheduled sessions.

---

1. What is your age?
2. What is your ethnicity?
    a. African American
    b. Asian American
    c. Hispanic
    d. Native American
    e. White
    f. Other (enter your ethnicity)
    g. Prefer not to answer
3. With what gender do you identify?
    a. male
    b. female
    c. non-binary
    d. prefer not to answer
4. What type of institution do you work at?
    a. community college
    b. technical college
    c. combined technical and community college
    d. other
5. What is your teaching position?
    Definitions:
    - Full-time faculty: Full-time, unlimited contract as community college or university faculty.
    - Part-time faculty: Part-time, unlimited contract as community college or university faculty.
    - Adjunct faculty: Adjunct assignment as community college or university faculty.

   a. full-time (not adjunct or temporary)
   b. part-time (not adjunct or temporary)
   c. adjunct or temporary (full-time)
   d. adjunct or temporary (part-time)
   e. other: please explain
6. Please identify the highest degree that you hold: [multiple-choice]
   a. Associate's Degree
   b. Bachelor's Degree
   c. Master's Degree
   d. EdS
   e. Doctorate: EdD
   f. Doctorate: PhD
   g. Doctorate: other
   h. Other degree: please explain
7. What is your primary teaching discipline?
   a. Language Arts
   b. Mathematics
   c. Business
   d. Natural Sciences
   e. Physical Sciences
   f. Health Sciences
   g. Social Sciences
   h. Behavioral Sciences
   i. Visual and Performing Arts
   j. Technology
   k. Engineering
   l. Kinesiology and Athletics
   m. Other: please list your discipline if not listed above
8. Did you teach your first complete or partial online course as a result of the COVID-19 pandemic transition to remove delivery?
   a. Yes
   b. No
9. Have you ever been an online student yourself?
   a. Yes
   b. No
10. If you have been an online student, do you feel that experience contributed to your perception of how you wanted to conduct your own online class? And, how? [text entry]
11. What is the approximate size of the institution where you teach most of your online courses?
   a. Less than 1000 students
   b. More than 1000 students but less than 5000 students
   c. More than 5000 students but less than 10,000 students
   d. More than 10,000 students but less than 15,000 students

    e. More than 15,000 students but less than 20,000 students
    f. Don't know
12. How many years have you been teaching in higher education (including face-to-face, online, and blended courses? [text]
13. How many years have you been teaching online courses? [text]
14. How many different online courses have you taught? [text]
15. How many different online courses have you designed? [text]
16. How many face-to-face courses have you adapted to an online course? [text]
17. How many students do you typically have in your online course/s? (*not maximum allowed)*
    a. Less than 20 students
    b. 21 – 30 students
    c. 31 – 40 students
    d. 41 – 50 students
    e. 51 – 60 students
    f. 61 – 70 students
    g. greater than 70
    h. I'd rather not say
18. What type of resources and support were available to support you in developing your online course? [multi-select]
    a. Online course/s focused on online teaching and/or course design
    b. Face-to-face course/s focused on online teaching and/or course design
    c. Online workshops focused on online teaching and/or course design
    d. Face-to-face workshops focused on online teaching and/or course design
    e. Faculty mentoring and/or peer support
    f. Instructional designer support
    g. Release time to develop an online course
    h. Extra compensation to develop an online course
    i. Opportunity to participate in a course peer review process where individuals from my institution give feedback on the design of my course
    j. Opportunity to participate in a course review process where individuals external to my institution give feedback on the design of my course
    k. I don't know
    l. Other resource or support not listed [text]
19. What type of support would you have liked to have while preparing to teach online that wasn't available to you? [text]
20. Approximately how many hours of professional development focused on online teaching and online course design have you completed (include workshops, courses, webinars)
    a. 0 – 10 hours
    b. 11 – 20 hours
    c. 21 – 30 hours
    d. 31 – 40 hours
    e. 41 – 50 hours

f. Greater than 50 hours

21. What are your most preferred methods for improving your knowledge about designing and teaching online courses even if not all of the following are available to you at this time? [multi-select]
    a. Experimenting with teaching strategies and observing results
    b. Reproducing the teaching strategies used by your instructors when you were a student
    c. Working one-on-one with an instructional designer
    d. Attending face-to-face workshops and conferences within your institution
    e. Attending face-to-face workshops and conferences outside of your institution
    f. Participating in online workshops hosted by your institution
    g. Participating in online workshops hosted outside your institution
    h. Talking with colleagues from your own institution
    i. Talking with colleagues from other institutions
    j. Reading research literature on teaching and learning
    k. Seeking new teaching strategies from Web-based resources
    l. Following guidance from a faculty mentor
    m. Serving as a mentor or course reviewer at my institution
    n. Serving as a Peer Reviewer/ Master Reviewer on official QM course reviews
    o. Other
22. Have you ever had an online course you created go through an official QM course review?
    a. Yes
    b. No

Section II: Online Teaching Self-efficacy

This section of the questionnaire is based on the work of Dr. Kevin P. Gosselin. It was reproduced with permission and modified to fit this context with Dr. Gosselin's permission.

Researcher note:
Per Dr. Gosselin's request, the questions from the inventory have not been published with the dissertation. This section of the questionnaire included 47 questions related to online teaching self-efficacy.

Section III: Implementation of Effective Design Practices
The following questions will ask you to reflect on the implementation of effective practices in the design of the online course you designed. If you have designed more than one online course, please choose one course you've recently designed for your reflection and mentally reference that same course as you answer each question.

70. What is the course you will be referring to as you complete the following section? Enter the course prefix and number (e.g., BIOL1000). [text]

71. What types of support helped you while preparing to create and teach this online course? [multi-select]
    a. Professional development workshops/ training/webinars
    b. One-on-one consultation with instructional designers
    c. Seeking advice from online learning experts
    d. Faculty/ peer mentoring
    e. Accessing web resources or tutorials for teaching online
    f. Using instructional videos or other documentation (e.g., handbook)
    g. Online help-desk or support
    h. Student teaching assistants
    i. Other [text]

Reflecting on the design of my online course, I believe these statements are true about my course:						
72.	My course introduction is effective in explaining the overall design of the course, as well as, setting the tone for the course, letting students know what to expect, and providing guidance to ensure they get off to a good start.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
73.	My learning objectives are measurable and clearly stated. They establish a foundation upon which the rest of the course is based.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
74.	My course assessments, instructional materials, and assessments are clearly aligned with the learning objectives.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
75.	I assess my students in a manner that not only allows me to have a broad perspective of the students' mastery of the content, but also allows students to measure their own learning throughout the course.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
76.	My instructional materials are sufficiently comprehensive in providing the necessary foundation for successfully mastering the course learning objectives and competencies for my course.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
77.	I provide engaging activities for my students to be active and persistent learners.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
78.	The forms of interaction incorporated in my course motivate students and promote learning.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
79.	The technologies in my course support student engagement and ensure access to course components. These technologies do not impede student progress.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes

80.	My course facilitates student access to institutional support services essential to student success such as technology support, accessibility support, academic services support, and student services support.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
81.	My course has been designed to support ease of navigation for all students.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
82.	My course demonstrates a commitment to accessibility for all students.	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes

*Items 75 - 82 are paraphrased from the standards of the Quality Matters 6th Edition Higher Education Rubric and are used with permission. Quality Matters. (2019). *Higher Education Rubric Workbook Standards for Course Design (Sixth Edition for Online & Blended Courses)*. Annapolis, MD. Copyright 2018. MarylandOnline, Inc. Used under license. All rights reserved.

Invitation for Further Participation

Before you submit your answers to the questionnaire, please consider volunteering to participate in Phase II of the study. Phase II includes a review of your online course by a trained reviewer. More information regarding what is involved in the review will be provided to those who indicate an interest.

A limited number of faculty will be selected for Phase II. Faculty from both two-year and four-year institutions are invited to consider participation.

If you're interested in learning more about what this next phase includes, please enter your name and email address below and I'll email you with additional information (*indicating interest does not obligate you to further participation).*

Your First and Last Name: (*Include your name only if you'd like to be sent more information about Phase II of the study)* [text]
Email address: *(Include your email address only if you'd like to be sent more information about Phase II of the study)* [text]

Submit Your Questionnaire

Thank you for taking the time to complete this questionnaire. Your time is sincerely appreciated. If you have any questions or would like further information, please don't hesitate to contact me at elizabeth.mcmahon@go.mnstate.edu

Appendix C: Phase II Course Evaluation Instrument

Course Evaluation Instrument

Purpose: The purpose of this course review instrument is to determine the extent to which an online course is inclusive of the course design element described in each item.

Instructions: Using the login information provided, access the online course, and enter it as if you were a student new to the course. Using the student perspective throughout your review, for each item, determine the extent to which the design element is present in the course. Use the detailed annotations from the "Standards from the Quality Matters Higher Education Rubric, 6th Edition" as the basis for making decisions regarding the rating for each item. Complete a separate form for each course being evaluated.

Scale Definitions

- **Absent (1):** The design element is not reflected in the design of the course.
- **Below Average (2):** The design element is only minimally present in the course.
- **Average (3):** The design element is present in the course at about a 50% level.
- **Above Average (4):** The design element is present in the course at about an 85% level.
- **Exemplary (5):** An exceptional effort has been made to represent this design element in the course.

Course Number and Name _____

Institution _____ **Date Review Completed** _____

***QM Specific Review Standard**	**1 = Absent 2 = Below Average 3 = Average 4 = Above Average 5 = Exemplary**				
1.1 Instructions make clear how to get started and where to find various course components.	1	2	3	4	5
1.2 Learners are introduced to the purpose and structure of the course.	1	2	3	4	5
2.1 The course learning objectives describe outcomes that are measurable.	1	2	3	4	5
2.2 The module/ unit-level objectives describe outcomes that are measurable.	1	2	3	4	5
2.3 Learning objectives are stated clearly, are written from the learner's perspective, and are prominently located in the course.	1	2	3	4	5
2.4 The relationship between learning objectives and learning activities is clearly stated.	1	2	3	4	5
2.5 The learning objectives are suited to the level of the course.	1	2	3	4	5
3.1 The assessments measure the achievement of the stated learning objectives.	1	2	3	4	5
3.2 The course grading policy is stated clearly at the beginning of the course.	1	2	3	4	5

3.3 Specific and descriptive criteria are provided for the evaluation of learners' work, and their connection to the course grading policy is clearly stated.	1	2	3	4	5
4.1 The instructional materials contribute to the achievement of the stated learning objectives.	1	2	3	4	5
4.2 The relationship between the use of instructional materials in the course and completing learning activities is clearly explained.	1	2	3	4	5
5.1 The learning activities promote the achievement of the stated learning objectives.	1	2	3	4	5
5.2 Learning activities provide opportunities for interaction that support active learning.	1	2	3	4	5
5.3 The instructor's plan for interacting with learners during the course is clearly stated.	1	2	3	4	5
6.1 The tools support the learning objectives.	1	2	3	4	5
6.2 Course tools promote learner engagement and active learning.	1	2	3	4	5
7.1 The course instructions articulate or link to a clear description of the technical support offered and how to obtain it.	1	2	3	4	5
7.2 Course instructions articulate or link to the institution's accessibility policies and services.	1	2	3	4	5
7.3 Course instructions articulate or link to the institution's academic support services and resources that can help learners succeed in the course.	1	2	3	4	5
8.1 Course navigation facilitates ease of use.	1	2	3	4	5
8.2 The course design facilitates readability.	1	2	3	4	5
8.3 The course provides accessible text and images in files, documents, LMS pages, and web pages to meet the needs of diverse learners.	1	2	3	4	5

*This list of specific review standards are a subset of the complete listing of specific standards that are found in the "Standards from the Quality Matters Higher Education Rubric, 6th Edition." The QM Rubrics have been developed and regularly updated through a rigorous process that examines relevant research, data, and practitioner perspectives. They consist of Standards supported by detailed Annotations explaining the application of the Standards and are intended to support the continuous improvement of courses with constructive feedback provided by trained and certified Peer Reviewers using a specific review protocol.

Appendix D: Consent for Participation in Phase II

Instructions for Participation in Study (Phase II): Course Evaluation

1. **Informed Consent:** Complete the Informed Consent Form (included on the next page) and email it to elizabeth.mcmahon@go.mnstate.edu *Note: The course that will be evaluated should be the same one you listed on the Phase I Questionnaire when you volunteered for this phase of the study. Please email the researcher if you are unsure which course you listed when you completed the Phase I questionnaire.*
2. **Copy Your Course:** Work with your institution D2L Brightspace administrator to create a copy of your online course that is to be reviewed. *Reminder: The course should include NO actual student data.*
3. **Do Not Make Changes:** Other than changing dates to ensure the evaluators have access to all of the course in the manner that a student would view it, **do not** make modifications to your course in preparation for the course evaluation.
4. **Enroll Evaluators:** Enroll the two evaluators into the course in a **student role**. Two suggested approaches for doing this are:
    a. If your institution has previously created QM review accounts for the purposes of official QM certification reviews, consider using one of those accounts for the purposes of this course evaluation. The same login credentials for the "reviewer" account would be used by both course evaluators for this project. If this option works for your institution, enroll one of your "reviewer" accounts into your course in Brightspace (student role).
    b. If your institution does not have "reviewer" accounts or some other type of generic login for purposes such as this, use the following information to enroll the course evaluators (student role) into your course in Brightspace:
        i. Reviewer #1: Beth
            1. Name: Elizabeth McMahon
            2. Email: Elizabeth.McMahon@go.mnstate.edu
            3. STAR ID (if needed): xxxxx
        ii. Reviewer #2: xxx
            1. Name: xxxxx (name removed)
            2. Email: xxxxx (email removed)
5. **Send Login Credentials:** Regardless of the approach used to add the evaluators to your course, send the login credentials for both evaluators to the researcher via email at elizabeth.mcmahon@go.mnstate.edu *The course evaluators will use the login credentials provided to access the course and review it using a subset of standards, known as the "essential standards," that are part of the Quality Matters Higher Education, 6th Edition Rubric.*
6. **Complete Worksheet:** Complete the short, one-page worksheet that tells the evaluators about your course. *You will be sent this document once the informed consent form is completed.*
7. **Dates:** The expected start date for the evaluation of each course is immediately after login access is provided. The goal is for course evaluations to be completed prior to October 30, 2020.
8. **Follow-up Report:** It is anticipated that 10 courses will be part of this phase of the study. You will receive a summary report for your specific course after all courses have been evaluated.

Consent for Participation in Course Evaluation

Complete this form and then email it to elizabeth.mcmahon@go.mnstate.edu Please keep a copy for your records.

Your Name: _____

Course Number & Name: _____

I am volunteering to participate in a research study that is being conducted by Elizabeth McMahon as part of a doctoral program at Minnesota State University, Moorhead. The purpose of the study is to learn about the connections between the level of faculty teaching experience, confidence levels for developing effective online courses, professional development, and the ability to design effective online courses.

1. My participation in this project is voluntary. I understand that I can change my mind and withdraw from the study at any time with no negative consequences. If I decline to participate or withdraw from the study, no one on my campus will be told.
2. I understand that I will not be paid for my participation. I will be provided a copy of the evaluation results of my course upon conclusion of the study.
3. I understand that I will be granting access to two course evaluators (the researcher and another individual assigned by the researcher who will be external to my institution) to enter my online course via a login supplied to the researcher by me (working in conjunction with the institution D2L Brightspace administrator). Both evaluators will be provided student level access to experience the course from the perspective of a student.
4. I understand that my course is not to be altered specifically to prepare it for this review process (i.e., it exists now as it was when I completed the questionnaire).
5. I understand that the researcher will not identify me, my course, or my institution by name in any reports using information obtained from the course evaluation. My confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.
6. I understand that no one other than the researcher and dissertation advisor will have access to the raw scores on the course evaluation.
7. I understand that this research study has been reviewed and approved by the Institutional Review Board (IRB) for Minnesota State University, Moorhead. For research problems or questions regarding subjects, the Institutional Review Board may be contacted at 218.477.2699 or by emailing lisa.karch@mnstate.edu

I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

_____ _____

My Signature Date

_____ _____

My Printed Name Signature of Investigator

Investigator Contact Information:

Elizabeth McMahon | Elizabeth.McMahon@go.mnstate.edu |701-741-8438

Appendix E: Phase I Questionnaire Pilot Responses (v1)

Phase I Questionnaire Pilot

A pilot of the Phase I questionnaire was completed by 7 experienced online instructors from both community colleges (CC) and universities (U) during February-March 2020.

Questions	Tester 1 (CC)	Tester 2 (U)	Tester 3 (CC)	Tester 4 (U)	Tester 5 (CC)	Tester 6 (U)	Tester 7 (CC)
1. Did the instructions make sense regarding how to complete the questionnaire?	Under the 'what will I do' section it describes phase III as a course evaluation (These two phases of the study will be seeking volunteers who agree to a more in-depth examination and discussion of their course design practices and will include both an interview and a *course evaluation)*. Then under the 'Confidentiality and Data Security' section it says follow-up *course*	Yes	Yes – very clear.	Yes, but they should be repeated or moved down to just before the survey begins.	Yes. I think almost all of the questions were clear so I think the participants shouldn't have trouble knowing what is expected. I did add a couple of notes about the wording on a few questions, but overall yes, I think the instructions are clear.	Yes- the term definition listing was very complete	Yes. The instructions were thorough, but not overwhelmingly technical.

	observation. To me observation means you're physically observing on-site, whereas evaluation could be done online without physically being there. Maybe the terms should align. Just my opinion!						
2. How long did it take you to complete the survey?	Approximately 20-25 minutes.	15 minutes	15 minutes	Ten minutes… but I was familiar with what I was reading.	It took me over 45 minutes to do the survey but I was making notes on the first couple of pages. However, I didn't have to reflect to hard on the questions as they did not matter in the pilot, so I think the time frame is going to be	10-15 minutes	20 minutes. I think if I were taking it "for real" I would have added about 10 minutes to my time. I am a slow survey taker.

					longer than the suggested 20 minutes. Maybe even writing "please allow 20-30 minutes" would be more accurate.		
3. Did it flow well from one component to another?	Very well – no problems.	Yes – very well!	Yes - although sometimes the spacing between the heading of the section/part is different on different pages - keeping the "white space" present and consistent might help with readability.	Yes, very well.	I think that was fine. I made a note about almost missing one question because it was short and unusual in how it looked so my brain thought it was a title and not a question and jumped right to the second question on that page. (See additional	Yes, starting with demographic and course information was helpful to get my thoughts in order around the type of course delivery I am typically use to.	Yes. The section breaks were good for showing where one part ended and the next began. Each section had clear instructions.

					notes on this below.)		
4. What did you use to complete the questionnaire: a PC, Mac, cell phone or other mobile device?	PC	PC	PC	Mac on my home wifi.	I took it on a PC. Good thinking to ask this. I hope someone tried it on other devices.	PC	HP ProBook Laptop
5. Was the request at the end to volunteer for Phase II and Phase III clear and inviting (in other words, how should it be worded so some will volunteer?)?	I think it was clear and inviting. To entice more, could you add that the results of the study will be shared with them?	It is clear and inviting, but you may want to tell people the "WIFM" – what's in it for them – if they participate in Phases 2 / 3. What will be the benefit for them?	Yes	It was inviting enough that I would volunteer – but I can't. 😊	I had some comments about the dual language on the first intro page ("evaluation" vs "observation") but I think ended it as you did without using either term was good and could help encourage others. You don't ever mention how people will be selected for Phase 2/3 beyond	NA	Yes. The part where expressing interest does not obligate them to do the next phases was a nice touch.

					representing both 2 and 4 year campuses. That could be intentional, but perhaps something that doesn't make it seem personal if or if they don't get chosen could be included. (or could also be included in a follow-up like an email saying "Thank you for being willing to get more information about Phase 2/3. Due to time restraints, not all volunteers will be able to be selected, but your willingness		

					to participate is greatly appreciated. Participants will be notified one way or the other by XX/XX/XXXX. Thanks again." I'm sure that was already on your list, but the selection process could still be confusing, so addressing it kindly somehow before the Phase 2 starts I think is important. 🙂		
6. Were there any questions that were unclear (you didn't know how to respond based on what was asked)?	In the first section, part 1 of 5, I'd answer them but some of those I wouldn't know for sure: ''how difficult various types	No – the questions were clear. However, I found one question frustrating (but you will want to keep it). It	I wasn't sure about the question of "how many courses have you designed" - as a D2L trainer, I have designed full courses for other faculty	Yes, they are listed above with my suggestions. There were only a few! Nice job	See notes below on "Preferred methods question"	I had to read some of the likert scale questions twice just to be sure of what was asked of me, particularly in section II.	No.

	of technology will be for my students to use" – I don't often think of that, just expect them to know D2L…	is about converting lecture material to the online environment and in my opinion, it is typically best not to convert lecture material but instead do something that is better suited for the online setting. Perhaps that section could include an n/a option for the entire section? It may complicate things, so please don't let my personal	(although that isn't really my job description, but sometimes happens out of pure necessity.) So maybe there's a way to distinguish if you've designed the class for yourself or others? Or clarify that it doesn't matter?				

		opinion get in the way!					
7. Were there any questions that used confusing terminology (e.g., full-time, part-time, adjunct, workshop vs. course) that need further explanation?	No	No – these definitions were all clear.	1. "extra compensation" to design a course - does this also include grants or faculty development funds? 2. In Section II, part 2 likert scale, I wasn't sure what "manage the pace of facilitating interaction" meant 3. In the "preferred methods for improving..." it says "click all that apply," however in my case all of them are preferred...perhaps consider limiting to "top 5" or a ranking type scale instead? They are all good methods but it was difficult for me to consider which ones are	Your definitions of Workshop and Course were a bit confusing to me. Also the list was very long on that page, would there be a way to organize it by F2f, then online, then W, C or a table perhaps?	No I think this was good.	No, that was well done.	No. There were good definitions provided.

			"preferred" because there were so many to choose from				
8. What specific components, phrasing, or questions might create frustration or confusion to the point someone might not finish completion?	Only thing I can think of is the question on 'accreditation guidelines' in part 5 of 5: web-based course structure. If the faculty doesn't have an accrediting body, there's not 'not applicable' option.	I don't think there is a place that creates confusion or frustration.	I don't think the things I mentioned above would be frustrating to the point of not finishing, although I did feel a little overwhelmed by the "preferred methods for improving..." question as described above.	Overwhelming with the large amounts of text at some points. Perhaps the instructions/introductions for the new sections/parts could be on different pages than the actual questions, just to make each page easier to read.	I have a few semantic notes on possible considerations for rewording here and there. None are a big deal but since you asked and I was taking the time, I figured I'd throw them back to you as food for thought. But getting back to the question here...the only other reason I thought of (besides time) that someone might choose not to complete the	The last set of questions is hard to answer- some of the questions may be difficult to reflect upon for some faculty. Some people don't know what they don't know, and others that do have more understanding about accessibility may have a harsher opinion of their own work.	I did not identify any that would deter me from finishing the survey.

					survey after starting it was if they thought it was a bit QM-centric at points. I get it would be coming from your perspective and experience. Many campuses still use QM so that's part of their terminology and framework. I don't think it will seem out-of-line for many who attempt this survey. But it could be for some. I appreciate that you included WeTeach and POET in there and even included the		

					new short courses. Reality is that some people are a bit more anti-QM and so yeah, to be frank, I wonder if it would be enough to deter some from completing it if they felt that it was QM biased. Will the data then be skewed if they quit and don't participate, I don't know. Just trying to be honest and helpful. Not sure what else you would do here to minimize that risk. Is there a way to say "QM		

					or other nationally certified program"? Just thinking out loud there.		
9. What other comments or suggestions can you offer re: how to improve this questionnaire? (e.g., were there typos or grammatical errors?)	The last one on that page says 'managing the time requirements …' To align with the previous questions on that page, should it be 'manage…'?	I did not see any.	NA	I did not see any typos! I'm impressed!	Only noticed the one missing period and one capitalization discrepancy on the intro page. I didn't notice others--but again, that's not my strong suit.	Some questions were a bit long, but honestly, they represent the nuances of online teaching.	This is just general feedback that I typed out as I progressed through the survey/questionnaire tool…
10. Given that the hope is that all of our online colleagues in Minnesota State will have an opportunity to participate in completion of the questionnaire, what recommendations do you have	Email with follow up phone call?!	I'd partner with the instructional design teams – they may be able to send it out to people who are invested in this research to help you	Maybe send it out to the CATT listserve and the CSA/CT listserve and ask those recipients to share in their faculty communications? Offer an amazon giftcard? (Just kidding)	Selecting faculty at each institution to spread the word, distributing on list-servs that faculty subscribe. That's tough. I can send it out on our faculty-discuss list serv for you. Perhaps asking D2L admin to share as an announcement to faculty only?	That remains a good and frequent question. Good luck.	Send out to the CATT and OER email listserves- they tend to have lots of online representation .	Can you talk with the system's office to send out an e-blast to all system faculty? You might end up with more than 100 if you are able to reach out to all system faculty, though. I'm not sure if this would be a problem or a good thing.

for how best to reach them?		get a good number of responses. Another option would be to consider the use of various newsletters. If you have lists of everyone who participated in QM classes you facilitated, that may be a good place to go as well.					

Other (Tester 4): Estimated number of survey participants: 100 teachers for questionnaire. ---
I'd use the word instructor. Some university faculty are offended by the word "teacher". I know, it's ridiculous but I've been corrected more times than I can count 😉
Move the "What Will I do" section later on the instruction page… blends in, forgot about instructions by the time I reached the "I am 18" area.

What will I do?

This survey is divided into three sections. The first section asks you general demographic questions and also includes questions about your professional development completion and preferences. The second section focuses on your beliefs about your online teaching abilities. The third section asks more specific questions about the design of one of your online courses.

At the end of the survey, you will be invited to participate in Phase II and III of the study. These two phases of the study will be seeking volunteers who agree to a more in-depth examination and discussion of their course design practices and will include both an interview and a course evaluation. Participation in Phase I does not obligate you to participate in Phase II and III.

Which of the following disciplines is most closely related to the online course/s you teach?

Seems to highlight the community and technical college majors/offerings but not the universities. I'd recommend adding – Liberal Arts, Education, combining to STEM (if that makes sense), Performing Arts, etc.

What is the setting of the institution where you teach most of your online course?

How do you define metropolitan? My husband and I both struggled to classify St. Cloud as either of these options.

What type of resources and support were available to support you in developing your online course? (Choose all that apply)
Were available to me by the institution or by my own Professional Development searching…? It's unclear if you are interested in what the institution provides or how I helped myself.

Other (Tester 5): Perhaps consistent language could be used in the "What will I do?" and "Confidentiality and Data Security" section regarding Phase II. In the first it's listed as, "…will include both an interview and a course evaluation" and in the other it's "an additional interview and follow-up course observation". I'm wondering if the same term should be used and if you should clarify that further as in "follow-up interview and course evaluation by the researcher". "Evaluation" implies more critique than perhaps "observation". Maybe this even needs to be clarified more. I get you don't want to lead your participants with too much information either, so maybe something like "Details on how the course will be evaluated and what metrics/standards (or whatever verbiage here) will be used will be discussed further before evaluations begin, but note that these evaluations are for the study's use and will not result in a formal certification of the evaluated course." (Unless they are and I'm off base here). Final opinion on the semantics here: you might get more volunteers with the term "observation" than "evaluation".

"Risks" section. This is going to seem weird to say, but being honest…the "other than those encountered in day-to-day- life" kind of made me raise my eyebrows, like "huh?" I wasn't sure if you were trying to be serious or funny—maybe others would have the same reaction. 😊 Also, is the implied risk/fear not stated here? Do you want to address it directly? "Your answers will be anonymous. Any personal data will not be shared with anyone outside of the research team (see Confidentiality and Data Security* section below)" *Do the "D" and "S" need to be capitalized here? The other words in the other sections have only first word capitalized. Not sure, so pointing it out for you just in case.

"Possible benefits" section – Wondering if starting with "There are no benefits..." might seem a bit off-putting to some. Another option might be something like, "Although there are no monetary benefits to participating in the survey directly, it is hoped that your participation in this study may help you reflect on …" and then the rest of your sentence. I like the term "reflect on" as well as the last sentence about informing the field of education. Also wondering if something could be added somewhere that gets at the benefit of this reflection on future courses? Right now it's more past tense: "practices you have adopted and how you prepared yourself" which is good, but it might be nice to remind people there could be benefits for this reflection in terms of what happens with their next courses or future professional development.

“Future research” – missing a period at the end of the paragraph. Is there a kinder way of saying “You won’t be told…” Perhaps, “Future research study details are unknown at this time and will not be communicated out to participants here.” Just a thought.

Additional “Confidentiality and Data Security” section notes: I like that you clarified the anonymity issue with being asked to provide a phone number or email address (for Phase 2). That’s good to have that explained.

“Who can see the data” section -Other than the “Researcher” section, this is the only spot where you switch to first person and used “I”. Other sections you use “the researcher”. I like the “I” in the beginning, “I am inviting you to participate…” but perhaps after that it should be third person??

FYI: I was able to continue the survey by marking only that I was 18 years old (but leaving the I have taught an online class in the last 12 months unchecked). Not sure that’s what you want, or if you want both of them to have to be checked in order to proceed. (I did at first try to check the “I do not consent” box and that did lock me out. Clicking on the link again from your email allowed me back into the pilot survey anew. So I could start over and do the rest.)

Survey Questions by Page

Page 1

Like that you have expanded gender options

Page 2

I almost missed the first question (rural/metro) because the next question was much larger, had two radial dial options that went horizontal instead of vertical which made it almost appear like a page title at first glance. Can you switch those two around so “approximate size” is first?

Would the data questions on this page be easier for you to sort/use if they were a multiple choice question-type verses a short answer?

When I read “what is your typical class size”, my automatic response was to mark the number representing the class maximum (which is basically the same for me, but wouldn’t necessarily be for others. I wonder if people will read that too fast and give you that maximum number too. Do you want to ask both? What is the maximum you can have? And then ask what is your typical class enrollment?

Page 3

Double “support” could maybe be altered to reflect two synonyms “support” “Assist”, or cut out the first so it reads “what type of resources were available to support you in…”

I would maybe cut out the "(about 2 weeks)" and "*longer than two weeks") and just use "total": "a learning experience that is 8-10 hours total or less" and "a learning experience that is more than 8-10 hours in total"

You ask if they've had any of those courses or workshops, but not how many. Would that be relevant to know for your research? Or how many hours total do you think you've spent on course/workshop trainings?

I'm wondering if the last question, "What are your preferred methods from those available for improving your knowledge…" will give you more focused answers if you include "available" or if you want to get at what people wish they had because that's how they best learn but it might not be available, then it could be phrased "What would be your preferred methods for improving even if they're not currently available to you…" For example, some people would prefer to work with an instructional designer but their campus doesn't have one. So how does that person answer this question without it being clearly identified.

Page 4

This looked good I think.

This might not tie into your research but I think it might also be interesting to ask yes or no, "have you been an online student yourself?" Then follow-up, "If so, do you feel that experience contributed to your perception of how you wanted to conduct your own online class? And how?" Again, might not be relevant, but just in case… 😊

Other (Tester 7): The introduction page looked great. I wonder if you would want to put '100 Minnesota State Colleges and University Faculty" instead of 100 teachers under the *Estimated Number of Participants* portion of the introduction page.

Estimated number of survey participants: 100 teachers for questionnaire.

- Your eligibility criteria check box was a great function.
- I like your definitions in each of the sections.
- I know you are using a pre-existing survey, are you able to make changes to it? The suggestion I had was to put some sort of header or qualifier on each scale for the 0 = no confidence and 10 = complete confidence. It isn't really needed since it says the scale above in writing, but some people might find it helpful. I put a red box on the screenshot to show the area I am talking about:

Appendix F: Phase I Questionnaire Pilot Responses (v2)

Phase I Questionnaire Pilot #2 Responses

Three individuals completed a pilot of the revised questionnaire. They were asked the same questions as were asked of the original pilot group. The responses for Pilot #2 responses are identified as a, b, and c below.

1. Did the instructions make sense regarding how to complete the questionnaire?
    a. **The instructions were very thorough.**
    b. **Yes**
    c. **All instructions were well-written and easy to understand.**
2. How long did it take you to complete the survey?
    a. **Roughly 15 - 20 minutes**
    b. **Approximately 25 minutes**
    c. **23 minutes**
3. Did it flow well from one component to another?
    a. **Yes.**
    b. **Yes**
    c. **Flow was good**
4. What did you use to complete the questionnaire: a PC, Mac, cell phone or other mobile device?
    a. **PC**
    b. **Mac – I am curious to see if anyone completed this on a mobile device. There were a lot of instructions (not a negative), but just to see how all the words came across on a phone or iPad, for example**
    c. **Completed on a PC**
5. Was the request at the end to volunteer for Phase II clear and inviting (in other words, how should it be worded so some will volunteer?)?
    a. **It was inviting. However, given the length of the survey, I started to lose interest in reading directions. It was easy to skim through this part and hit "submit".**
    b. **I am assuming you are the trained reviewer? If so, I wonder if you stated the researcher is a trained reviewer… That way the participant understands only you will be evaluating the online course? Just a thought…**
    c. **I thought the invitation was inviting. I am not in higher education, so I don't know if it is common to have to have courses reviewed, but with COVID-19 changing how we teach at any level, I would think people would be open to feedback. The only thing I was wondering about is how much work (if any) the participant would be required to do for Phase II.**
6. Were there any questions that were unclear (you didn't know how to respond based on what was asked)?
    a. **No.**
    b. **No. the questions were clear and understandable.**
    c. **In Section IV, the 3rd response item was "My course assessments, instructional materials, and assessments…" should the first assessments (underlined) be assignments? I saw you adapted these from QM, so I may be off.**

7. Were there any questions that used confusing terminology (e.g., full-time, part-time, adjunct, workshop vs. course) that need further explanation?
    a. **QM - Is this an abbreviation? If so, I would forgo the abbreviation and write out what it stands for.**
    b. **Not for me**
    c. **The only terminology I think could use explanation is maybe explaining "bandwidth" (I have many teachers that would have no idea what this is or what it means). Also, I'm wondering if there is a better way to explain "project a positive virtual social presence" rather than saying perceptions of being real? I'm not sure if that explanation is as helpful as it could be.**

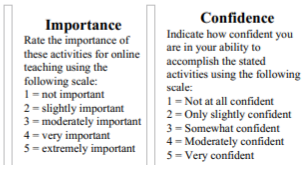
       ***I'm getting very picky – I thought your explanations and examples were fantastic! As someone who does not work in higher education, I was able to understand what you were asking without issues, so well done!**

8. What specific components, phrasing, or questions might create frustration or confusion to the point someone might not finish completion?
    a. **The only question I really had to reread a few times was the "check all" question on the types of resources available to me to design online courses. I'm not sure if it's professional, but underlining the components that are different may be beneficial.**

       Example:
       --Opportunity to participate in a course review process where individuals <u>from my institution</u> give feedback on the design of my course
       --Opportunity to participate in a course review process where individuals <u>external to my institution</u> give feedback on the design of my course

       Would this question be better suited as a "check all that apply" and use the same list as previous question?: What type of support would you have liked to have while preparing to teach online that wasn't available to you?
    b. I wonder if you need both descriptions for the responses (see below) or just needed the one attached to the questions? Maybe you don't need the larger one but keep the smaller section?

Importance (Column 1) Rate the importance of these activities for online teaching using the following scale:	Confidence (Column 2) Indicate how confident you are in your ability to accomplish the stated activities using the following scale:
1 = not important 2 = slightly important 3 = moderately important 4 = very important 5 = extremely important	1 = Not at all confident 2 = Only slightly confident 3 = Somewhat confident 4 = Moderately confident 5 = Very confident



c. I saw no areas that were confusing in any way, certainly not to the point of not completing the survey.

9. What other comments or suggestions can you offer re: how to improve this questionnaire? (e.g., were there typos or grammatical errors?)
    a. **I would consider removing the box at the top of the screen (in the directions) for the Likert scale questions. The exact same thing is written below. It seems repetitive and it's not visually appealing (the alignments are off).**
    b. **I did not see any errors. You did an excellent job. Thank you for asking me to pilot your questionnaire. I hope my feedback helps.**
    c. I did not find any spelling or grammatical errors.

Appendix G: Course Design Evaluation Instrument Alignment

Alignment of the Course Design Effectiveness Questions

Phase I, Section III Online Course Design Effectiveness Scale (Completed by study participants)	Phase II Online Course Design Evaluation (completed by course evaluators)
1. My course introduction is effective in explaining the overall design of the course, as well as, setting the tone for the course, letting students know what to expect, and providing guidance to ensure they get off to a good start.	1.1 Instructions make clear how to get started and where to find various course components.
	1.2 Learners are introduced to the purpose and structure of the course.
2. My learning objectives are measurable and clearly stated. They establish a foundation upon which the rest of the course is based.	2.1 The course learning objectives describe outcomes that are measurable.
	2.2 The module/ unit-level objectives describe outcomes that are measurable.
	2.3 Learning objectives are stated clearly, are written from the learner's perspective, and are prominently located in the course.
	2.4 The relationship between learning objectives and learning activities is clearly stated.
	2.5 The learning objectives are suited to the level of the course.
3. My course assessments, instructional materials, and assessments are clearly aligned with the learning objectives.	2.1 The course learning objectives describe outcomes that are measurable.
	2.2 The module/ unit-level objectives describe outcomes that are measurable.
	3.1 The assessments measure the achievement of the stated learning objectives.
	4.1 The instructional materials contribute to the achievement of the stated learning objectives.
	5.1 The learning activities promote the achievement of the stated learning objectives.
	6.1 The tools support the learning objectives.
4. I assess my students in a manner that not only allows me to have a broad perspective of the students' mastery of the content, but also allows students to measure their own learning throughout the course.	3.1 The assessments measure the achievement of the stated learning objectives.
	3.2 The course grading policy is stated clearly at the beginning of the course.

	3.3 Specific and descriptive criteria are provided for the evaluation of learners' work, and their connection to the course grading policy is clearly stated.
5. My instructional materials are sufficiently comprehensive in providing the necessary foundation for successfully mastering the course learning objectives and competencies for my course.	4.1 The instructional materials contribute to the achievement of the stated learning objectives.
	4.2 The relationship between the use of instructional materials in the course and completing learning activities is clearly explained.
6. I provide engaging activities for my students to be active and persistent learners.	5.1 The learning activities promote the achievement of the stated learning objectives.
7. The forms of interaction incorporated in my course motivate students and promote learning.	5.2 Learning activities provide opportunities for interaction that support active learning.
	5.3 The instructor's plan for interacting with learners during the course is clearly stated.
8. The technologies in my course support student engagement and ensure access to course components. These technologies do not impede student progress.	6.1 The tools support the learning objectives.
	6.2 Course tools promote learner engagement and active learning.
9. My course facilitates student access to institutional support services essential to student success such as technology support, accessibility support, academic services support, and student services support.	7.1 The course instructions articulate or link to a clear description of the technical support offered and how to obtain it.
	7.2 Course instructions articulate or link to the institution's accessibility policies and services.
	7.3 Course instructions articulate or link to the institution's academic support services and resources that can help learners succeed in the course.
10. My course has been designed to support ease of navigation for all students.	8.1 Course navigation facilitates ease of use.
11. My course demonstrates a commitment to accessibility for all students.	8.2 The course design facilitates readability.
	8.3 The course provides accessible text and images in files, documents, LMS pages, and web pages to meet the needs of diverse learners.

Appendix H: Content Evaluation Panel

Content Evaluation Panel

These online learning experts shared their expertise by providing input into the content validity of the Online Teaching Self-Efficacy Inventory.

Name	Title	Area of Expertise	Years of Online Experience	Location
Michael Amick, MLA	Vice President of Distance Education, Pima Community College	Online Teaching, Instructional Design, Faculty Supervision, Faculty Support, Administration	14	Arizona
Eddie Andreo, MBA	Associate Vice President for Distance Learning, Cowley College	Online Teaching, Instructional Design, Faculty Supervision, Faculty Support	15	Kansas
Penny Ralston-Berg, MS	Senior Instructional Designer, Pennsylvania State University	Instructional Design, Faculty Support	23	Pennsylvania
Kathleen Bright, MBA	eLearning Faculty, Olympic College	Online Teaching, Instructional Design, Faculty Support	15	Washington
Racheal Brooks, Ph.D.	Coordinator, Office of e-Learning, North Carolina Central University	Online Teaching, Instructional Design, Accessibility, Faculty Supervision, Faculty Support, Administration	12	North Carolina
Rebecca Graetz, EdD	Instructional Program Manager and Instructional Designer, University of Wisconsin, Superior	Online Teaching, Instructional Design, Accessibility, Faculty Support	15+	Wisconsin
Marian Kessens, MBA	Instructor, Ivy Tech Community College	Online Teaching, Instructional Design, Accessibility, Faculty Supervision, Faculty Support	20	Indiana
Robin O'Callaghan, MS	Senior Instructional Designer, Amazon Adjunct Faculty, Winona State University	Online Teaching, Instructional Design, Faculty Support	15	Minnesota
Alexandra M. Pickett, MA	Director, Online Teaching at Open SUNY	Online Teaching, Instructional Design, Faculty Support	24	New York
Tina Rettler-Pagel, MS	Faculty, Chief Online Learning Officer, Madison Area Technical College	Online Teaching, Faculty Support	20+	Wisconsin

Name	Title	Area of Expertise	Years of Online Experience	Location
Katherine K. Rose, Ph.D.	Faculty, Texas Woman's University	Online Teaching	15	Texas
Bethany Simunich, Ph.D.	Director of Research and Innovation, Quality Matters Adjunct Faculty, Kent State Online	Online Teaching, Instructional Design, Faculty Support	15	Ohio
Darcy Turner, MA	Interim Director of Program Development, University of St. Thomas	Online Teaching, Instructional Design, Faculty Support	13	Minnesota
Sherrell Wheeler, MBE	Professor of Business; Director of Online Quality Assurance, New Mexico State University Alamogordo	Online Teaching, Faculty Support, Administration	18	New Mexico