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PROFESSIONAL DEVELOPMENT FOR ONLINE FACULTY: SUPPORTING  
CONCEPTUAL CHANGE THROUGH CONCEPTUAL CONFLICT ACTIVITIES

by

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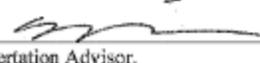
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## **ABSTRACT**

Despite the increasing demand for online courses, skepticism by faculty and administration regarding the legitimacy of online education continues to exist. To address this skepticism, institutions have turned to professional developers and faculty development centers to provide professional development on online instruction for university faculty. Unfortunately, the professional development activities tend to focus on the development of skills, especially technical skills, instead of addressing directly faculty conceptual views and beliefs that impact their skepticism. For faculty to facilitate instruction successfully within an online course, the professional development programs need to support the conceptual change process by providing opportunities for faculty to reflect on their beliefs, declare their areas of concerns, and identify plausible solutions to address the concerns regarding online instruction.

This qualitative multi-case study explored five faculty members' conceptual change progressions through conceptual conflict inspired professional development activities. Data were collected through the activities of concept maps, discussion forums, journals, and semi-structured interviews. Data were coded, categorized, and themes were generated for each individual case as well as across all five cases. The findings suggested that the participants' completion of the conceptual conflict activities resulted in them experiencing the different stages of the conceptual change process. The participants were able to declare their beliefs, assumptions, and attitudes; reveal their areas of concerns; and identify plausible solutions to address those concerns. This research bridges a gap in the current literature by introducing a professional development module designed to afford participants an opportunity to experience the conceptual change process.

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## Chapter I: Introduction

Seaman and Seaman (2017) reported that 6 million higher education students completed at least one distance education course in fall 2015; this was an increase of 3.9% over the previous year. They further added that public institutions of higher education continued to “educate the largest proportion of distance students (4,080,565 or 67.8%)” (p. 4). Online courses and degree programs have the potential to increase college access and graduation rates by expanding the options for learning (Casement, 2013; Shea & Bidjerano, 2014). While the increased enrollment in online courses may illustrate the student appeal for such flexible educational opportunities, some faculty and administrators question the quality of online courses. Some higher education administrators believed that the learning outcomes of online courses were inferior to face-to-face courses (Allen & Seaman, 2013). The acceptance of online education and the inability to convince faculty of its value continue to areas of concerns within the university settings.

The use of the Internet and World Wide Web in distance education required faculty to re-conceptualize their ideals and teaching methods to capitalize on their ability to interact virtually with students using technology (Lawler & King, 2000). The adoption of this form of distance education required faculty to make significant adjustments to their theoretical, pedagogical, and cultural perceptions (Dabbagh & Bannan-Ritland, 2005). These changes in distance education have resulted in redefining the roles and required competencies for both students and faculty.

Roles are defined as a “collection of behavioral requirements associated with a certain social position in a group, organization or society” (Garrison, Cleveland-Innes, &

Fung, 2004, p. 64). These roles are learned over time and require the development of the applicable competencies. Competencies are statements that define “the qualification required to perform an activity or to complete a task” (Sales, 2005, p. 553). Bawane and Spector (2009) considered competencies to be:

standards to develop, qualify, distinguish, and or recognize individual performance...referred to as the ability to do rather than the ability to demonstrate knowledge...as a description of those performances that [were] based on the acquisition, integration, composite building and application of related skills and knowledge (p. 393).

The roles that online instructors need to play require that they successfully adopt online instructional practices to provide engaging learning opportunities that are comparable to those of the face-to-face classroom. The literature categorizes the main roles assigned to online instructors as facilitator, instructional designer, advisor and counselor, evaluator, administrator, technologist, and researcher (Al-Salman, 2011). The role of online faculty “encompass pedagogical, social, managerial, and technical tasks” (p. 8).

The competencies often associated with the aforementioned roles are content and pedagogy, collaboration and networking, and social issues and technical issues (Bawane & Spector, 2009). To develop and provide the optimal learning experience for online students, instructors need to acquire these competencies. The online instructors’ ability to provide a successful online learning experience for their students depends upon whether they would be able to apply a variety of instructional design theories and practices (Al-Salman, 2011; Bigatel, Ragan, Kennan, May, & Redmond, 2012; Yang & Cornelius,

2005); facilitate student interaction within the environment (Al-Salman, 2011; Yang & Cornelius, 2005); increase peer and instructor interaction (Al-Salman, 2011; Bigatel, Ragan, Kennan, May, & Redmond, 2012); establish online learning communities (Al-Salman, 2011; Bigatel, Ragan, Kennan, May, & Redmond, 2012; Yang & Cornelius, 2005); and encourage students to evaluate their courses (Yang & Cornelius, 2005).

### **Faculty Professional Development**

Adequate training for faculty is “a necessary requirement to enable faculty to adapt their old approaches while adopting new ones...[and] this training must be comprehensive, and it must be ongoing” (Al-Salman, 2011, p. 11). The onus of providing such professional development opportunities at many academic institutions rests with the professional developers and faculty development centers (Al-Salman, 2011). A survey of the literature reveals that the methods by which faculty would access this training are as diverse as their skill sets upon entering their academic career. In addition to the varied formats of training, some institutions provide faculty access to specialists including instructional designers, librarians, graphic designers, multimedia specialists, change agents, and editors to support the development and facilitation of online courses (Al-Salman, 2011; Aragon & Johnson, 2002). The support of these specialists bridges the gap between the faculty’s current expertise and the skill set necessary to develop and support the design and implementation of online courses. Faculty often request support in the form of individual consultation sessions, online self-paced resources, peer-to-peer learning, mentoring opportunities, face-to-face workshops, online workshops, informal assistance and events, and books or videotapes (Taylor & McQuiggan, 2008).

Despite the efforts put forth by some institutions to provide the needed professional development training and resources to support their online instructors, many faculty members remain frustrated with the available professional development activities. The professional development activities tend to focus heavily on technology as opposed to pedagogy (Baran et al., 2011). According to Al-Salman (2011), the focus on technology could be a direct result of academic institutions' expectations that faculty "intuitively [knew] how to design and deliver online courses" because of their knowledge and experience instructing within the face-to-face environment (p. 11). Though the attainment of technical competencies is critical, professional development activities need to afford opportunities for faculty to reflect on their values, beliefs, motivation (Jones, Lindner, Murphy, & Dooley, 2002; King, 2004), and assumptions towards teaching online (King, 2004); change teaching styles and techniques (Yang & Cornelious, 2005); and gain required qualifications necessary to ensure the quality of online instruction (Yang & Cornelious, 2005).

Much of the faculty training fails to consider that many faculty begin their academic careers lacking the basic pedagogical knowledge and instructional methods necessary for face-to-face instruction, let alone those recommended for online instruction (Baran et al., 2011). Researchers have found that the absence of formal training results in faculty implementing pedagogical competencies without the benefit of intentional teacher preparation, and their instructional practices often mirror those of their previous instructors (Lawler & King, 2000; McQuiggan, 2012). Richardson (1996) stated that the "personal experience, experience with schooling and instruction, and experience with formal knowledge" influenced the development of faculty beliefs and knowledge

regarding teaching (p. 105). The preferred learning method of the instructor influences the instructional methods they incorporate into their courses (Stitt-Gohdes, Crews, & McCannon, 2000). This fact, as well as the lack of formal instructional preparation, result in faculty being more concerned about the process of designing and developing their online courses and learning activities, than the development of the technical skill sets required to utilize the available technical tools (Taylor & McQuiggan, 2008; Wilson, 2001).

The concerns of faculty regarding course design may stem from the fact that over the past 30 years, doctoral and postdoctoral training have focused on the immersion of students in an academic specific culture of research instead of instructional practices required for those pursuing careers in academia. This method of training results in a preference by some faculty to identify professionally as a researcher rather than a teacher (Brownell & Tanner, 2012). The separation of identities results in faculty adopting instructional practices conflicting with the accepted best practices for online course development. These perceptions, left unresolved, could affect faculty acceptance and adoption of methods presented through the professional development activities supporting online instruction (Hewson & Hewson, 1984). Therefore, professional developers must consider the influence of the faculty's academic discipline and its conceptual framework and ecology on faculty acceptance of new or different concepts presented within the online activities.

### **Faculty Beliefs**

The beliefs faculty have regarding what constitutes teaching and learning may influence the instructional practices they are willing to adapt and incorporate within their

courses (Kember, 1997). In fact, through qualitative research studies, researchers have found that a relationship exists between the declared beliefs of instructors and their adopted instructional practices (Kuzborska, 2011; Phipps & Borg, 2009). The evolution of faculty instructional practices will require professional developers to consider faculty beliefs.

Faculty perceptions regarding what constitutes the acts of teaching and learning influence not only their instructional practices, but also their adoption of online courses and required technologies (Myers, Bennett, Brown, & Henderson, 2004; Tabata & Johnsrud, 2008). Though many factors influence faculty instructional practices, enhancements to their practices will require instructors to experience a shift in their beliefs (Kuzborska, 2011). Kuzborska (2011) suggested within her qualitative study of the influence of language teachers' beliefs on their instructional practices that professional development must support instructors with learning about, understanding, and implementing alternative instructional methods. Experiencing a shift in beliefs regarding online courses, instructional technologies as well as the application of current instructional practice can contribute to faculty success within the online environment.

### **Conceptual Change**

Conceptual change is the process by which learners, relying on their existing knowledge, via their conceptual ecology, either assimilate or accommodate newly introduced concepts (Posner, Strike, Hewson, & Gertzog, 1982). The initial phase of this process requires that the learners become aware of their attitudes, beliefs, and assumptions towards a new conception. For the conceptual change process to occur, Posner et al. (1982) stated that (a) the learner needs to be dissatisfied with his or her

existing conceptions; (b) the new conception needs to be considered intelligible; (c) the new conception appears to be plausible; and (d) the new concept suggests the possibility of fruitful results. Relying on their existing knowledge, via their conceptual ecology, learners will either assimilate or accommodate newly introduced concepts.

As faculty transition from a traditional face-to-face teaching to online instruction, they would encounter unique aspects of online environments, which are new and might be in conflict with their existing beliefs about teaching and learning. In order for them to accept the new conception (i.e., online instruction), they would need to go through a conceptual change process to alleviate the constraints of their discipline specific ecology and the pedagogy of face-to-face teaching. The experience to navigate through the conceptual change process allows faculty to become aware of the conflicting beliefs and attitudes and identify plausible solutions to address their concerns with the new conception. This process requires faculty to re-conceptualize their beliefs and instructional practices in order to accept the new conception. In addition, the roles and competencies adopted by faculty instructing within an online environment may require that they make significant adjustments to their theoretical, pedagogical, and cultural perceptions (Dabbagh & Bannan-Ritland, 2005). The necessary adjustments may result in faculty experiencing dissatisfactions within their existing conceptions regarding the teaching and learning process. This reconceptualization process, as described by Posner et al. (1982), involves faculty members reflecting on their beliefs, declaring their areas of concern, and identifying plausible solutions to their engagement in online instruction.

### **Statement of the Problem**

Faculty beliefs and attitudes about teaching and learning influence every aspect of their teaching experience “including lesson planning; assessment; interaction with peers ... and students” as well as their professional development experiences and reforms to their instructional practices (Jones & Carter, 2007, p. 1067). Existing professional development does not adequately address faculty beliefs about online teaching and learning. Terosky and Heasley (2015) stated that “a majority of faculty remain[ed] dissatisfied with their institution’s support for professional development in online teaching” (p. 147). Professional development activities that fail to support the identification of noted concerns, as well as plausible solutions, could be met with resistance by the faculty attendees. Professional developers and centers must take deliberate action to address the incongruities within faculty conceptual beliefs to support their accommodation or assimilation of the introduced concepts.

### **Purpose of the Study**

The purpose of this dissertation research was to examine whether the intentional inclusion of conceptual conflict instructional activities within a professional development module would help facilitate faculty’s conceptual change experience as described by Posner, Strike, Hewson, and Gertzog (1982). The study focused on the *What’s on Your Mind?* module, a professional development activity that used Nussbaum and Novick’s (1982) conceptual conflict instructional strategy as a guide for the development of the module activities. The study explored whether the activities would result in faculty members (a) acknowledging their current conceptual beliefs, attitudes, and assumptions regarding teaching and learning within the online environment; (b) identifying areas of

dissatisfaction within their conceptions; and (c) identifying plausible solutions to address their areas of dissatisfaction.

### **Research Questions**

To evaluate the impact of a professional development module that incorporated conceptual conflict strategies on university faculty's conceptual change process, the study investigated the following research questions:

1. How did the conceptual conflict module assist participants in identifying/defining their attitudes, beliefs, and assumptions regarding teaching and learning within the online environment?
2. How did the conceptual conflict module help participants identify areas of dissatisfaction within their existing conceptions when assessing the transferability of their current instructional practices within an online environment?
3. How did the conceptual conflict module assist participants with identifying a plausible alternative concept to address their area of conflict?

### **Significance of Study**

The demand for online courses has steadily increased because of their ability to provide additional and affordable options for those pursuing a college education (Saad, Busted, & Ogisi, 2013; Seaman & Seaman, 2017). Even though the demand increases, skepticism by faculty and administration regarding the legitimacy of online education continues to exist (Allen & Seaman, 2016). With the appropriate activities and resources, professional developers can support, not only the development of the required

competencies but also faculty with addressing the conflicts within their beliefs (Howell et al., 2004).

The study focused on the *What's on Your Mind?* module, a professional development activity that used Nussbaum and Novick's (1982) conceptual conflict instructional strategy as a guide for the development of the module activities. The module supported faculty with progression through the conceptual change process. The activities, which were incorporated in the Blackboard learning management system, included the design and revision of concept maps, as well as self-reflection and peer interaction activities that were accompanied by prompting questions. The module activities supported faculty with participating in a metacognitive process that required them to become aware of their own beliefs.

The significance of the research lies in the fact that a limited number of studies focused on the process of assessing beliefs, which according to Pajares (1992), was due to the perception that the study of beliefs did “not lend itself easily to empirical investigation and ... [could] never be clearly defined or made a useful subject of research” (p. 308). Additionally, the focus of the study expanded beyond faculty beliefs and addressed the attitudes and assumptions held by faculty regarding teaching and learning within the online environment. This research findings provided useful information that professional developers and faculty development centers may use as a guide to enhance or develop programming intended to support online instructors with addressing any anomalies within their beliefs, assumptions, or attitudes that could influence their successful adoption of online courses. Specifically, reviewing the case participants experiences while completing the exercises will demonstrate how self-

reflection and peer interaction activities can support the initiation of the conceptual change process.

Additionally, the results of the study provide an overview of the themes discussed by the participants. Professional developers can use this information to further enhance and expand upon their program offerings to online faculty. The study also adds to the field of conceptual change theory in professional development, instructional use of conceptual conflict instructional strategies, as well as professional development for faculty instructing online courses.

### **Role of the Researcher**

The researcher at the time of the study was a current employee of the department responsible for providing professional development opportunities to faculty at the studied institution. The department provided professional development opportunities to instructors teaching or interested in teaching online courses. The researcher was the course development support manager and had the authority to provide direction over the professional development activities for online faculty and instructional designers under her supervision. Additionally, as the researcher collaborated with the Assistant Provost of the department to identify and plan professional activities to support the professional development needs of faculty at the studied institution.

The researcher was qualified to provide instructional design advice to faculty and had a clear understanding of best practices for online learning. She had seven years of experience as an instructional designer and technologist, five years of teaching experience and eight years of experience supporting online instructors. The researcher holds a certificate and Master of Art degree in Instructional Systems Development.

Additionally, the researcher completed and earned the Quality Matters (QM) Peer Reviewer certification. The QM organization developed a set of standards and rubric used nationally to evaluate the design of online and blended courses. One of the primary roles of the researcher was to support faculty with developing the necessary skills to successfully design and facilitate courses regardless of the modality of instruction. In addition to the module, the researcher also facilitated the “*Preparing Your Course Online Delivery*” workshop, which the module preceded. The researcher’s role as a supervisor could have potentially influenced the content within the “Preparing Your Course Online Delivery” workshop. Because the researcher was responsible for supporting online instructors, it was also possible for the researcher to be acquainted professionally with the participants. The researcher was an active study participant because as an active facilitator for the module, she engaged in discussions with participants and conducted the interviews. The researcher acknowledges that because she is proponent of distance education, professional development for faculty, and conceptual change process these factors influenced the design of the module. The researcher acknowledges that the interpretation of the study was subject to her bias, beliefs, and perceptions.

### **Definition of Key Terms**

Key terms are further explained and defined because of their relevance to the study.

**Assumptions.** Assumptions are “ideas and thoughts that evolve over time and become things that we then take for granted. They become so ingrained in our daily thoughts and actions that we no longer question their validity or even think about them” (Bassot, 2016, p. 79). Elder and Paul (2002) added that an assumption is “something we

take for granted or presuppose... It is something we previously learned and do not question. It is part of our system of beliefs” (p. 34).

**Attitudes.** Rokeach (1968) defined an attitude as a “relatively enduring organization of beliefs about an object or situation predisposing one to respond in some preferential manner” (p. 134). Stangor (2014) stated that attitudes “involve a preference for or against the attitude object, as commonly expressed in terms such as prefer, like, dislike, hate, and love... expressing the relationship (either positive or negative) between the self and an attitude object” (para. 1).

**Beliefs.** Beliefs are “held understandings, premises, or propositions about the world that are felt to be true” (Richardson, 2003, p. 2). Richardson (2003) added that “beliefs are propositions that are accepted as true by the individual holding the belief, but they do not require epistemic warrant” (p. 3). Gamble and Gamble (2013) added that “beliefs are the building blocks of attitudes; they provide the basis or foundation for our attitudes ... [they are] one’s assessment of what is true or false, probable or improbable” (p. 272). Evaluating faculty members’ beliefs regarding teaching and learning can be difficult as the beliefs are often static, complex, and even conflicting (Hora, 2014; Mansour, 2008).

**Competencies.** Competencies are the standards or qualifications required to perform a task (Bawane & Spector, 2009; Sales, 2005). In the case of the online instructor, competency means having the ability to execute the tasks necessary to design, develop, administer, and facilitate an engaging learning experience for students.

**Conceptions.** According to Gorodetsky, Keiny and Hoz, (1997) a conception is a mental structure that includes the beliefs and basic assumptions of a person. Conceptions

are dynamic and can undergo changes as a result of "practice and/or exposure to other sources of knowledge" (Gorodetsky, Keiny & Hoz, 1997, p. 423). According to Richardson (1996) conceptions and attitudes "are a subset of a group of constructs that name, define, and describe the structure and content of mental states that are thought to drive a person's actions" (p. xx)

**Conceptual change.** Conceptual change is the process by which learners, relying on their existing knowledge, via their conceptual ecology, either assimilate or accommodate newly introduced concepts. In order for conceptual change to occur, the four following conditions must exist: (a) The learner is dissatisfied with existing conceptions; (b) the new concept being considered is intelligible; (c) the new concept appears to be plausible; and (d) and the new concept suggests the possibility of fruitful results (Posner, Strike, Hewson, & Gertzog, 1982).

**Conceptual conflicts.** Conceptual conflict is a conflict among beliefs, attitudes, thoughts, and ideas that affects directed thinking and other forms of epistemic behavior (Berlyne, 1965). Conceptual conflict occurs when learners' conceptions are alternative to, and therefore in conflict with, the accepted conceptions. When left unresolved or not recognized by the learner conceptual conflicts will prevent the learning of the accepted conceptions (Hewson & A'Beccett Hewson, 1984).

**Conceptual ecology.** The conceptual ecology, also called the intellectual environment, includes the cultural beliefs, language, accepted theories, as well as observed facts and events that favor the development of some concepts and inhibits the development of others (Hewson & Hewson, 1984).

**Concern.** Van den Berg (1999) defined concerns as “the questions, uncertainties, and possible resistance that teachers may have in response to new situations and/or changing demands” (p. 883). Personal factors such as “previous experiences, the home situation, personal preferences/styles, legal/financial security, self-confidence” can influence concerns (Van den Berg, 1999, p.881). The “concept of ‘concern’ [also] refers to the personal experiences that teachers have when they are involved in a change” (Van den Berg, 1999, p. 882-883). Additionally, Fuller (1974) stated that “concerns about teaching are expressions of felt need which probably possess motivation for relevant learning” (p. 2)

**Dissatisfaction.** Nussbaum and Novick’s (1982) stated that accommodation necessitates, first of all, recognition by the learner of a problem and his inability to solve it with his existing conceptions results in the feeling of dissatisfaction

**Distance education.** Distance education is a model of education where the delivery of instruction and student learning takes place outside of the classroom via the use of instructional materials such as printed text, video recordings, and computer interactions (Holmberg, 2005).

**Online instruction.** Online instruction is a form of distance education. It is “an open and distributed learning environment that uses pedagogical tools, enabled by the Internet and Web-based technologies, to facilitate learning and knowledge building through meaningful action and interaction” (Dabbagh & Bannan-Ritland, 2005, p. 15).

**Online learning.** Ally defines online learning as the use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to

obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and grow from the learning experience (2008, p. 5)

**Plausible.** An argument or statement is plausible when it appears capable of resolving problems generated by its predecessors (Posner et al., 1982). Plausibility occurs as a result of consistency of the concepts with other knowledge (Posner et al., 1982).

**Professional development.** Professional development, also referred to as training, consists of formal and informal opportunities to enhance the skill set of employees. According to Nandan and Nandan (2012), the intended purpose of professional development activities within the higher education environment should be “to increase the development and effectiveness of the presentation of the focused knowledge of the faculty members in the areas of education and research” (p. 278).

Within academia, this responsibility often lies with adult educators, faculty development centers, and professional developers.

**Roles.** The roles associated with instructing and learning within the online environment consist of a set of behavioral requirements associated with that of the learner or instructor (Garrison, Cleveland-Innes, & Fung, 2004).

## **Chapter II: Literature Review**

This literature review examined research on professional development that was intended to support faculty in successfully adopting instructional practices within the online environment. The topics examined in the literature review included the history and evolution of the field of professional development with a focus on professional development specifically for online faculty, the influences of faculty beliefs on their instructional practices, conceptual change theory, and the incorporation of conceptual change to support faculty's adoption of online instruction. This literature review surveyed previous research to determine existing knowledge on the topic of professional development for online faculty. The analysis of the literature afforded the researcher an opportunity to determine which professional development activities to implement to support a shift in beliefs, attitudes, or assumptions that might hinder faculty from successfully adopting online instruction.

The researcher worked with librarians as well as utilized the EBSCOHOST research portal to identify relevant literature on the topics related to the dissertation research study. The researcher conducted multiple searches using the terms "conceptual change", "professional development for online faculty", "faculty professional development", "barriers to online education", "conceptual conflict strategy", "concept maps", "self-reflection", "faculty beliefs" and "distance education". Using these terms and a variation of these terms within the research portal, the researcher identified an array of publications. To identify the most appropriate resources to support the study, the results were limited to publications, articles, and books related to professional

development for faculty that supported the conceptual change process for those instructing online courses.

### **History of Professional Development**

At the beginning of the 20<sup>th</sup> century, obtaining a post-secondary professoriate position required an advanced degree within an academic discipline (Gaff & Simpson, 1994; Lawler & King, 2000). The academia focused on expertise and research in a specific discipline, and many faculty entered the college teaching profession with little exposure or practical experience with instructional methods or learning theories. Additionally, career advancement for faculty relied on their continued study and publication of discipline specific research rather than their instructional practices and abilities. For this reason, professional development at universities and colleges in the United States focused on developing expertise and advancement within discipline specific research.

The oldest form of professional development, sabbatical leave, was established by Harvard University in 1810 to provide faculty with leave from course work and funding to pursue their discipline specific research. Though sabbatical leave still exists today, in the 1970s, the changing learning environment resulted in recommendations for shifting the focus of professional development from discipline specific research to teaching practices. During the 1970s, certain societal events -- including student demands, increased diversity in the student population, new research on effective teaching, and economic downturns within the country-- catalyzed the enhancement of course curriculum and instructional practices (Gaff & Simpson, 1994; Lewis, 1996). At the same time, the reward system at some universities expanded and began to reward faculty for

their instructional practices. However, it was not until the mid-1990s that professional development related recommendations from organizations, such as the Group for Human Development in Higher Education, became widely adopted by faculty development programs (Lewis, 1996). The Group for Human Development in Higher Education provided the following recommendations in *Faculty Development in a Time of Retrenchment* (1974) regarding how institutions could address their changing learning environments (Lewis, 1996):

1. Make teaching a public activity, open to collegial scrutiny;
2. Develop self-reflection about the activities of teaching and learning;
3. Train future professors to upgrade teaching effectiveness;
4. Institute campus-wide programs or institutes for assisting faculty in their quest for knowledge and skills concerning teaching and learning;
5. Develop grants for enhancing pedagogical competence;
6. Develop collegial groups based on shared interest in methodologies, pedagogical puzzlements, and so forth, rather than just by discipline;
7. Provide ways to help faculty make mid-career transitions to other fields or even out of academia.

During the 1990s, in response to the scrutiny and calls for accountability from parents and legislators concerning the undergraduate educational experience, many post-secondary institutions adopted these recommendations. Institutions began to link faculty roles to the institutional vitality, and identified new professional development priorities to support emerging roles (Brancato, 2003; Lewis, 1996). Consequently, the focus of

professional development grew to include the development of faculty knowledge of a diverse range of instructional methods and practices.

In time, faculty development became an established institutional process, which sought “to modify the attitudes, skills, and behavior of faculty members toward greater competence and effectiveness in meeting student needs, their own needs and the needs of the institution” (Lewis, 1996, p. 26). The faculty development program morphed through several stages including changes in priorities, administration and leadership, and funding sources. A successful faculty development program could change the way faculty feel about and execute their required roles by increasing their knowledge and skills (Lewis, 1996). Nandan and Nandan (2012) stated that the purpose of professional development activities for faculty is to assist them with proficiently and effectively presenting their knowledge to their students.

Faculty development, a daunting task, was often assigned to administrative units called centers or adult educators, including professionals or senior faculty, to assist faculty with adapting to the changing educational environment. Patrick and Fletcher (1998) noted that faculty developers were best suited to assist faculty in transforming their previous notions regarding teaching and confronting any challenges they may face. In the case of online courses, instruction within an online environment presented a set of unique challenges and barriers. These challenges and barriers may be exacerbated when faculty lack the knowledge of instructional methods and technical skill sets necessary to resolve them. Professional developers need to provide activities that may assist faculty in developing the means to determine the best methods to address the challenges of instructing and learning within an online environment.

## **Professional Development for Online Faculty**

Online faculty must be comfortable with a variety of instructional methods to design online courses that will facilitate student learning (Simonson, Smaldino, Albright, & Zvacek, 2012). They must understand instructional and learning theories and be equipped with necessary technological skills. To help support faculty transition from a traditional classroom instruction to teaching in an online environment, professional developers have turned to a variety of resources for guidance. Such resources cover a range of topics including: concepts to be addressed within professional development; competencies and roles of faculty; standards to evaluate the design of the online course; workshops and certification programs; best practices for training faculty (Shelton & Saltsman, 2014); and preparedness of the university or college to administer online programs (Middle States Commission on Higher Education, 2013).

With limited resources and time, professional developers must be selective when planning professional development programs for online faculty. Identifying appropriate frameworks for faculty necessitates the development of an adult learning program suitable for all levels of expertise and experiences. Knowles, Holton, and Swanson (1998) stated that this approach was especially important because online faculty needed the training to meet their varied abilities and different learning preferences when it comes to professional development. These variations require a delicate scaffolding approach that incorporates key principles of both pedagogical and andragogical models. Pedagogical principles are useful for supporting the novice adult learner being exposed to relatively new topics. In the case of online faculty, the new topic may in fact be the application of instructional theories and methods to support learners. Andragogical principles take into

consideration that faculty are adult learners who want their educational experience to be “more relevant to their personal lives and professional goals... [and] want to know what value has been added to their lives as a direct result of their educational experiences... [as well as] demand to be involved rather than passive recipients of factual knowledge” (Brancato, 2003, p. 60).

Herman (2012) suggested that faculty should have the opportunity to identify and participate in their desired format of professional development activities. The preferred methods of professional development by faculty include individual consultation, online self-paced resources, peer-to-peer learning, mentoring, one-hour face-to-face workshops, online workshops, informal assistance and events, books or videotapes (Herman, 2012; Lowenthal et al., 2013; Taylor & McQuiggan, 2008). However, simply offering these professional development options does not guarantee that faculty will change the instructional methods and practices. Cranton (1996) found that activities such as workshops, training sessions, retreats, evaluations, and performance appraisals showed little evidence of having a meaningful impact on faculty instructional practices. Regardless of the format by which the professional development takes place, for these activities to be effective, they must incorporate the identified roles and competencies needed by online faculty to successfully develop and facilitate their online course.

### **Faculty Roles and Competencies**

The research literature, best practice guidelines, and matrices available on the topic of online instruction (a) identified the competencies and assigned roles that online faculty must adopt (Bawane & Spector, 2009; Paulsen, 1995; Varvel, 2007); (b) suggested the types of content to be created and the placement of content within the

course site (Shelton & Saltsman, 2014); and (c) determined the technologies to be used to facilitate student centered learning (Bates, 2005; Berge & Collins, 1995). Al-Salman (2011) noted that “the physical characteristics, technological requirements, and social implications associated with this modality of learning make it imperative that instructors who partake in e-learning initiatives occupy new roles” (p. 6). The literature categorized the main roles assigned to online faculty as pedagogical, social (Al-Salman, 2011; Baran, Correia, & Thompson, 2011), instructional designer (Al-Salman, 2011; Aragon & Johnson, 2002; Baran, Correia, & Thompson, 2011; Goodyear et al., 2001), managerial, technologist, advisor/counselor, researcher (Al-Salman, 2011; Baran, Correia, & Thompson, 2011; Goodyear et al., 2001), evaluator (Al-Salman, 2011; Aragon & Johnson, 2002; Goodyear et al., 2001), administrator (Al-Salman, 2011; Goodyear et al., 2001), and facilitator (Al-Salman, 2011; Aragon & Johnson, 2002; Baran, Correia, & Thompson, 2011; Goodyear et al., 2001).

According to Bawane and Spector (2009), the necessary competencies associated with these roles are content and pedagogy; collaboration and networking; social issues; and technical issues. Kabilan (2004) also identified motivation; skills, knowledge, and ideas; self-directed learning; interactive competence; and computer technology awareness and skills as the required competencies of online faculty. Though the names associated with these roles may change, Peters (1983) stated that distance education creates a shift in responsibilities that allows the instructor to address the more demanding roles of motivation, individual support, establishing relationships, identifying issues, and making course content available to students.

### **Limitations of Current Professional Development Efforts**

Al-Salman (2011) noted that academic institutions should not assume that faculty had completed training in the areas of design and delivery of online courses, and institutions should be prepared to provide a comprehensive professional development program. Institutions should support faculty development of the required skills and competencies needed through an infrastructure that would deliver the primary types of support, including proper training (Al-Salman, 2011). Additionally, the support should comprise of access to specialists such as instructional designers, librarians, graphic designers, multimedia specialists, change agents, and editors (Al-Salman, 2011; Aragon & Johnson, 2002).

Though the literature identified the skills and roles assigned to the instructor, it rarely provided guidance on how to help faculty address the conceptual shifts in their views and beliefs, which were necessary to make the adjustments while transitioning to teaching in an online environment. In fact, many existing professional development programs leaned towards teaching technical skills rather than how to instruct within the online environment (Howell, Saba, Lindsay, & Williams, 2004). Researchers warned against focusing heavily on the technologies (Ascough, 2002; Purdy & Wright, 1992; Taylor & McQuiggan, 2008), and Cranton and King (2003) advised that this approach to professional development for online faculty would inevitably fail to meet their needs. Though the development of technical skills is a necessary competency for online faculty, the focus on the development of skills fails to address faculty beliefs, which could influence their adoption of the technologies. Baran, Correia, and Thompson (2011) added that as a result of professional development focusing on technology and not pedagogy,

faculty tended to execute traditional face-to-face instructional practices within online courses. Instruction occurring within the online environment requires the execution of instructional practices that will address the unique online learning environment.

Professional development must address the concerns regarding instructing within the online environment to ensure in their ability to implement the appropriate instructional practices, as well as adopt the necessary technologies. This tendency occurred even though they were more concerned about the design and development of their online courses than with developing technical skills (Taylor & McQuiggan, 2008).

In their survey, Allen and Seaman (2012) found some disparity between faculty satisfaction with the technology training being offered. Allen and Seaman (2012) found that 62.5% of faculty were satisfied with the learning management training offered, while 22.2 % of faculty disagreed, and an additional 16.2 % strongly disagreed that their institutions provided excellent training on lecture-capture technologies. Purdy and Wright (1992) warned faculty developers to acknowledge that it is not the technology used to support distance education “but rather [the] fundamental changes in teaching style, technique, and motivation [that] must take place” in order for instruction within an online course to function successfully (p. 4).

Howell et al. (2004) stated that for professional development to do more than address the development of technical competencies, it must address faculty and their personal beliefs, perceptions, and reaction towards instructing within the online environment. It is possible for the personal beliefs of faculty to become barriers, which may prevent them from seeing the validity of online courses and thus reject the concepts covered through professional development activities.

## **Faculty Beliefs and Their Impact on Instructional Practices**

Postsecondary faculty are hired for their expertise, and their academic credentials can range from an associate to a doctoral degree. The educational requirements for faculty positions are determined by the subject matter taught and the hiring institution (U.S. Bureau of Labor Statistics, 2014). Schneider and Zalesny (1982) described persons attracted to a career within academia as “mature individuals with strong self-actualization/growth/achievement needs, for whom work is as natural as play, and who enjoy a challenge and taking a moderate risk” (p. 6). The focus of faculty during their tenure at a university will be on their instructional responsibilities, research interests, or a combination of both (Schneider & Zalesny, 1982). The intellectual environment in which they are engaged will influence their focus as well. The intellectual environment or conceptual ecology includes the cultural beliefs, language, accepted theories, as well as observed facts and events that favor the development of some concepts and inhibits the development of others (Hewson & A'Beckett Hewson, 1984). It should be noted that the participation of faculty within a conceptual ecology does not mean they will not have alternative conceptions that conflict with the accepted view of the ecology, and this conflict may inhibit their ability to accept the proposed concepts (Hewson & A'Beckett Hewson, 1984).

**Faculty beliefs and instructional methods.** Institutions offer professional development via formal workshops, mentoring, online modules, and individual assistance (Herman, 2012). These activities were intended to assist faculty with developing in areas such as pedagogy, technology, and research. Providing such a service to faculty requires that professional developers acknowledge the beliefs of faculty regarding learning and

instructing (Kember, 1997). Professional developers should also identify the appropriate methods to encourage faculty to accept concepts or guidelines proposed by governing organizations for instructing within the online environment. According to Kember (1997), faculty beliefs influence their instructional practices; but improvements in the quality of their instructional practices will occur through changes in those beliefs.

Beliefs are “held understandings, premises, or propositions about the world that are felt to be true” (Richardson, 2003, p. 2). Richardson (2003) added that “beliefs are propositions that are accepted as true by the individual holding the belief, but they do not require epistemic warrant” (p. 3). Evaluating faculty members’ beliefs regarding teaching and learning can be difficult as the beliefs are often static, complex, and even conflicting (Hora, 2014; Mansour, 2008). Additionally, it is sometimes difficult to make a direct connection between the faculty’s beliefs and their instructional practices (Bingimlas & Hanrahan, 2010; Hora, 2014; Kagan, 2010).

According to Samuelowicz and Bain (2001), faculty beliefs regarding how to facilitate learning impact their preferred approach to instruction and is categorized as either teacher centered, or student centered. The teacher-centered approach emphasizes the presentation of instructional content by the knowledgeable expert to the novice students, who act as passive recipients in the learning environment (Kember, 1997; Mansour, 2008). According to Khalid and Azeem (2012), this method of instruction is common within the university setting. In contrast, the student-centered approach focuses on the learner’s experience with the faculty acting as facilitator. This approach promotes the substitution of lectures with self-paced or cooperative active learning activities, where students are responsible for their learning experience (Felder & Brent, 1996).

Faculty beliefs concerning what constitutes the acts of teaching and learning influences their preferred instructional and student assessment methods (Cain, 2012). The adopted instructional methods may include behaviorist or constructivist practices. Faculty who adopt a behaviorist approach to instruction believe that students are unfamiliar with the content presented. They believe the responsibility lies with the instructor to provide experiences that will lead to behavioral changes by the learners. Faculty can then assess students by observing their change or acquisition of new behaviors. In contrast, faculty who adopt the constructivist approach to instruction believe that learning is an active and individual process for the learner (Richardson, 1997). Additionally, the instructional activities support the gain of new knowledge or comprehension of the introduced content using existing experiences (Richardson, 1997). Faculty can then assess the students by reviewing the results of the students' learning experiences, which could come in the form of a research project or case study. The beliefs of faculty also influence their expectations of how students are to learn, what students are to learn, how students are to demonstrate mastery of content, as well as the appropriate learning activities to support this process (Mansour, 2008). Lastly, faculty beliefs may impact the instructional tools they are willing to adopt and implement within their courses (Abdelraheem, 2004). Ultimately, the beliefs of faculty play a critical role in how faculty approach the development of their curriculum and the instructional practices they choose to implement (Kuzborska, 2011).

According to Cain (2012), the "early experiences within [their] family, religious background, and significant teachers" influences their beliefs regarding what constitutes good instruction (p. 101). Faculty early learning experiences as students and their experiences gained within the classroom as professionals also influence their beliefs

(Cain, 2012; Richardson, 2003). Faculty often model the instructional practices of their face-to-face instructors, however few faculty have had an opportunity to observe an online instructor to learn and perhaps adopt their practices (McQuiggan, 2012).

**Faculty beliefs and adoption of online courses.** It is critical for higher education academic leaders interested in establishing just as much credence for online courses as campus-based courses or programs to understand the impact that beliefs have on the adopted instructional practices of faculty (Saad et al., 2013). Faculty are adult learners who require professional development programs that recognize their unique characteristics (Aragon & Johnson, 2002; Lawler & King, 2000; McQuiggan, 2012) and provide activities that address their conceptual beliefs regarding their “participation and involvement in distance education” (Howell et al., 2004, p. 36). It is difficult to achieve this goal without first understanding faculty perceptions of teaching and learning within the online environment. Failure to acknowledge faculty prior experience could hinder their adoption of newly introduced ideas and practices (Kuzborska, 2011). Furthermore, in order for faculty to reconceptualize their beliefs regarding teaching and learning, they must be informed of alternative instructional theories and practices and have time to evaluate the new ideas and their current beliefs. To support faculty in the modification of their beliefs and behaviors and acceptance of new concepts, they should be encouraged to reflect on their beliefs and behaviors. Cain (2012) stated that providing opportunities for learners to reflect on their beliefs and interact with others was a necessary part of the reflection process.

Wilson (2001) found that some faculty believed online courses to be inferior to that of face-to-face instruction. Saad et al. (2013) also noted that some stakeholders have

negative opinions concerning the validity of online education. Regarding online courses, they tend to believe that in comparison with the face-to-face classroom, testing and grading are less rigorous, faculty are ill prepared, and employers do not value them. For some faculty, their beliefs' regarding teaching and learning creates barriers when adopting online courses.

In addition to the barriers affecting the perceived validity of online instruction, the lack of formal training in curriculum and instructional development can influence faculty successful adoption of online courses (Howell et al., 2004). This lack of formal instruction in pedagogy, instructional methods, and learning theories has become an impediment for most faculty when “attempting to teach online or see the value” of online instruction (Fish & Gill, 2009, p. 7). Professional development activities must identify and acknowledge the beliefs of faculty if it is to cause change within the “deep structure of knowledge and beliefs” held by the faculty participants (Richardson, 1996, p. 106).

Many factors can influence faculty acceptance of online courses and the proposed strategies used to support the instruction and learning process within the online environment. The conceptual ecology or the professional environment in which faculty are active participants influences their adopted strategies. By embedding oneself in a specified profession or field, faculty will adopt particular theories, beliefs, information, language, and norms, all of which impact the acceptance and rejection of certain concepts (Hewson & A'Becett Hewson, 1984). According to Kuzborska (2011), in order for faculty to re-conceptualize their beliefs concerning teaching and learning, they must first learn alternative instructional theories and practices, as well as have an allocated amount of time to evaluate the new ideas and their current beliefs. Brancato (2003) added that

change within higher education institutions requires that faculty “transform their roles and responsibilities in order to enhance their teaching and student learning” (p. 64).

University professional development centers and personnel should support faculty by informing them of these alternatives and supporting their explorations of them (Jones et al., 2002).

Aragon and Johnson (2002) recommend that faculty developers take steps to address faculty concerns early in the process and provide opportunities for them to enhance their existing competencies. It is critical at this juncture for faculty to review their unchallenged beliefs and their accepted norms regarding teaching (McQuiggan, 2012). King (2004) added that “when learners engage in opportunities to reflect on the meaning of what they are learning, they may engage in evaluating their familiar values, beliefs, and assumptions...It is within this experience of developing new understanding and experiencing shifts” (p. 155), that these barriers can be addressed.

This conceptual ecology influences the professional identity that faculty adopt and guides their action, as well as decisions regarding instructional practices. Tension can arise during efforts to influence changes to the adopted instructional practices that are counter to those considered to be the accepted norms within the faculty’s intellectual environment. It is the conceptual ecology and its accepted norms for instructional and learning practices that can influence faculty acceptance of alternative concepts.

Professional developers responsible for supporting online faculty can strategically address the above concerns by incorporating the theory of conceptual change into their programs and activities.

## **Conceptual Change Theory**

Implementing the conceptual change process requires both a definition and an explanation of the extent to which change will occur. Posner, Strike, Hewson, and Gertzog (1982), as well as Strike and Posner (1992) developed the foundations for many of the existing definitions and research on conceptual change (Hewson & A'Beckett Hewson, 1984; Jonassen & Easter, 2012; She, 2004). She (2004) stated that the work of Posner et al. (1982) provided a framework for the development of “different views, theories, and strategies to facilitate the understanding of scientific concepts and bring about conceptual change” (p. 144). This framework has found its way into the study of professional development for K-12 teachers (Sadara & Hargrave, (2005); Trundle, Atwood, & Christopher, 2007), K-12 students (Uzuntiryaki & Geban, 2005), and university faculty (Bailey & Nagamine, 2012; Ho, Watkins, & Kelly, 2001; McHenry, Castaldo, & Ziegenfus, 2009).

Posner et al. (1982) described conceptual change as the process by which learners relying on their existing knowledge, via their conceptual ecology, either assimilate or accommodate newly introduced concepts. Assimilation refers to “the use of existing concepts to deal with new phenomena” and accommodation involves “replacing or reorganizing the learner’s central conceptions” (Posner et al., 1982, p. 214). Posner et al. (1982) concentrated mostly on the accommodation process. Accommodation for learners “particularly for the novice, is best thought of as a gradual adjustment in one’s conception, each new adjustment laying the groundwork for further adjustments...the end result is a substantial reorganization or change of one’s central concepts” (Posner et al., 1982, p. 223). Jonassen and Easter (2012) added that conceptual change can also be

considered as the process that learners experience when reorganizing their cognitive structure. This allows for the incorporation of new knowledge into their existing schemas, which denotes learners' existing conceptual frameworks (Nussbaum & Novick, 1982). Additionally, the conceptual change process occurs when "learners change their understanding of the concepts they use and the conceptual frameworks that encompass them" (Jonassen & Easter, 2012, p. 95). Smith, diSessa, and Roschelle (1994) finalized this definition by stating that conceptual change is the process of refining knowledge by replacing misconceptions.

According to Posner et al. (1982) the change process consists of (a) the learner being dissatisfied with his or her existing conceptions; (b) the new conception being considered intelligible; (c) the new conception appearing to be plausible; and (d) the new concept suggesting the possibility of fruitful results. In order for the conceptual change process to occur, the learner must understand the concepts being introduced and be able to create a mental representation of them. Hewson and A'Beckett Hewson (1984) added that the learner must believe the concept has the potential to be true and reconcilable with one's present conceptions. Lastly, Hewson and A'Beckett Hewson (1984) stated that the new conception must resolve an existing problem or suggest new approaches and ideas.

Posner et al. (1982) stated that in order for the conceptual change process to begin, the learner must have a collection of unresolved issues or anomalies and have lost faith in the ability of their current conceptions to address their problems. Strike and Posner (1992) later modified their original theory of conceptual change, and added that their suggested steps for conceptual change should not be seen as an executable list. Strike and Posner (1992) stated that it can not be assumed that learners have actually

developed or articulated misconceptions and that misconceptions may be generated as a result of instruction. They also stated it is more important to understand the cause of the misconception than the characteristics of the misconception. Strike and Posner (1992) added that in order for this to occur the instructor must “discover the features of a student’s conceptual ecology, find the trouble point, and introduce into the student’s experience something that is appropriate” (p. 159).

Jonassen and Easter (2012) defined conceptual change as being either evolutionary or radical. This demarcation refers to the pace by which learners will experience the conceptual change process. Learners undergoing evolutionary conceptual change are experiencing a more “gradual and slow process of change” (Jonassen & Easter, 2012, p. 96). The radical conceptual change process occurs when the learner “encounters major anomalies that cannot be explained by current theories” and this shift occurs quickly and in a radical way (Jonassen & Easter, 2012, p. 98). A survey of the literature shows that studies fall under the categories of evolutionary (Smith et al, 1994; Vosniadou, 1994), radical (Chi, Slotta, & de Leeuw, 1994; She, 2004), or a combination of both (Posner et al., 1982; Strike & Posner, 1992). It should be noted that if the learner does not experience a radical change it may be necessary for the learner to experience additional exposure to the concept. This strategy could include diverse learning experiences and lead to an evolutionary conceptual change (Jonassen & Easter, 2012).

Jonassen and Easter (2012) identified the model of conceptual change by Posner et al. (1982) as an example of how to support both radical and evolutionary change. This ability to support either a quick or gradual change in learners’ conceptions promotes the

theory of Posner et al. (1982) as the best framework for inducing conceptual change into the construction of professional development activities targeting online faculty.

### **Instructional Models and Strategies to Promote Conceptual Change**

To support the conceptual change process, professional development activities should be initiated to support radical and evolutionary shifts in the conceptions of faculty.

Table 1

#### *Conceptual Change Theoretical Models*

Researcher	Subject	Theoretical Models
Hewson & A'Beckett Hewson (1984)	Epistemological Model of Learning	Use of the diagnosis, integraton, differentiation and exchange instructional strategies
Strike & Posner (1992)	Revisionist Conceptual Change Theory	Focus not only on the cognitive, but also consider the impact that motives, goals and social sources have on the conceptual ecology
Jonassen & Easter (2012)	Intentional Conceptual Change Environments	Simulations, models and dialectical argumentation

The conceptual change literature provided theoretical models (see Table 1 for a summary of those models) by researchers whose work builds upon Posner et al. (1982) including Hewson and A'Beckett Hewson (1984), Strike and Posner (1992), and Jonassen and Easter (2012). Strike and Posner's (1992) revisionist theory of conceptual change addressed the need to focus not only on the cognitive, but also to consider the impact that "motives and goals and the institutional and social sources" have on a learner's conceptual ecology (p. 148). Strike and Posner (1992) added that research is needed to further describe the conceptual ecologies learners participate in, appreciate the interaction between the conceptual ecologies and instruction, and develop instructional strategies

that productively interact with the current conceptual beliefs of learners. Their revisionist conceptual change theory provided no guidance on which instructional strategies instructors can implement to support the conceptual change process of learners (Song & Hill, 2007). Within their revision, Strike and Posner (1992) proposed a line of inquiry needed to bridge the gap between conceptual change research in the classroom environment.

Hewson and Hewson (1984) proposed the use of diagnosis, integration, differentiation and exchange instructional strategies in order to enhance learners' "acquisition of desired conceptions and elimination of alternative conceptions" (p. 11). When implementing the diagnosis approach, faculty are taking into account learners' existing knowledge. Integration entails creating opportunities for learners to merge their existing conceptions regarding a topic with new conceptions. Differentiation strategy involves the learner dissecting an existing conception into "more clearly defined conceptions" (Hewson & A'Beckett Hewson, 1984, p. 10). The exchange strategy is intended to create conceptual conflict between the learner's concepts and then attempt to resolve the conflict. Though Hewson and Hewson (1984) contributed a list of general teaching strategies, their work did not generate a prescribed list of actions faculty were to execute in order to prompt the conceptual change process.

Jonassen and Easter (2012) stated that "any form of instruction may result in conceptual change, as long as the learners have constructed some conceptual structure and wish to test or apply their conceptual model" (p. 110). To support the conceptual change process, they proposed the use of simulations and modeling, as well as argumentation in order to create intentional conceptual change environments. The

simulations were built on models that represent the learners' own conceptualizations and personal representations of experienced phenomena, which allows learners to be significantly engaged in the conceptual process. Lastly, Jonassen and Easter (2012) proposed the use of dialectical argumentation via "dialogue between proponents of alternative claims during a dialogue game or a discussion" (p. 108).

Administering the necessary professional development activities requires the strategic use of an instructional design framework that supports the conceptual change process. When determining the optimal instructional strategy, Scott, Asoko, and Driver (1991) stated four factors that should be considered: (a) learner's prior conceptions and attitudes; (b) desired learning outcomes and assessment of those outcomes; (c) intellectual demands on the learner for conceptual change to occur; and (d) possible strategies that can assist with supporting the change process. Three instructional strategies (see Table 2) address the requirements listed by Scott et al. (1991). The instructional strategies of Nussbaum and Novick (1982), Cosgrove and Osborne (1985), and Nussbaum and Sinatra (2003) had the potential to promote and support the conceptual change process and the work.

Table 2

*Conceptual Change Instructional Strategies*

Researcher	Topic	Instructional Strategies
Nussbaum and Sinatra (2003)	Argumentation	Involves constructing a rationale for a particular outcome, refuting opposing arguments, and weighing competing considerations
Cosgrove & Osborne (1985)	Generative Learning Model	Preliminary, focus, challenge, and application phases
Nussbaum and Novick (1982)	Conceptual Conflict	Exposing event and discrepant event Search for a solution and encourage emerging accommodation

According to Limon (2001) there are three kinds of instructional strategies that can summarize many of the instructional efforts made to promote conceptual change: (a) the induction of cognitive conflict through anomalous data; (b) the use of analogies to guide students' change; and (c) cooperative and shared learning to promote collective discussion of ideas. Limon (2001) added that “most of the models proposed to explain conceptual change have emphasised the role of cognitive conflict as a central condition for conceptual change” (p. 359).

The first conceptual change instructional strategy discussed in Table 2 is Nussbaum and Sinatra's (2003) use of argumentation. They proposed argumentation to support conceptual change because it requires an individual to consider both sides of the issue, explain anomalies within the existing conception, and confront the discrepancies between the conceptions in the alternative. Nussbaum and Sinatra (2003) concluded that argumentation should be a part of the repertoire intended to support conceptual change.

The next instructional strategy listed is Cosgrove and Osborne's (1985) generative learning model (GLM). GLM is intended to ensure that learners are not passive, but rather, active participants in the "learning process, working to construct meaningful understanding of information, found in the environment" (Grabowski, 2008, p. 720). Generative learning is defined as the "process of constructing meaning through generating relationships and associations between stimuli and existing knowledge, beliefs and experiences" (Hanke, 2012, p. 1356). The GLM consists of preliminary, focus, challenge, and application phases (Chamberlain & Crane, 2009). During the preliminary phase, the instructor executes activities that will provide information regarding the existing conceptions held by the learners. The focus phase involves the instructor presenting the learners' context through active learning experiences. During the challenge phase, learners validate their views, discuss alternative views, and compare ideas and evidence with other learners. In the application phase, learners resolve problems by applying the concepts and continuing to participate in dialogue. Kyle, Abell, and Shymansky (1989) stated that GLM promotes a learning environment that engages students in an active search and acquisition of new knowledge, resulting in the modification of their existing cognitive structures.

Lastly, Nussbaum and Novick's (1982) conceptual conflict instructional strategy involves the cognitive accommodation of an initially held alternative framework and consists of "three phases: (1) exposing alternative frameworks, (2) creating conceptual conflict, (3) encouraging cognitive accommodation" (p. 183). Nussbaum and Novick's (1982) conceptual conflict strategy was selected because the guidelines provided a practical list of requirements for learning activities intended to support Posner et al.

(1982) conceptual change process. The guidelines support learners with identifying their areas of dissatisfaction, reflecting on new intelligible conceptions, identifying the plausibility of the new conceptions, and reflecting on the possibility of the new conceptions producing their desired results. Nussbaum and Novick's (1982) strategy outlines the requirements for instructional activities that will afford learners the opportunity to reflect on their preconceptions, define conflicts amongst their preconceptions, and identify plausible solutions. The strategy outlined that in order for the conceptual change process to occur, learners must participate in self-reflection and peer interaction exercises. The guidelines also specified that the facilitator of the learning activity should assist the learner to clearly and concisely invoke their preconceptions and the reflection process as well as clearly stating their ideas. Using the strategies described in the guidelines the researcher was able to identify and incorporate within the module learning activities that would support the conceptual change process. Using the conceptual conflict framework provided by Nussbaum and Novick (1982), the researcher included self-reflection and peer interaction exercises into the *What's on Your Mind?* instructional module for online faculty.

### **Applying the Conceptual Conflict Instructional Strategy**

The accommodation process can not be easily planned, monitored, or even assured (Nussbaum & Novick, 1982). In fact, the process faculty must complete when altering their instructional practices can be both a painful and tricky endeavor for them (Brownell & Tanner, 2012; Rusanen & Poyhonen, 2013). Nussbaum and Novick's (1982) conceptual conflict instructional strategy provides a framework for designing and sequencing of learning activities that support the accommodation process through the

creation of cognitive conflict. The conceptual conflict strategy was introduced “in order to arouse motivation and attention and to create the need for accommodation” (Nussbaum & Novick, 1982, p. 186).

The Nussbaum and Novick (1982) conceptual change instructional strategy was selected and implemented within the study because it provided a lens through which faculty could determine the best solutions to address their identified barriers or misconceptions. This process was necessary because the identified barriers or misconceptions could hinder faculty from adopting conceptions that could result in a successful learning experience for their online students. Nussbaum and Novick’s (1982) instructional strategy supports the learner through the conceptual change process by exposing an alternative framework, creating conceptual conflict, and encouraging cognitive accommodation. The execution of the Nussbaum and Novick (1982) guidelines encompasses the following activities:

1. (a) Create an "exposing event" which requires students to invoke their preconceptions in order to interpret it.
- (b) Encourage students to describe their preconceptions verbally and pictorially.
- (c) Assist students in stating their ideas clearly and concisely, thereby making them aware of the elements in their own "alternative frameworks" (preconceptions).
- (d). Encourage confrontation in which students debate the pros and cons of their different preconceptions and increase their awareness and understanding of the differences between their own "frameworks"

2. Create a "discrepant event," one which creates conflict between exposed preconceptions and some observed phenomenon which they cannot explain.
3. Support students' search for a solution and encourage emerging accommodation.

Nussbaum and Novick's (1982) instructional strategy starts with an exposing event, which "is a phenomenon carefully selected for its ability to evoke [learners] preconceptions in order to understand it... [and] should naturally invite a [learner] to explain it in terms of [their] own preconceptions" (p. 187). For the study, faculty considered their preconceptions about the act of teaching by an instructor and learning by a student. During the exposing event, faculty reflected on their personal and professional conceptions regarding the process of instructing and learning. Faculty then visually represented their preconceptions through the creation of a concept map. Using concept maps learners can "discover[ed] what elements fit together in order to represent a phenomenon or a theory of it...[and] construct[ed] a mental model of the phenomena and use that model as the basis for prediction, inference, speculation, or experimentation" (Jonassen & Easter, 2012, p. 105). The study focus was on teaching and learning within the online environment. To further explore the pros and cons of their conceptual maps, faculty participated in either small or whole group discussions. This activity was intended to provide clarity and an opportunity for learners to begin to consider revising their original conceptions (Orey, 2012). In order to support the introduction of a discrepant event, faculty reviewed their conceptual maps and participated in interpersonal dialectic arguments to determine if their existing instructional practices and beliefs will become barriers when implementing them within the online environment. The argumentation and

the highest conceptual engagement of the faculty was necessary to facilitate the intentional conceptual change process (Jonassen & Easter, 2012).

The creation of a conceptual conflict ideally occur as a result of reflection and discussions taking place. Mcalpine and Weston (2000) stated that reflection is an essential mechanism to the process of making sense of experience and for developing one's knowledge ... and later having a richer source of knowledge to draw on during action" (p. 378). If, however, the conceptual change was not evident, the professional development facilitator could assist by introducing activities that would either explain the new concept or present anomalies that contradicted the learners' current conceptions (Orey, 2012).

### **Summary**

Gaff and Simpson (1994) stated that though progress to improve faculty development had occurred, "much more [needed] to be done to firmly entrench continuous learning and development into the lives of faculty members" (p. 175). Supporting change and growth through adult education and professional development requires incorporating strategies and diverse opportunities that would empower faculty (Lawler, 2003). Faculty as adult learners bring with them a wealth of experiences, and it is the responsibility of the professional development provider to "build upon these experiences for positive transfer of learning ... [this being said, these]...experiences can also be a barrier, because many of them have had poor and ineffectual learning experiences" (Lawler, 2003, p. 18).

While addressing the diverse needs of faculty, professional developers must also remain cognizant of the shifting characteristics of all stakeholders. In recent years, this

shift has included the increase in adoption and expansion of instruction via online courses. This growth resulted in the need for effective professional development activities that could assist faculty with adjusting their conceptual beliefs regarding instructional practices and theories as well as the integration of technologies into online courses. Addressing the conceptual beliefs of faculty who taught within the online environment was necessary because their preconceptions about the online environment could affect their successful adoption of online courses. According to Özdemir and Clark (2007), prior conceptions highly resistant to change could make it difficult for faculty to instruct within the online environment. Posner et al. (1982) shared that experiencing the completion of the conceptual change process could result in the modification or replacement of beliefs that are negatively affecting their transition to online instruction.

Creating a comprehensive professional development program that can foster conceptual change requires that faculty are provided an allotment of time to reflect on their current beliefs, unresolved issues or anomalies, and on the new concepts being presented. Additionally these professional development activities must foster conceptual change by helping faculty construct mental models that they can test, apply or debate (Jonassen & Easter, 2012). The Nussbaum and Novick (1982) conceptual conflict instructional strategy provided a framework for the accommodation process in supporting both evolutionary and radical conceptual change experiences for learners via opportunities for reflection, exposure to feasible solutions, and prompts to revise mental models.

### **Chapter III: Research Methodology**

The purpose of this qualitative multi-case study was to examine the impact of the conceptual conflict instructional activities on the participants' navigation through the conceptual change process. The researcher incorporated Nussbaum and Novick's (1982) conceptual conflict instructional strategy into the design of a professional development module to help faculty transition to teaching in an online environment. The conceptual conflict strategy provided guidelines on the use of instructional activities to support learners with identifying their preconceptions, misconceptions, and plausible solutions to address the misconceptions.

The purpose of this qualitative, multi-case study was to examine whether the intentional inclusion of conceptual conflict instructional activities within a professional development module, designed for online faculty, would result in their navigation through the different stages of the conceptual change process as described by Posner, Strike, Hewson, and Gertzog (1982). Specifically, the study explored whether participation in the module would result in participants (a) acknowledging their current conceptual beliefs, attitudes, and assumptions regarding teaching and learning within the online environment; (b) identifying areas of dissatisfaction within their conceptions; and (c) identifying plausible solutions to address their areas of dissatisfaction.

#### **Research Questions**

1. How did the conceptual conflict module assist participants in identifying/defining their attitudes, beliefs, and assumptions regarding teaching and learning within the online environment?

2. How did the conceptual conflict module help participants identify areas of dissatisfaction within their existing conceptions when assessing the transferability of their current instructional practices within an online environment?
3. How did the conceptual conflict module assist participants with identifying a plausible alternative concept to address their area of conflict?

### **Case Study Methodology**

This study used the qualitative multi-case study methodology to evaluate the impact of professional development activities inspired by the Nussbaum and Novack (1992) conceptual conflict instructional strategy to facilitate the conceptual change process of faculty instructing online courses. According to Yin (1994), the case study methodology is an appropriate evaluation tool when “a how or why question is being asked about a contemporary set of events over which the investigator has little or no control (p. 9)”. The research questions for this study were explanatory and intended to determine how the module assisted with the facilitation of the conceptual change process, which was in line with Yin’s rationale for a case study design.

A case study is an in-depth description and analysis of a bounded system (Merriam, 2009) and case study research allows for a “detailed inquiry into a bounded entity or unit (or entities) in which the researcher either examines a relevant issue or reveals phenomena through the process of examining the entity within its social and cultural context” (Putney, 2010, p. 115). The dissertation research fell under the case study design scope as described by Merriam (2009) and Putney (2010) where the bounded system evaluated for this study was the *What’s on Your Mind?* professional

development module completed by faculty at the studied institution. The module supported faculty with exploring their conceptions regarding teaching and learning within the online environment. Yin (2003) stated that "a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon in context are not clearly evident" (p. 13). The real-life phenomenon investigated in this research through the multi-case study was the participants' navigation through the conceptual change process while completing the professional development activities. The activities afforded participants an opportunity to articulate verbally and pictorially their beliefs, attitudes, and assumptions, as well as concerns, and plausible solutions to address the concerns.

Further, according to Cain (2012), qualitative case studies are appropriate for studies intending to gain a greater understanding of a teacher's beliefs and the instructional practices influenced by their beliefs. Brookhart and Freeman (1992) called for the increased use of case studies specifically to study faculty beliefs about teaching. McHenry, Martin, Castaldo, and Ziegenfuss (2009) added that case studies about conceptions regarding teaching and learning, as well as course design, can provide "faculty developers with a research-based case on which to design and develop professional development opportunities" (p. 260). To facilitate an in-depth evaluation of the conceptual change process experienced by faculty or teachers, many researchers (e.g. Cain, 2012; McHenry et al., 2009; Sadera 2001) have used the multi-case methodological approach. When speaking of collective cases, which are also referred to as multi-cases, Sadera (2001) stated that the use of multiple cases to gain an understanding of how instructors experienced conceptual change in the areas of teaching, learning, and

classroom technology could potentially assist in determining the best methods for incorporating conceptual change strategies into professional development activities for instructors. The purpose of this study was in line with the above-mentioned research studies in that the participant's conceptual change experiences were examined, and each participant's experience was considered as a case. For these stated reasons, the case study method was appropriate for this research inquiry.

### **Context of Study**

The setting for this research was a Master's comprehensive university located in the mid-Atlantic region in the United States. The institution consists of 64 undergraduate majors, 46 master's programs, and 4 doctoral programs. At the time of the study, the institution had about 20,000 undergraduate students, about 3,000 graduate students, and about 1660 tenured and non-tenure track faculty. The typical teaching load for instructional faculty at the studied institution is 7-8 course units each academic year.

At the studied institution, one department that is affiliated with the office of the provost takes the responsibilities for developing and facilitating professional development programs for the entire faculty at the institution. The professional development programs include individual consultations, self-paced learning modules, face-to-face workshops, faculty group discussions, fully online workshops, and a certification program for online faculty. The professional development office consists of one director, two instructional designers, one-course development support manager, one multimedia specialist, three student employees, and one administrative assistant. In order to diversify and extend the available professional development opportunities for faculty,

the office has procured external programs offered through Quality Matters (QM), Online Learning Consultation (OLC) and Magna Publications.

Quality Matters is a non-profit organization focused on the promotion and improvement of quality online education and student learning (About, 2016-18). QM developed a rubric (QM rubric) for online and blended course design standards. The studied institution has adopted the QM rubric and the professional development office is responsible for facilitating the Applying the Quality Matters Rubric (APPQMR) workshop. The APPQMR workshop is offered to all faculty; however, only selected faculty at the studied institution could complete the QM peer review certification program. The professional development office has also procured licenses for Online Learning Consortium (OLC) online asynchronous workshops. OLC is a non-profit organization consisting of community leaders and innovators in higher education who are committed to the advancement of quality digital teaching and learning experiences (Our History, 2018). OLC provides a range of services to members including best-practice publications, quality benchmarking for online courses, conferences, practitioner-based and empirical research, consultation services, and professional development opportunities for online learning practitioners. The asynchronous workshops topics focus on the administration and instruction of online courses. Faculty access to the OLC workshops is limited due to the small number of licenses (about 50 licenses) procured by the professional development office. The professional development office has also purchased programming from Magna Publications, which supports faculty and staff development through self-paced modules, newsletters, and conferences.

In supporting faculty professional development, the department responsible for providing professional development opportunities to faculty at the studied institution offers both consultation services by instructional designers and professional development activities. The professional development activities include website resources, external programming via Quality Matters (QM) and Online Learning Consortium (OLC) workshops, topical programming and events, and customized workshops. These activities were designed to support faculty regardless of the modality of instruction.

Regulatory requirements regarding the quality of distance education from accrediting organizations such as those provided within the Middle States Commission of Higher Education *Interregional Guidelines for the Evaluation of Distance Education* (Distance Learning Programs, 2011) have made it necessary to reevaluate and update professional development programs designed to support faculty using online and blended modalities of instruction. The responsible department routinely offers a workshop titled *Preparing Your Course for Online Delivery* to meet the regulatory requirements for online courses and to support online faculty with developing the necessary instructional design and technical skills. The researcher, a staff member of the department responsible for developing faculty professional development programs at the studied institution, facilitated the fully online workshop over a period of 21 days. The workshop resided within the Blackboard learning management system (LMS). The offering of the workshop was a strategic decision to afford faculty an opportunity to participate and complete activities within an authentic online learning experience. The workshop introduces online faculty to the process of instructing online courses and (re)designing instructional activities to support student-centered learning. Typically, faculty members

interact with each other and the workshop facilitator in asynchronous discussion forums. Faculty had access to best practice research literature, templates, and sample courses as they explored their new role as online facilitators. At the conclusion of the workshop, faculty members submitted a draft of their course plan and a submitted draft of a module for their online course to the workshop facilitator for feedback.

Faculty feedback capture from surveys administered at the conclusion of workshops offered prior to the study indicated that faculty who have completed the workshop believed that they had opportunities to engage in the process of designing, developing and implementing an online course. What was not evident within the feedback was whether the workshop afforded opportunities for faculty to address any conceptual conflicts or misconceptions they had regarding the instructional and learning processes within the online environment. Prior to this study, the workshop focused on the instructional design process and best practices for online courses. The failure to include opportunities to reflect on instructional design may have resulted from assumptions made by professional developers regarding the level of instructional preparation experienced by faculty prior to the beginning of their academic careers. As was stated in the previous chapter, academic institutions have an expectation that faculty “intuitively know how to design and deliver online courses” because of their knowledge and experience instructing within the face-to-face environment (Al-Salman, 2011, p. 11). Because of the limited knowledge some faculty have acquired on the topics of instructional methods and practices, Vosniadou (1994) stated that care must be taken not to institute “instructional programs that aim at enriching students’ [online faculty] experiential [practical] knowledge without making them aware of their naïve theory-building attempts, [because

they] fail to create the necessary metaconceptual awareness” (p. 67). Naïve knowledge “is highly resistant to change by conventional teaching strategies because of its entrenchment in everyday experiences” (Ozdemir & Clark, 2007, pp. 352-353).

Professional development for online faculty necessitates not only the inclusion of rote activities and discussions regarding technologies but also opportunities for reflection on beliefs regarding instruction and learning. The programs offered should encourage online faculty to explore the possibilities of reconceptualizing their current beliefs or instructional practices.

This study introduced the *What’s on Your Mind?* module into the workshop to provide an opportunity for online faculty to reflect on their current conceptual beliefs and potentially to make the necessary adjustments to those beliefs. Faculty completed the module before participating in the *Preparing Your Course for Online Delivery* workshop. Nussbaum and Novick's (1982) conceptual conflict guidelines directed the designing and sequencing of the learning activities within the module to support conceptual change. The module was designed to support the conceptual change process by providing opportunities for participants to explore and identify possible solutions to support the eventual resolution of their identified concerns and misconceptions. The module was intended to create cognitive conflict, which could result in the reconceptualizing of online faculty’s conceptual models. Jonassen, Strobel, and Gottdenker (2005) stated that "conceptual change is task dependent and requires... the use of a variety of tools for constructing the physical, visual, logical, or computational models of phenomena... [that] naturally engages and supports the construction and reorganization of mental models" (p. 19). For this reason, the module included intentional activities designed to support the

conceptual change process through self-reflection and peer interaction exercises. These activities included the development and redesign of a conceptual map, group discussions, journal submission, and exposure to new concepts from articles and discussions. After concluding the activities, faculty were asked to share their experiences via synchronous online meetings facilitated by the researcher. The researcher used the synchronous meeting tool WebEx to host the online meetings.

### **Design of What's on Your Mind Module?**

The *What's on Your Mind?* module was incorporated into the *Preparing Your Course for Online Delivery* workshop and was completed over the course of five days. The intention of the *What's on Your Mind?* module (see Appendix A for module syllabus) was to support faculty with addressing conceptual beliefs that could hinder their full acceptance and adoption of methodologies that support the learning and instructional experiences within online courses. In order to actualize the conceptual change theory and to support faculty with experiencing the conceptual change process, the *What's on Your Mind?* module incorporated Nussbaum and Novick's (1982) conceptual conflict instructional strategy. Nussbaum and Novick's (1982) instructional strategy builds upon the Posner et al. (1982) theory of conceptual change, which consists of (a) the learner being dissatisfied with his or her existing conceptions; (b) the new conception being considered intelligible; (c) the new conception appearing to be plausible, and (d) the new concept suggesting the possibility of fruitful results.

The execution of the Nussbaum and Novick (1982) instructional strategy encompasses the following guidelines (p. 188):

1. a) Create an "exposing event" which requires students to invoke their preconceptions in order to interpret it; b) Encourage students to describe their preconceptions verbally and pictorially; c) Assist students in stating their ideas clearly and concisely, thereby making them aware of the elements in their own "alternative frameworks" (preconceptions); and d) Encourage confrontation in which students debate the pros and cons of their different preconceptions and increase their awareness and understanding of the differences between their own "frameworks."
2. Create a "discrepant event," one, which creates conflict between exposed preconceptions, and some observed phenomenon which they cannot explain.
3. Support students' search for a solution and encourage emerging accommodation. Encourage students to articulate and elaborate on the desired conception when being proposed.

Nussbaum and Novick's (1982) instructional strategy was selected because it provided a lens by which faculty could determine the best solutions to address their identified barriers or misconceptions which would hinder the success of their online courses. The instructional strategy provided guidance on how to support learners in accomplishing Posner et al.'s (1982) conceptual change process. Guideline 1 (a-d) of Nussbaum and Novick's (1982) instructional strategy supports the learner with identifying and concisely articulating either verbally or visually their existing conceptions and then evaluating these conceptions by participating in in-depth discussions with colleagues. This task began with an exposing event which "is a phenomenon carefully selected for its ability to evoke [faculty] preconceptions to understand it...[and] should

naturally invite a [faculty] to explain it in terms of his [or her] own preconceptions” (Nussbaum and Novick, 1982, p. 187). For the study’s exposing event, faculty were to consider their preconceptions regarding the act of teaching by an instructor and learning by students within an online course. To support further faculty’s exposure to new conceptions that were intelligible, plausible and fruitful, they were asked to review their conceptual maps and participate in an interpersonal dialectic argument to determine if their existing instructional practices and beliefs could become barriers when implementing them within the online environment. The argumentation and the highest conceptual engagement of the faculty was required in order to facilitate the intentional conceptual change process (Jonassen & Easter, 2012).

Nussbaum and Novick’s (1982) Guideline 2 introduced a discrepant event that would further assist faculty with identifying conflicts within their conceptual beliefs and practices and new conceptions that will resolve the conflicts. The module’s discrepant event was intended to create conflict between the identified preconceptions and observed phenomenon, which was not easily explainable. In order to support the introduction of a discrepant event faculty engaged in the act of researching and reviewing resources to identify new conceptions that would address their areas of concern. Faculty participated in either small or whole group discussion to explore further the pros and cons of their conceptual map. The opportunity to discuss the map was intended to provide clarity or an opportunity for learners to consider the revision of their original conceptions (Orey, 2012). Nussbaum and Novick’s (1982) Guideline 3 further supported faculty identification of new conceptions to address their identified conceptual conflicts by

continuing the collaboration between the facilitator and faculty participants through synchronous discussions hosted via WebEx.

The module also incorporated the use of five technologies to support the participants as they completed the activities. The technologies faculty interacted with included MindMeister (concept mapping tool), Bubbl.us (concept mapping tool), Blackboard (learning management system), WebEx (synchronous online meeting tool), and Panopto (presentation/video capturing software). In addition to supporting the module activities, the incorporated technologies modeled for participants the use of instructional technologies to support self-reflection, peer interaction, community building, and communication within an online course.

Experts in the study of conceptual change within the learning environment validated the design of the module. In consultation with the experts, the researcher identified instructional activities that supported the conceptual change process. The experts reviewed and evaluated the module activities exercises, survey questions, and interview questions. The researcher incorporated the expert's recommendations into the design of the exercises, survey questions, and interview questions.

### **Description of the What's on Your Mind Module Activities**

The intention of the *What's on Your Mind?* module was to support faculty with defining their beliefs, assumptions, attitudes, as well as recognize their areas of cognitive conflict, which could result in the reconceptualization of their conceptual models. The module consisted of eight activities intended to support faculty with navigating the four stages of the conceptual change process. As shown in Table 3 the design of the activities within the studied module were influenced by Posner, Strike, Hewson, and Gertzog

(1982) conceptual change process and Nussbaum and Novick's (1982) conceptual conflict instructional strategy guidelines for supporting conceptual change. The module activities afforded faculty an opportunity to define their beliefs, attitudes, and assumptions regarding teaching and learning within the online environment.

Additionally, the activities assisted faculty with declaring their current misconceptions as well as identifying plausible solutions to address their concerns regarding learning and instruction within the online environment. The activities included the construction of conceptual maps, self-reflection, and group discussion.

Table 3

*What's on Your Mind? Module Activity*

Module Activity	Nussbaum and Novick (1982) Conceptual Conflict Instructional Strategy
Activity 1 - Overview and Introduction	Guidelines 1a -1c
Activity 2 - Concept Maps and Ideas	Guidelines 1a -1c
Activity 3a - Community Discussion	Guideline 1d
Activity 3b - Summary and Conflict Journal	Guideline 2
Activity 4a - What Does the Literature Say?	Guideline 2 and 3
Activity 4b - Updated Concept Map	Guidelines 1b and 3
Activity 5 - Wrap-up Meeting (Group and Individual)	Guidelines 1b -1d and 3

**Activity 1 - Overview and Introduction.** In order to support participants with beginning the process of navigating through the conceptual change process, participants completed the introduction discussion forum (Activity1). Nussbaum and Novick's (1982)

guidelines 1a -1c of instructional strategy were incorporated into the introduction activity. This activity assisted faculty with becoming aware of their preconceptions and assisting them with either verbally or visually describing their preconceptions. These module activities were intended to support the first requirement for conceptual change, which included the establishment of dissatisfaction with conceptual beliefs (Posner et al., 1982). This activity was intended to assist faculty with identifying their current conceptual beliefs, attitudes, and assumptions, which could contribute to their dissatisfaction with instructing an online course. The goal of this activity was to prompt faculty to begin to reflect on and interpret their preconceptions regarding their interpretation of the process of instructing and learning within an online course.

This initial activity of the module required faculty to begin the reflection process by describing themselves and their preconceptions regarding teaching. Participants posted their reflective statement to the Blackboard discussion forum. Within their reflective statement, faculty shared information regarding their area of expertise, teaching experience, and ideal teaching experience within an online course. This activity assisted participants with beginning the process of declaring their beliefs, attitudes, and assumptions verbally in order to assist them with identifying dissatisfactions within their existing conceptions regarding teaching and learning within the online environment (Posner et al., 1982). The activity was an exposing event, which assisted participants with invoking their preconceptions in order to interpret them (Nussbaum & Novick, 1982).

**Activity 2 - Concept Maps and Ideas.** The second module activity required participants to create a concept map in order to support their continuous reflection on and declaring of their preconceptions regarding their teaching philosophy. The Nussbaum and

Novick's (1982) guidelines 1a -1c of instructional strategy inspired the inclusion of the concept map activity. The activity was intended to provide participants with an opportunity to describe their preconceptions visually. Faculty were instructed to reflect on the influence that their instructional practices have on their interactions with students, content, and the classroom environment within their face-to-face courses. Before designing their concept map, the participants were instructed to define the terms of instruction, learning, student roles, and instructor roles. The defining of the terms was intended to assist participants with verbally declaring their preconceptions.

Additionally, participants were asked to reflect individually on their individual beliefs regarding teaching and learning within the online environment and those accepted by the conceptual ecologies in which they participate. After completing the individual reflection process participants then pictorially represented their preconceptions within the design of their conceptual map. Using either the recommended concept mapping tools or tool of their choosing, participants visually illustrated their instructional processes and beliefs regarding the interactions between the concepts included within their maps. After developing their concept maps, participants were then instructed to post their concept maps and declare the preconceptions represented within their concept map by responding to three questions within their reflective post to the discussion forum. The faculty responded to the questions a). How can the concepts included within your concept map help produce the desired learning experience for your students and your ideal instructional experiences?; b). Did the experience of creating your concept map assist you with identifying opportunities to enhance your instructional practices?; and c). Do you believe that your adopted instructional practices will result in your successful instruction

of an online course? Why or Why not? The questions were intended to assist faculty with stating clearly and concisely the ideas represented within the design of their concept map and extracting from the map the inconsistencies within their current conceptions (Hand & Treagust, 1988).

**Activity 3a - Community Discussion.** The community discussion exercise encouraged module participants to discuss the pros and cons of their diverse preconceptions with their peers. The activity supported the first requirement of Posner et al.'s (1982) theory of conceptual change by supporting the learner with declaring dissatisfactions within their existing conceptions. Additionally, this activity supported guideline 1d of Nussbaum and Novick's (1982) instructional conflict strategy by affording participants' an opportunity to discuss the similarities and differences between their responses and those of their peers. Participants were instructed to review at least one of their colleague's concept map and reflective statement for Activity 2. After reviewing their colleague's submitted work, participants were instructed to respond to the submission noting the similarities and differences between their submissions within the Blackboard discussion forum.

**Activity 3b - Summary and Conflict Journal.** The summary and conflict journal activity supported participants with declaring their dissatisfaction with their existing conceptions. This activity supported Posner et al.'s (1982) second requirement of the conceptual change process as well as Nussbaum and Novick's (1982) guideline 2. In order to generate a conceptual conflict, Nussbaum and Novick's (1982) guideline 2 stated that it was necessary to create an exposing event, which prompted the faculty to reflect on their preconceptions.

While reflecting individually within the Blackboard journal, participants were instructed to declare at least one conceptual conflict that could influence their successful design and facilitation of an online course. Additionally, if they had identified plausible solutions to address their concern at that time of the activity, participants were also instructed to discuss them within their journal post. The journal was private which made it visible to only the participant and researcher. The process of declaring at least one conflict supported the creation of a discrepant event, which according to Nussbaum and Novick's (1982) creates a conflict between exposed preconceptions, and some observed phenomenon, which the learner could not explain.

**Activity 4a - What Does the Literature Say?** To support the second requirement of Posner et al.'s (1982) theory of conceptual change and Nussbaum and Novick's (1982) guidelines 2 and 3. Faculty were assigned the task of identifying a new intelligible solution to address the identified areas of dissatisfaction. In order to support faculty with further defining their conceptions, identifying plausible solutions, and encouraging accommodation, faculty reviewed research articles provided within the module. This process was to transpire through the participants' review of the best practice resources. The best practice literature and resources were accessible from the module Blackboard site and organized based on subject matter within the activity folder. The resources covered topics such as universal design for learners, student engagement and active learning, distance learning theory, as well as facilitator and student roles. Participants were instructed to select and review journal articles and resources relevant to their

declared conflicts. Additionally, they were encouraged to research further their selected topics by searching for additional external resources.

After reviewing the articles and resources of their choosing, participants were instructed to post their responses to the prompting questions within the discussion forum. The questions included a). While completing the reflection activities were you able to visually or textually define or identify your beliefs regarding the process of instructing and learning within the online environment? Describe how these exercises assist you with reflecting on your beliefs regarding teaching and learning within the online environment; b). While completing the reflection activities were you able to identify new instructional practices or ideas that you intend to further explore? If so, what are the new instructional practices or ideas? Do these ideas conflict with your current instructional practices or beliefs? If so, please explain; c). Do you plan to implement any of these ideas to resolve your identified areas of concern within your online course(s)? If so, please explain; and d). What preparations must you make to implement your ideas?

**Activity 4b – Updated Concept Map.** The revision of the concept map was intended to support guidelines 1b and 3 of the Nussbaum and Novick (1982) conceptual conflict instructional strategy. The activity afforded faculty a second opportunity to describe their preconceptions pictorially through the revision of the original concept map. Faculty were encouraged to elaborate and articulate their desired conceptions by reflecting on their original concept map, review of the best practice articles, and interaction with peers. After completing this reflection process, the participants were to reconsider the concepts and relationships depicted within the original map and if they desired to revise their original concept map. The modifications to the concept map were

intended to represent the shifts within their preconceptions visually. Participants were to post a brief statement explaining why they did or did not make modifications to their concept map.

**Activity 5 – WebEx Meetings.** The group and individual asynchronous online meetings facilitated through the use of WebEx were intended to follow guidelines 1b -1d and 3 of Nussbaum and Novick’s (1982) instructional strategy. The online meetings encapsulated the first steps identified by Posner et al.’s (1982) theory of conceptual change required to support shifts in learner’s conceptual beliefs. The meetings were to provide opportunities for participants to reflect on their preconceptions, areas of dissatisfaction, as well as plausible and fruitful solutions.

While participating in the online synchronous group meeting faculty conversed with their peers and the module facilitator. While dialoguing with their peer's faculty were prompted to discuss their conceptual maps, possible alterations to their maps, lessons learned, identified anomalies as well as feasible solutions. While participating in the individual meeting participants responded to the prompting questions posed by the module facilitator regarding their experiences completing the activities.

### **Research Procedures**

The studied institution’s Institutional Review Board approved the research study (Appendix B). Either before or upon enrolling in the module, faculty were informed that the module was part of a dissertation study. Faculty were asked to acknowledge their participation in the study by reviewing and completing the consent form, which was embedded within a Google form. Upon providing their consent, participants were then asked to complete the *What’s on Your Mind?* pre-module self-report survey (Appendix

C). The participants completed the study activities as described within the module over the course of five days. The researcher acted as a facilitator and engaged with the participants during this time. The researcher captured the data from the participants' responses to the module activities within the module Blackboard course site.

### **Sample Selection**

The study was conducted during the 2016 summer break at the studied institution. This study intended to assess the conceptual change process amongst faculty who either taught or were interested in teaching online courses. The participants taught at both the undergraduate and graduate levels. The study participants were selected from a group of faculty who voluntarily enrolled in either the module or the *Preparing Your Course for Online Delivery* workshop. The participants were identified based on their responses to the pre-module self-report survey administered (Appendix C) before the start of the workshop.

Purposeful sampling was implemented because it supported the selection and in-depth study of information-rich cases by which researchers could learn a great deal about issues and questions surrounding their study (Patton, 1990, p. 169). The purposive technique used in this study was the maximum variation selection technique. Putney (2010) stated that maximum variation selection involved identifying cases with the most variation. Additionally, maximum variation was used for this study because the possible sample size was limited to 20 participants. Maximum variation was also useful in ensuring the heterogeneity of the study participants. Patton (1990) stated the maximum variation could capitalize on heterogeneity because "any common patterns that emerge

from great variation are of particular interest and value in capturing the core experiences and central, shared aspects or impacts of a program" (p. 172).

As a result of reviewing the faculty responses to the pre-module self-report 21 question survey the researcher initially identified eight case participants. As a result of attrition and the inability to capture the necessary data only five cases were included in the study. Pseudonyms were used for participants' names to protect their identity and the pseudonyms for the five participants were: JA, JC, MF, AC, and DS . Case participants DS, JC, MF, and JA completed not only the module but the workshop as well. Basic demographic information about the case participants appears within the case participants survey responses table (Table 4). It should be noted that the table does not reflect the faculty responses to the 21 questions included within the pre-module self-report survey. After the study participants were identified, appropriate permissions were acquired using the required IRB documentation (see Appendix B).

To identify the case participants faculty who registered for the *Preparing Your Course for Online Delivery* workshop or who volunteered to participate in the module were asked to complete the pre-module self-report survey (see Appendix C). Initially, 14 faculty members enrolled in either the module or full workshop. Upon enrolling within the workshop, faculty were asked to complete the pre-module self-report survey with 21 questions. The researcher exported the survey results into a Microsoft Excel document to identify the variances within the faculty responses.

Table 4

*CASE Participants Survey Responses*

Survey Questions	MF	AC	JC	JA	DS
Academic Rank	Assistant Professor	Adjunct	Lecturer	Assistant Professor	Adjunct
Practitioner					
Instructor/Teacher	Yes	Yes	Yes	Yes	Yes
Researcher	Yes		Yes	Yes	
Online Learning Experience	Yes	Yes	Yes	Yes	Yes
Hybrid Online Teaching	Yes	No	No	No	No
Online Teaching PD before online teaching	Yes Yes	Yes	No	No	Yes
Plan to teach online before workshop			No	No	

The pre-module self-report survey consisted of 21 questions and was completed by faculty before the start of the module. Questions 1 through 11 of the pre-module survey were intended to capture demographic information about the faculty who registered for the module or workshop. The questions asked about faculty's name, email address, professional identify, academic rank, prior experience taking and teaching an online or a hybrid class, and prior experiences completing professional development activities regarding online instruction. The second set of survey questions used in this study, 12 through 21 were adopted from the Inside Higher Ed Survey of Faculty Attitudes on Technology survey instrument (2014). The survey questionnaire was developed to capture faculty's attitudes and perceptions regarding instructing online courses. The researcher incorporated ten questions from the Inside Higher Ed survey into the *What's on Your Mind?* pre-module survey (see Appendix C). The original survey questions used

either a five-point or three-point Likert scale. When incorporating the questions into the module survey, the researcher did not change the questions nor use the Likert scale but instead converted the scale response options into multiple choice question options. The questions asked faculty about their perceptions regarding quality of online instruction as compared to traditional face-to-face instruction.

To assist with the process of identifying the case participants the researcher reviewed all of the responses to the 21 questions. The process of identifying the case participants began with reviewing the responses submitted by four faculty identifying themselves as adjunct faculty. During the initial registration process, one of the adjunct faculty members withdrew from the workshop. Due to the similarities amongst the three remaining faculty in teaching experiences and influences on adopted instructional practices and the lack of responses by two of the faculty to questions regarding influences on instructional practices the researcher focused on the prior professional development experience and responses to questions regarding the quality of online versus face-to-face instruction. As a result of reviewing this data, the researcher determined that AC and DS demonstrate the most variance amongst the three adjunct faculty members. AC had no prior professional development experience in comparison to DS. Additionally, when responding to the statement regarding whether online courses could achieve learning outcomes that were at least equivalent to face-to-face courses, AC stated that she moderately agreed, while DS declared that she strongly agreed with this statement. Though AC shared similarities with the faculty member not selected for the study, such as they both had no formal teacher preparation before beginning their academic career, she exhibited the most variance in comparison to DS.

When assessing the variance amongst the faculty who identified as assistant professors, the researcher identified JA and NW as case participants. Due to similarities amongst the four faculty members, the research first focused on their responses regarding their experiences completing and teaching an online course. Due to the withdrawal of one participant, JA was identified as a case participant due to her lack of online teaching experience in comparison to the remaining faculty. When assessing the responses of the remaining two faculty, NW exhibited the most variance when compared to JA. Though NW was included initially as a case participant, she was not included in the study because she did not complete all of the required module activities.

When assessing the variance amongst the four faculty members who identified themselves as professors BS and TE were identified as case participants. TE exhibited similar characteristics to one of her peers but exhibited the most variance within her survey responses when compared to BS. Even though BS exhibited similar characteristics to the fourth faculty member, she was selected because the other faculty member did not provide sufficient detail regarding their experiences and beliefs. It should be noted that TE began the module but withdrew after completing the first activity. BS participated in the module, however, the researcher was unable to capture the required interview data required for the study. Although JC was the only faculty member to identify himself as a lecturer, the researcher reviewed his responses in order to determine the variance that exists amongst the selected participants. The researcher confirmed JC's participation within the study because he had no prior experience with teaching online courses, which was a similarity shared by only one other case participant.

## Data Collection

Previous studies on conceptual change have focused on preservice teachers (McHenry et al., 2009; Sadera, 2001; Trent, Pernell, Mungai, & Chimedza, 1998), student learners from both the K-12 and college environments (Amir & Tamir, 1995; Posner et al., 1982) and instructors (Bailey & Nagamine, 2012; McHenry et al., 2009; Tillema, 1994). Many of the studies documented with both pre- and post- data, the impact of professional development or instructional activities that occurred over the course of weeks or months. The methodologies used by the researchers to support their studies and to determine how best to capture data included qualitative (Bailey & Nagamine, 2012; Posner et al., 1982), quantitative (Amir & Tamir, 1995) and mixed methods (Hutchins, 2007; McHenry et al., 2009; Tillema, 1994; Trent et al., 1998). According to Schraw (2013), researchers used “one of six different measurement strategies for assessing epistemological and ontological beliefs and worldviews, including questionnaires, interviews, vignettes, essays, concept maps, and multidimensional scaling methods” (p. 3). In addition to using these strategies, researchers also used case studies to document their experiences, with most researchers using questionnaires and interviews to capture their data (Schraw, 2013). Levitt (2001) stated that to assess instructors’ beliefs, evidence including “belief statements (what a person says), intentions to behave in a certain manner (what a person plans to do), and behavior relative to the belief in question (what a person does)” must be captured and evaluated (p. 7).

This study data were captured from two primary sources including the *What’s on Your Mind?* module exercises and recorded interviews with study participants over the course of two weeks. Data captured from the module included the concept map(s),

discussion forums, journal, and transcription from the interviews hosted via WebEx. The reflective statements found within the discussion forums and journal were data sources that could indicate if the module participants experienced the conceptual change process as a result of completing the module. The concept map can be used to assess if the professional development efforts resulted in the faculty experiencing the conceptual change process (Trent et al., 1998). The concept map afforded faculty an opportunity to reflect visually on their attitudes, beliefs, and assumptions regarding their teaching philosophy (McQuiggan, 2012). The initial and altered concept maps assisted the researcher with identifying any shifts in beliefs that occurred during the completion of the module. Additionally, the reflective statements posted to the discussion forums and journal were assessed to identify signs that the conceptual change process occurred.

Individual interviews were conducted and transcribed to assist the researcher with determining if the participants experienced the conceptual change process because of their completion of the module (see Appendix D). Turner (2010) stated that interviews allowed researchers to capture “in-depth information pertaining to participants’ experiences and viewpoints” (p. 754). The interview questions assisted the faculty with verbalizing their experiences while completing the module activities. The interview questions also documented their experiences as they reorganized their cognitive structures to incorporate the new ideas presented via the activities. Throughout the literature, researchers (Bailey & Nagamine, 2012; Cain, 2012; Sadera, 2001) have used interviews as a tool to assist with documenting and evaluating the conceptual change process experienced by learners. The researcher recorded the interviews via the use of

WebEx Meeting Center and then transcribed the recordings. Within the written elements of the study, pseudonyms were used to preserve the confidentiality of the participants.

As illustrated in the research questions and data sources table (Table 5), the researcher used multiple data sources to address the three research study questions. The design of the module activities followed Nussbaum and Novick's (1982) strategies to facilitate the different stages of the conceptual change process. For example, the exposing event was meant to facilitate the participants in defining their existing conceptions regarding teaching and learning, and the summary and conflict journal were meant to help participants identify their concerns and plausible solutions regarding online teaching and learning. However, when analyzing the data, the researcher recognized that data captured in different activities throughout the module demonstrated participants' experiences in different stages of the conceptual change process. Though, not the initial intention, analysis of the data sources revealed that the participants' responses to the individual activities could address more than one of the research questions. As a result, the researcher used the responses captured from all of the activities as data sources to address the three research questions individually.

The researcher reviewed seven data sources when addressing the three research questions. Data captured from the participants' responses to the discussion forums, journal, and interview exercises revealed how participation within the module assisted them with identifying their attitudes, beliefs, and assumptions regarding teaching and learning within the online environment. Within their responses to the prompting questions and statements, the participants described their dissatisfactions regarding the transferability of their desired instructional practices in the online learning environment.

Upon reviewing the seven primary sources of data, the researcher was also able to address the third research question: How did the conceptual conflict module assist participants with identifying a plausible alternative concept to address their area of conflict?

Table 5

*Research Questions and Data Sources*

Module Activity & Data Course	Research Question 1	Research Question 2	Research Question 3
Pre-module Self Report Survey			
Activity 1 - Overview and Introduction (discussion forum)	X		
Activity 2- Concept Maps and Ideas (concept map & discussion forum)	X	X	
Activity 4 - Updated Concept Map (concept map & discussion forum)	X	X	
Activity 3 - Community Discussion (discussion forum)	X	X	
Activity 3 - Summary and Conflict Journal (journal)		X	X
Activity 4 - What Does the Literature Say? (discussion forum)	X	X	X
Activity 5 - Wrap-up Meeting (Group and Individual)		X	X

## **Data Analysis**

To generate a rich account of the conceptual change process experienced by the study participants, multiple data sources were captured to help triangulate the data. Those data sources included the concept maps, discussion forums, journal, and semi-structured interviews. Woodside (2010) stated that “triangulation included the (1) direct observation by the researcher within the environments of the case, (2) probing by asking case participants for explanations and interpretations of operational data, and (3) analyses of written documents and natural sites occurring in case environments” (p. 16).

According to Woodside’s (2010) requirements, the researcher was able to accomplish data triangulation. The researcher directly observed the participants self-reflection post and interaction with peers during the module. Additionally, she engaged with participants within the Blackboard discussion forums to clarify questions regarding their post.

Triangulation occurred through the capturing of data from multiple data sources. The data sources included the participants’ posts to the Blackboard discussion forum and journal, original and revised concept map, and responses to interview questions. During the individual interviews with the participant, the researcher also posed questions that required them to expound upon responses to the exercises and experiences within the module. The interview occurred after the participants completed the module activities. The researcher analyzed the written posts to the Blackboard discussion forums and journal during and at the conclusion of the module.

The concept maps were analyzed using Kinchin, Hay, and Adams (2000) criterion-based guidelines (Table 6). The data from the discussion forums and interviews

were coded, categorized, and themes were generated to answer the three research questions.

Table 6

*Concept Map Analysis*

	Map type		
	Spoke	Chain	Net
Hierarchy	One level only	Many levels, but often incorrect – e.g. ‘female parts’ are shown as subordinate to ‘male parts’ in Figure 2(b)	Several justifiable levels
Processes	Simple association with no understanding of processes or interactions	Shown as a temporal sequence with no complex interactions or feedback	Described as complex interactions at different conceptual levels
Complexity	So little integration that concepts can be added without consequences for ‘map integrity’	Map integrity cannot cope with additions, particularly near the beginning of the sequence	Map integrity is high. Adding one or more concepts has minor consequences as ‘other routes’ through the map are available
Conceptual development	Shows little or no ‘world view’. Addition or loss of a link has little effect on the overview	Integrated into a narrow ‘world view’, suggesting an isolated conceptual understanding. Loss of a link can lose meaning of the whole chain	Can support reorganization to emphasize different components to appreciate a ‘larger world view’ or to compensate for a ‘missing’ link
Represents	National Curriculum structure	Lesson sequence	Meaningful learning

Note. Reprinted from “How a Qualitative Approach to Concept Map Analysis Can Be Used to Aid Learning by Illustrating Patterns of Conceptual Development,” by I. Kinchin, D. B. Hay, A. Adams 2000, *Educational Research*, 42(1), 47, Copyright 2000 by AERA. Reprinted with permission.

The analysis of the captured data was conducted by performing both within-case and cross-case analysis. This analysis was conducted to gain further understanding of the faculty's individual experiences within the module and to examine the similarities and differences among all of the studied cases. The data were then categorized using a method Chenail (2008) described as the process of identifying, ordering, and grouping the observable patterns throughout the data into categories. The process implemented by the researcher should be considered an intermediary step in an ongoing process of separating and connecting units of meaning, based on the qualitative data collected. The researcher used the qualitative data analysis software NVivo and Microsoft Excel as the data management tools. The researcher used NVivo initially to support the collection, organization and first cycle of open coding of the data. Using the software, the researcher performed open coding which allowed her to dissect the data into discrete parts to closely examine them (Saldana, 2016). After initiating the coding process with NVivo, the researcher continued to code the data via the use of Microsoft Excel and Word, to manage the review of the data. The datasets were coded and grouped using Posner et al. (1982) stages of conceptual change and Nussbaum and Novick's (1982) conceptual conflict strategy. The results of the case studies were assessed using within-case analysis to identify unique patterns within the data for each case participant. The cross-case analysis process was used to identify patterns among the cases by examining the commonalities and differences between the cases. The researcher used the mentioned strategies to address the research questions: (1) How did the conceptual conflict module assist participants in identifying/defining their attitudes, beliefs, and assumptions regarding teaching and learning within the online environment? (2) How did the

conceptual conflict module help participants identify areas of dissatisfaction within their existing conceptions when assessing the transferability of their current instructional practices within an online environment? and (3) How did the conceptual conflict module assist participants with identifying a plausible alternative to address their area of conflict?

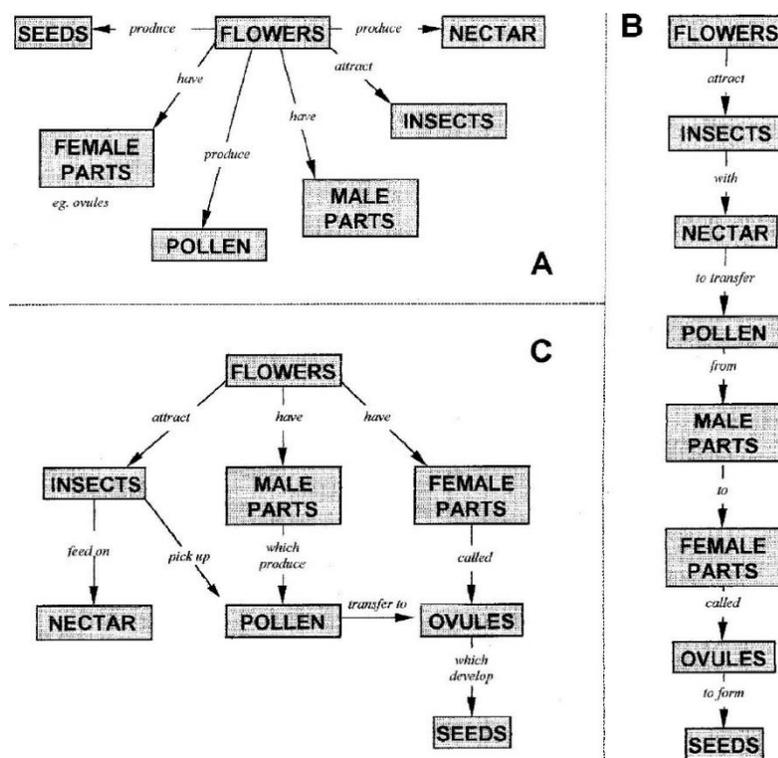
As the researcher reviewed the data, she coded and categorized terms or phrases relevant to the conceptual change process. After completing the initial review and coding process, the researcher reviewed the findings for additional clarity and made any necessary changes to the results. The researcher then interpreted the findings of the individual cases and then the findings across the cases in written format. Within the analysis of the study, the researcher referenced interactions, which occurred between the participants and module participants (TE, BS, NW, and SR) not selected for the study.

The concept maps created as a result of participants completing Activity 2 and Activity 4 were assessed and coded by analyzing "the patterns of concepts and links within [the map]... [which] may not only be used to pinpoint existing understanding, but may also give an indicator of a student's readiness to progress in a certain direction" (Kinchin, Hay, & Adams, 2000, p. 53). To assess the concept maps, the researcher applied the Kinchin et al. (2000) concept map analysis table (Table 6) to "gauge the cognitive structures" that faculty had regarding teaching and learning as well as the roles of the learner and teacher (p. 53).

The analysis of the first concept map was intended to determine if faculty were able to represent their attitudes, beliefs, and assumptions pictorially regarding teaching and learning within the online environment. To determine the cognitive structure of the maps, the researcher assessed the propositions, cross-links, and linking words. Yin,

Vanides, Ruiz-Primo, Ayala, and Shavelson (2005) stated that a proposition consisted of two concepts and a linking phrase, “acts as the building block of a concept map” (p. 168). The linking words specify the relationships between the concepts. Novack and Cañas (2008) stated that the lack of linking words within the concept map demonstrated a poor understanding of the relationships “between the concepts or meaning of the concepts” by the student, which in this case were faculty (p. 13).

For this study, the concepts concern the instructional and learning processes within the online environment. Novack and Cañas (2008) described cross-links as “relationships or links between concepts in different segments or domains of the concept maps” (p. 2). Cross-links demonstrate that the “learner understands the relationships between the subdomains” within the concept maps (p. 12). When analyzing the cross-links, the researcher visually assessed, documented, and categorized the faculty perceptions of the relationships that existed between the selected concepts (Novack & Cañas, 2008). Reviewing the inclusion of proportions, linking words, and cross-links further assisted the researcher in determining if the concept map depicted the structure of a spoke (Figure 1A), chain (Figure 1B), or net (Figure 1C) (Kinchin et al., 2000). Using the guidelines provided by the literature the researcher documented her findings for each case participant within a Microsoft Word template designed to capture the descriptors previously discussed. Within the template, she documented the hierarchical structure of the concept map as well as the use of propositions, cross-links, and linking words. The researcher also provided descriptions of the concept maps to capture any noticeable features or characteristics of the concept map.



*Figure 1.* The three main concept map structures identified during the study (a). Spoke - a radical structure in which all the related aspects of the topic are linked directly to the core concept, but are not directly linked to each other. (b). Chain - a linear sequence of understanding in which each concept is only linked to those immediately above and below. Though a logical sequence exists from beginning to end, the implied hierarchical nature of many of the links is not valid. (c). Net – a highly integrated and hierarchal network demonstrating a deep understanding of the topic. Reprinted from “How a Qualitative Approach to Concept Map Analysis Can Be Used to Aid Learning by Illustrating Patterns of Conceptual Development”, by I. Kinchin, D. B. Hay, A. Adams 2000, Educational Research, 42(1), 47, Copyright 2000 by AERA. Reprinted with permission.

In addition to assessing the current conceptions of faculty, the structure of the concept map has "implications for the mechanism of further meaningful learning" (Kinchin et al. 2000, p. 47). In essence, they were stating that the researcher could use the structure of the concept map to determine what additional new knowledge faculty participants may need to acquire. The ability to address the knowledge gap for faculty will assist in supporting with the diffusion of new concepts they could potentially adopt to address their concerns. The researcher used the provided information to identify

additional journal articles and resources that could be accessed by study participants while completing Activity 3 - What Does the Literature Say? of the *What's on Your Mind?* module. The inclusion of the additional articles and resources by the researcher did not impact the design of the What Does the Literature Say? activity within the module.

Revised concept maps submitted by faculty were assessed using Hay's (2007) criterion-based identification guidelines to determine if deep, surface or non-learning alterations were made to the original concept map. Hay, Kinchin, and Lygo-Baker (2008) stated that additions to the concept map “can be readily differentiated from those that are old, and the degree of integration (between new and previously existing ideas) can be measured” (p. 304). At the conclusion of the study, the researcher assessed the original and revised maps to determine if the revised map reflected any structural changes.

Using the Hay's (2007) criteria, the researcher determined if the concept maps demonstrated deep learning, surface learning, or non-learning. When evaluating the map for deep learning the criteria stated that there was a significant improvement from the original map which illustrated a linkage between newly learned concepts and original conceptions (Hay 2007). The demonstration of surface learning was determined by the lack of a significant improvement over the original map. Additionally, the visual sign of surface learning was the lack of direct linkage between the newly introduced concepts and those from the original map. Hay (2007) defined the criteria for non-learning as the lack of additional concepts, significant reorganization within the second map and expansion upon the original concepts and linkage. The analysis of both the original and revised concept maps allowed the researcher to determine if faculty were able to

represent their attitudes, beliefs, and assumptions pictorially; identify areas of dissatisfaction; and identify plausible alternative concepts. To document her findings, the researcher added additional notes depicting any noticeable changes between the original and revised concept maps to the Microsoft Word template used to capture the within-case analysis for each case.

To analyze the discussion forum and journal data, the researcher used a template created in Microsoft Word to capture and organize the case participants posted responses to the questions and their responses to colleagues. The document was formatted to ensure that, when using NVivo the researcher could easily upload them for coding. The researcher copied and pasted the text posted in the discussion forums and journal under the appropriate activity title within the document. The researcher used the services of a transcribing company to transcribe the recordings of the semi-structured interviews. After receiving the transcription files from the company, the researcher reviewed the documents for accuracy. The researcher used open coding when analyzing the interview transcriptions, as well as the discussion forum and journal files.

To ensure the validity of the study, the peer debriefing technique, also known as analytic triangulation was implemented. Peer debriefing "provides an external check on the inquiry process" (Lincoln & Guba, 1985, p. 301). Nguyen (2008) added that peer debriefing supports ensuring the creditability of the study by probing into the rationale behind decisions made by the researcher. To accomplish the task of debriefing, an impartial peer reviewed the researcher's analysis of the data, methodology, and report.

### **Study Limitations**

Several factors limited the impact of the study. The initial factor was that the participants who voluntarily registered for the module or workshop were atypical from those faculty who would have benefited the most by completing the workshop and module. They were actively seeking opportunities to improve their skills and knowledge regarding online instruction and could be more receptive to the conceptual change process. Moreover, online faculty could teach at either the undergraduate or the graduate levels, and because the expectations for student performance are different at each level, this could have affected the instructional practices they adopted and implemented. An additional limitation existed because as a manager of the instructional designer who created and maintained the workshops, the researcher could influence the design of the workshop and the content included within it. To overcome this limitation the researcher collaborated with instructional designers within the department. Finally, since this was not a longitudinal study, the scheduled reflection and peer interaction activities and allotted completion time were limited. The inability to conduct a longitudinal study could have influenced the data captured because the short time span limited the opportunities for faculty to participate in reflective activities and interact with peers.

### **Pilot Study**

Prior to collecting the data for the study, the *What's on Your Mind?* module was piloted by eight faculty during the 2016 winter semester. Unlike the study, the pilot module was not incorporated into the 21-day period allotted for the *Preparing Your Course for Online Delivery* workshop. The pilot of the module afforded the researcher an opportunity to evaluate the module instructions, individual activities, interview questions,

and survey questions. The pilot participants completed all of the activities required for the study, which included the module pre-survey, self-reflection exercises, peer interaction exercises, and facilitated WebEx online meetings. Based on the data collected from the pilot study the researcher made several updates to the module. Because of the difficulty experienced by participants when creating the first concept map (Activity 2), updates were made to the instructions. The updates included recommending the use of familiar tools such as PowerPoint or a pencil for those participants unfamiliar with the concept mapping tool MindMeister.

The researcher added thirteen additional concepts to the parking lot list of terms. The additional terms included objectives, student role, instructor role, learning environment, facilitator, discussion, engagement, time management, active learning, instructional design, technology, collaboration, asynchronous, and synchronous. The terms were added in order to provide further guidance on concepts participants could use to create their concept map. Additionally, in order to ensure that data should be captured for Activity 4 - Updated Concept Map, the activity was no longer deemed an optional activity. Participants were instructed to post to the discussion forum their updated concept map. The instructions were updated for the revised concept map activity because when marked as an optional activity, participants did not complete the activity.

The pre-module self-report survey administered during the pilot resulted in the capturing of the data necessary to assist with identifying the potential case participants. Because the survey captured the desired data, no changes were made to the survey instrument and it was administered again during the study. The researcher also administered the semi-structured interview questions during the pilot; however, the

questions did not produce the desired responses needed to assist with addressing the study research questions. In order to elicit the required data regarding the participants experience while completing the module, the semi-structured interview questions were all replaced (please see Appendix D for the interview protocol for the full study).

## Chapter IV: Findings

The purpose of this qualitative multi-case study was to examine the impact of the conceptual conflict instructional activities on faculty's experience in conceptual change process as described by Posner et al. (1982). This process included the acknowledging of their conceptual beliefs, identifying their areas of dissatisfaction, as well as beginning the process of modifying their current conceptual beliefs regarding instruction and instructional practices within their online courses. The study intended to address the following research questions:

1. How did the conceptual conflict module assist participants in identifying/defining their attitudes, beliefs, and assumptions regarding teaching and learning within the online environment?
2. How did the conceptual conflict module help participants identify areas of dissatisfaction within their existing conceptions when assessing the transferability of their current instructional practices within an online environment?
3. How did the conceptual conflict module assist participants with identifying a plausible alternative concept to address their area of conflict?

Data for the study were captured from a survey, the *What's on Your Mind?* Module activities, and study participant interviews. Data included the concept map(s), discussion forums, journals, and transcription from the WebEx recorded individual interviews. The data captured from the survey allowed the researcher to identify eight study participants. Only five of the identified faculty completed the required exercises and served as the cases for the qualitative multi-case study.

The following section of this manuscript presents a description of the study subject and description of the module case participants. The section also includes the detailed descriptions of the five faculty participants' experiences completing the module. The researcher included within this section references to interactions that occurred between the study participants and module participants-- TE, BS, NW, and SR. Lastly, the cross-case analysis findings were included for case participants MF, DS, JA, JC, and AC.

### **A Brief Overview of the Study**

The *What's on Your Mind?* module was developed to support faculty instructing online courses navigate through the conceptual change process. The module by design provided opportunities for faculty to reflect on their current conceptual beliefs, attitudes, and assumptions, identify areas of dissatisfaction, and identify plausible solutions to address their concerns. For this study, a belief is defined as a "held understandings, premises, or propositions about the world that are felt to be true" (Richardson, 2003, p. 2). Richardson (2003) added that "beliefs are propositions that are accepted as true by the individual holding the belief, but they do not require epistemic warrant" (p. 3). Gamble and Gamble (2013) added that "beliefs are the building blocks of attitudes; they provide the basis or foundation for our attitudes ... [they are] one's assessment of what is true or false, probable or improbable" (p. 272). Evaluating faculty members' beliefs regarding teaching and learning can be difficult as the beliefs are often static, complex, and even conflicting (Hora, 2014; Mansour, 2008).

The researcher looked for statements of conviction made by participants that expressed with certainty and could potentially influence their actions within their

responses to the module activities. An attitude is defined as a “relatively enduring organization of beliefs about an object or situation predisposing one to respond in some preferential manner” (Rokeach, 1968, p. 134). Stangor (2014) stated that attitudes “involve a preference for or against the attitude object, as commonly expressed in terms such as prefer, like, dislike, hate, and love... expressing the relationship (either positive or negative) between the self and an attitude object” (para. 1).

An assumption is defined as “ideas and thoughts that evolve and become things that we then take for granted. They become so ingrained in our daily thoughts and actions that we no longer question their validity or even think about them” (Bassot, 2016, p. 79). Assumptions are accepted as true or certain to happen without the subject having proof or experience (Assumption, 2017). Elder and Paul (2002) added that an assumption is “something we take for granted or presuppose... It is something we previously learned and do not question. It is part of our system of beliefs” (p. 34). The researcher focused on the experience or lack of experience the participant had concerning the learning or instruction of an online course. For example, a statement made by someone who had no experience with the concept he or she were referring to would illustrate an assumption.

Concerns are defined as “the questions, uncertainties, and possible resistance that teachers may have in response to new situations and/or changing demands” (Van den Berg, 1999, p. 883). Personal factors such as “previous experiences, the home situation, personal preferences/styles, legal/financial security, self-confidence” can influence concerns (Van den Berg, 1999, p.881). The “concept of ‘concern’ [also] refers to the personal experiences that teachers have when they are involved in a change” (Van den Berg, 1999, p. 882-883). Additionally, Fuller (1974) stated that “concerns about teaching

are expressions of felt need which probably possess motivation for relevant learning” (p. 2)

The module exercises included the Activity 1 - Overview & Introduction; Activity 2- Concept Maps & Ideas; Activity 3 - Community Discussion – Part I, Activity 3 - Summary and Conflict journal - Part II; and Activity 4 – What Does the Literature Say? Activity 4 – Updated Concept Map, WebEx meetings (group and interview). Within the remainder of the section, the abbreviations are used to reference the module activities: introduction discussion forum (Activity 1), the concept map (Activity 2 and Activity 4), the journal (Activity 3), the best practice literature review (Activity 4), and interview.

### **Description of Module Participants**

The five study participants (AC, JC, DS, JA, and MF) represented five departments within two of the colleges at the studied institution. The departments included psychology, art, public relations, philosophy, and religious studies. All five of the participants identified themselves as either an instructor or teacher. JC, JA, and MF also identified themselves as researchers. According to their survey responses, all five of the participants had some experience as students within the online environment. AC, MF, and DS were the only participants who had prior experience instructing within the online environment. They indicated that their previous learning experiences, departmental practices, discipline, and administrative policies influenced their instructional practices.

### **Case One: MF**

MF was an assistant professor who taught public relations at the studied institution. She completed her second year of teaching during the summer of 2016. MF identified herself as an instructor or teacher and a researcher. She credited her

professional discipline, department, administrative policies, and previous learning experiences with influencing her instructional practices. Prior to beginning her academic career, she had completed formal teacher preparation training. She earned a “number of certificates ... while working on her PhD.” As a student, she had completed online courses. According to MF, she “never truly considered [teaching] as a career option until [she] was offered a chance to teach an entry-level course.” MF added that the opportunity to teach while completing her degree changed her career aspirations because “she loved being [in the] classroom environment, interacting with students, and engaging with exciting and changing material.” Since the beginning of her career in academia, MF has pursued professional development opportunities to enhance and develop her instructional skills. MF shared that she regularly instructed online courses during the summer semesters at the studied institution. She revealed that in addition to teaching online courses, she also instructed hybrid, undergraduate, and graduate courses.

In full transparency, in addition to participating in the module during the summer of 2016, MF also participated in the pilot study in January 2016. The pilot version of the study included only the module activities, while the research study included an online course design workshop in addition to the module activities. During the interview, MF acknowledged that she had forgotten about her previous participation in the pilot study because of the overwhelming schedule she had during this time. Nonetheless, MF shared that because of her participation in the pilot study, she implemented some changes within her online course. When participating in the introduction discussion forum (Activity 1) in the dissertation study, MF recalled her first experience with creating a concept map during the pilot. MF stated that she enjoyed revisiting the concepts from the pilot study

while creating her new map, especially since she incorporated some of the strategies and ideas into her online course. While completing the module for the second time, MF reflected on her new plan to develop an online version of her face-to-face public relations (PR) writing course. She intended to submit a proposal for the creation of an online PR writing course to her department chair after her completion of the module. The fact that MF participated in the pilot study did not affect her participation in the full dissertation study because the dissertation study examined the participant's conceptual change experience while participating in the *What's on Your Mind?* professional development module. Within her statements, MF reflected her beliefs, attitudes, and assumptions regarding teaching an online PR course. She also discussed her concerns and plausible solutions to address her concerns. Like other participants, MF navigated through the conceptual conflict activities with existing conceptions at the time of her participation in the *What's on Your Mind?* module.

MF was an engaged participant in the module and exceeded the exercise participation requirements. MF was considered an engaged participant because she met or exceeded the assignment requirements for the module activities. While participating in the introduction discussion (Activity 1) exercise, MF exceeded the expectations by interacting with seven of her peers, including the researcher, rather than only responding to the post of one peer (as expected for the minimum participation in this activity). Additionally, when completing the community discussion exercise (Activity 3), MF interacted with nine of faculty completing the module, as well as the researcher. She shared that participation within the module afforded her opportunities to meet and network with peers from her college who also taught online courses. At the end of the

module, MF used a web camera while participating in a synchronous interview with the researcher via WebEx.

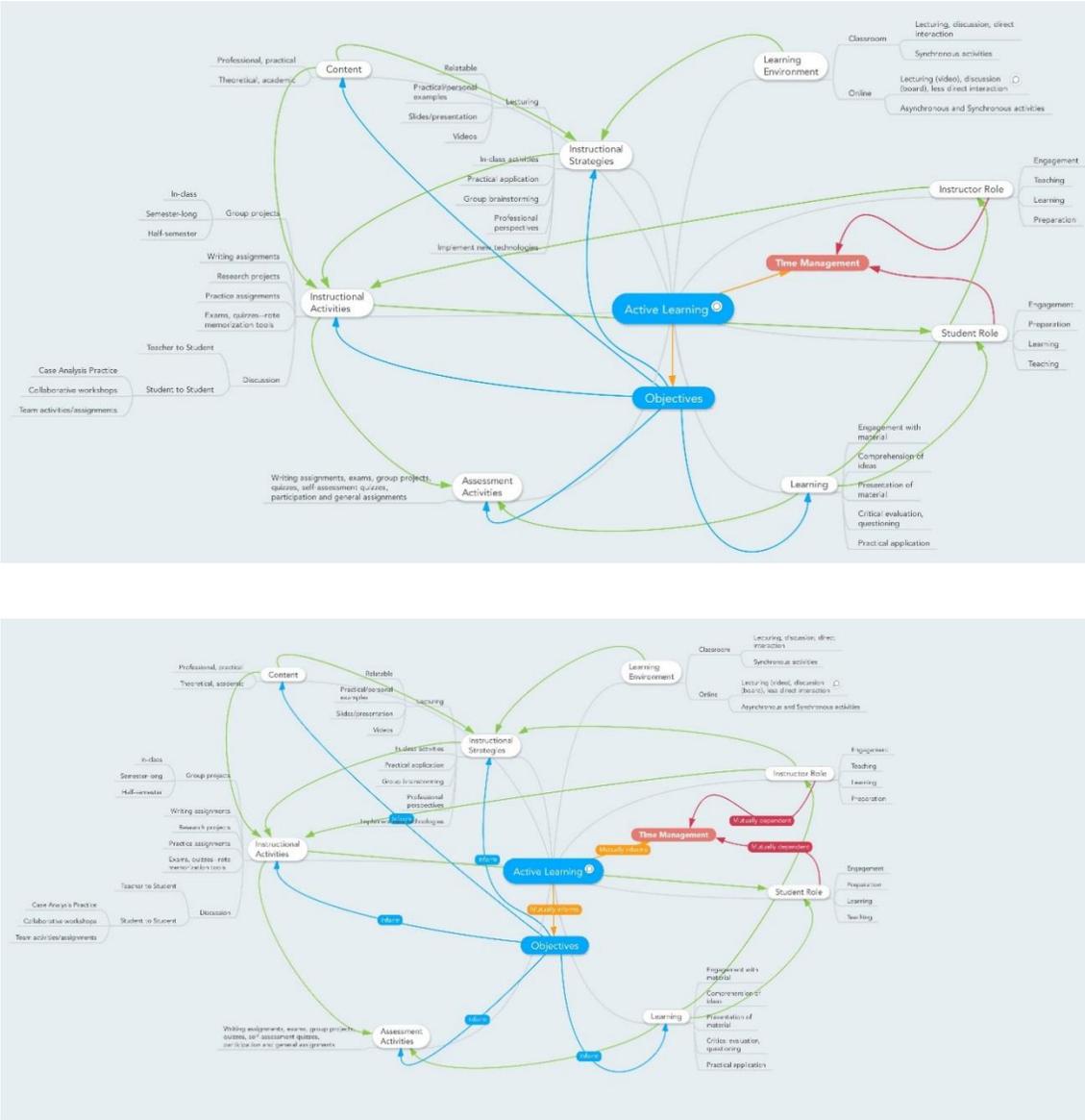


Figure 2 Case MF original (top) and revised (bottom) concept maps.

Table 7

*MF Concept Map Modifications Table*

Structure of Concept Map	Original Concept Map	Revised Concept Map
Focal Concept	Active Learning	Active Learning
Number of Incomplete Propositions	72	63
Number of Completed Propositions	0	9
Include Linking Words	None were used	9
Cross-links	6	7

**Analyzing both concept maps.** After reviewing MF's concept maps' (Figure 2) reflective statements (Activity 2 and Activity 4), modifications made to the study concept maps (Table 7), the researcher determined that MF had experienced deep learning. The criteria for deep learning stated that there was a significant improvement from the original map, showing a linkage between the newly learned concepts and original conceptions (Hay, 2007). MF enclosed the concepts within both the original and revised map in ovals. She used green, blue, orange, red, and gray colored lines to represent visually the propositions between the concepts. Some of those lines included one arrowhead or connector. Within her responses to the revised concept map discussion forum (Activity 4), MF described the meanings behind the colors of the lines she used for both concept maps. MF stated that the gray lines represented active learning, which was "central to her teaching approach." The orange lines represented the connection between,

what she described as higher-order concepts. The red line represented the concept *time management*'s relationship with the concepts *instructor* and *student*. The blue lines highlighted "the relationship between the higher-order concept *objectives* and more specific active learning concepts. [She believed] these concepts (*instructional strategies*, *content*, *instructional activities*, *assessment activities*, and *learning*) all [stemmed] from (or were informed by) the objectives." Lastly, the green lines were "meant to indicate how individual variables [were] related." According to MF, completing the module's reflection activities contributed to refining instructional practices she currently implemented within her courses. MF added that the completion of the concept map afforded her an opportunity to "visually and critically [evaluate] how and why [she] used certain [instructional] practices."

***Focal concept and propositions.*** The term active learning appeared as the focal point for both the original and revised concept map. Within the original concept map (Activity 2), MF included 72 incomplete propositions. Within the revised concept map (Activity 4), MF included nine complete propositions and 63 incomplete propositions. Using a single line, which included one arrow or connector, MF added one incomplete proposition to the revised map between the concepts *instructor role* and *instructional strategies*. To represent this relationship, she pointed the arrowhead in the direction of the term *instructional strategies*.

***Linking words and crosslinks.*** Within the design of her original concept map (Activity 2), MF did not include any linking words. She added that she did not "create labels [or linking words] for every concept and connection. Instead, [she] labeled and color-coded what [she] believe[d] [were] the primary relationships." MF also included

the use of six cross-links within the original concept map. When revising her concept map (Activity 4), MF maintained the color-coded lines and shapes, but also included linking words. The linking words within the revised map (Activity 4) included the terms *mutually dependent*, which appeared two times; *mutually informed*, which also appeared two times; and *inform* which appeared five times within the map. Through her revised map (Activity 4), MF illustrated the existence of relationships between the subdomains by including seven cross-links.

**Original concept map.** When asked to represent pictorially the relationships between the concepts provided within the concept map exercise (Activity 2), MF used MindMeister to create a concept map that represented the hierarchical structure of a net. The net structured map depicted “complex interactions at different conceptual levels... [and could] support reorganization to emphasize different components to appreciate a ‘larger world view’ or to compensate for a missing link” (Kinchin, Hay, & Adams, 2000, p. 48).

As mentioned, the focal point of MF’s original concept map (Activity 2) was *active learning*. This initial concept map (Activity 2) illustrated a complex relationship between the concept of *active learning* and the remaining terms included within the map. MF stated that she centered the concept *active learning* within her map because it was “central to [her] teaching style.” The term appeared in a blue oval-shape at the center of the map. In addition to the focal point term, MF also included 36 terms within the design of the concept map. Twelve of the concepts appeared within the provided parking lot list. The concepts she incorporated were *content*, *instructional strategies*, *instructional activities*, *learning*, *objectives*, *student role*, *instructor role*, *learning environment*,

*discussion, engagement, time management, and active learning*. Only two of the terms appeared within shapes similar to that of the concept *active learning*. The term *objectives* appeared within a smaller blue colored oval-shape and the term *time management* appeared within the center of a pink oval. She also added 24 terms that were not included in the parking lot list to her concept map.

MF visually demonstrated the existence of 72 relationships among the terms via the use of lines with one arrowhead. The 72 propositions were incomplete because she did not include linking words. To illustrate the existence of “relationships between the subdomains” (Novack & Canas, 2008, p. 12) within the original concept map (Activity 2), MF included six cross-links.

MF stated that the process of completing the concept map exercise (Activity 2) influenced her “thinking about what [she does] as an instructor. More than identifying opportunities, the concept map helped [her] think about [her] current practices and how they are related conceptually.” She added that the concept map exercise (Activity 2) “basically [forced her] to think about what [she could] do to make [her] classes more meaningful and impactful using the strategies [she] already implement.”

**Revised concept map.** Though it may not be evident within the design of the revised concept map (Activity 4), MF made significant changes to the map she submitted. The overall structure of the concept map remained the same; however, MF updated it with the inclusion of linking words and addition of a proposition. Though MF did not include additional concepts within her map, she did solidify the relationships among nine of the incomplete propositions by adding linking words. The three linking words she included to complete nine propositions were *mutually dependent, mutually informed, and*

*inform*. Despite her inclusion of the linking words, the revised concept map still included 63 incomplete propositions. MF added that she believed “the eight primary concepts [she] expanded upon are what constitute and help ... achieve active learning.” The revised map maintained the same net structure and included the same 34 concepts that appeared within the original map.

**Responses to research questions.** The following sections discuss how the module activities assisted MF’s conceptual change process. The researcher presents responses to address the three research questions. The researcher analyzed MF’s responses captured during the interview to the prompting questions, as well as those posted to the module Blackboard discussion forums and journal exercises. MF responses to the prompting questions regarding her attitudes, beliefs, and assumptions; areas of concern or dissatisfaction; and plausible solutions fell into several categories as illustrated in Figure 3.

**MF findings for research question 1.** After completing the conceptual conflict module exercises, MF was able to identify and define her attitudes, assumptions, and beliefs regarding teaching and learning within the online environment. She revealed her attitudes regarding teaching philosophy, visual content, as well as student and faculty interaction through her completion of the introduction discussion (Activity 1), concept map (Activity 2) and community discussion (Activity 3) exercises. Her assumptions about student engagement and time management surfaced as a result of completing the concept maps (Activity 2 and Activity 4) and the best practice literature (Activity 4) exercises. MF responses to the concept maps (Activity 2 and Activity 4), community discussion (Activity 3), and interview exercises revealed her beliefs regarding visual

content, online and face-to-face teaching philosophy, active learning, online courses, time management, student and faculty interaction, and student engagement.

Research Question 1	
Completed Module Activities	Identified Themes
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> introduction discussion forum, concept map, best-practice literature review, and interview</li> <li>• <b>Peer Interaction:</b> introduction discussion forum and community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Attitudes</b> - pre-existing conception of online teaching and learning, to create visual content, student and faculty interaction</li> <li>• <b>Assumptions</b> - student engagement and time management</li> <li>• <b>Beliefs</b> - visual content, teaching philosophy, active learning, online courses, time management, student and faculty interaction, and student engagement</li> </ul>
Research Question 2	
Completed Module Activities	Identified Themes
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> introduction discussion forum, concept map, best practice literature review, revised concept map, and Interview</li> <li>• <b>Peer Interaction:</b> introduction discussion forum and community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Concerns</b> <ul style="list-style-type: none"> <li>○ communication</li> <li>○ student engagement</li> <li>○ student and faculty interaction</li> <li>○ group work</li> <li>○ course content</li> <li>○ visual content</li> <li>○ time management</li> </ul> </li> </ul>
Research Question 3	
Completed Module Activities	Identified Plausible Solutions
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> concept map, journal, best practice literature review, revised concept map, and Interview</li> <li>• <b>Peer Interaction:</b> community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Solutions</b> <ul style="list-style-type: none"> <li>▪ diversify instructional activities</li> <li>▪ team-based learning</li> <li>▪ awarding quiz credit</li> <li>▪ visual presentations</li> <li>▪ video recordings</li> <li>▪ flow chart of syllabus</li> <li>▪ weekly calendar</li> <li>▪ peer review</li> <li>▪ discussion forums</li> <li>▪ group projects</li> <li>▪ WebEx meetings</li> <li>▪ team-based learning</li> <li>▪ competitive environment</li> <li>▪ synchronous online group meetings</li> <li>▪ Blackboard Collaborate</li> <li>▪ student evaluations</li> <li>▪ assignment rubric</li> <li>▪ faculty interaction</li> <li>▪ student summaries</li> <li>▪ online office hours</li> <li>▪ well-designed course</li> </ul> </li> </ul>

Figure 3. Case MF Identified Themes

*Attitudes.* Through the completion of the module's self-reflection (introduction discussion, concept map, and the interview) and peer interaction (introduction discussion and community discussion) activities, MF was able to define or identify her negative attitude regarding her pre-existing conception of online teaching and learning, negative attitude toward her ability to create visual content, and positive attitude toward student and faculty interaction.

During the interview, MF shared that she disliked her pre-existing conception of online teaching as illustrated in her original concept map. Her conception of online teaching was limited and was missing important concepts related to online teaching and learning. MF discussed during the interview that she was disappointed that she did not think of including some of the concepts in the parking lot list the concept map that she developed. MF declared that she "should [had] been thinking about [the terms] before, but [she] really didn't think about conceptualizing" them within the design of her map.

While interacting with her peers via the community discussion (Activity 3) exercise, MF revealed her negative attitude towards her ability to integrate the visual content within her online courses. In her response post to JC, MF was unhappy that she was not able to translate the "garbled mess of information [within her] head" into visual illustrations such as graphics, charts, and infographics she could include within her online courses. MF also shared with JC that she was not a visual learner and found it difficult to create "graphics and visual tools" for both her students and herself. Upon reviewing her peer, JC's concept map, MF informed him that she thought his map was great. She also shared with JC that "just looking at [his] map [made her] sigh with jealousy." She added

that in comparison to his concept map, she felt as though hers looked “liked a dog’s breakfast.”

MF expressed a positive attitude towards student and faculty interaction in teaching. She revealed her attitude through her completion of the self-reflection (introduction discussion) and peer interaction (introduction discussion) exercises. While reflecting individually and introducing herself to her peers, MF shared within her reflective statement that she “loved being in [the] classroom environment [and] interacting with [her] students.” While engaging in dialogue with her peer, BS, MF shared that she “really love[d] being in the classroom, so [she] wouldn't want to miss out on that” when instructing an online course. During the interview, MF described her asynchronous interactions with her students as being “fantastic.”

*Assumptions.* Through the completion of the module’s self-reflection (concept maps, best practice literature, and interview) activities, MF was able to define or identify her assumptions regarding student engagement within online courses and student time management. While reflecting on her creation of the concept map (Activity 2) in the forum, MF shared her assumption regarding her online student’s experiences within her courses. MF assumed that her students would get “more out of their overall experience” within her course if she designed an online course that was engaging, objective driven, and purposeful. After reviewing the best practice literature (Activity 4), MF revealed her assumption that the inclusion of collaborative activities within her courses could support the achievement of the course learning outcomes. She assumed that her students could learn more through the integration of opportunities to collaborate with peers, especially

those more knowledgeable students. MF statements were assumptions because MF had no experience with implementing the collaborative activities within her online courses.

During the interview, MF revealed her assumptions regarding the influence that the time management practices of both faculty and students could have on the learning experiences of students. MF assumed that students' ability to manage their time directly correlated with the faculty ability to maintain theirs. While reflecting through the concept map forum (Activity 4), MF stated that student's management of their time "and timely participation enhances how engaged they are in [the course] and how much they get out of the class."

*Beliefs.* Through the completion of the module's self-reflection (concept maps, best practice literature, and interview) and peer interaction (community discussion) activities, MF revealed her beliefs regarding her ability to use visual content, applying teaching philosophies, adoption of active learning, value of online courses, faculty time management, and student and faculty interaction, and student engagement within online courses.

MF revealed her beliefs regarding the instructional use of visual content within her courses through her completion of the community discussion (Activity 3) and interview activities. During the interview, MF shared her belief that her limited use of visual content within her courses was a result of her being a non-visual learner. While responding to her peer JC's post within the community discussion forum (Activity 3), MF informed JC that not being a visual learner affected how she presented her instructional content. While reflecting on her creation of instructional content, MF stated that she "just [does not] think about putting [her content into a] visual format because that's not how

[she] thinks.” Additionally, during the interview, MF shared her belief that instructional overview videos were valuable. MF indicated that her participation within the module confirmed her belief that video incorporated within the online environment contributes to a level of engagement within the module.

MF revealed her beliefs regarding the application of her teaching philosophy within the online learning environment through her completion of the concept maps (Activity 2 and Activity 4), community discussion (Activity 3) and interview activities. While reflecting on her creation of the concept maps (Activity 2 and Activity 4) during the interview, MF shared her belief that learning within the online environment is “totally achievable.” When discussing the creation of her concept map, during the interview MF stated that she recognized that regardless of the modality of instruction there were many moving and “interconnected parts when ... teaching.” While responding to her peer DS’s post to the community discussion forum (Activity 3), MF stated that her interaction and review of DS’s map resulted in her reflecting on her understanding of the on the progression of teaching and learning that takes place within the learning environment during the semester. She shared her belief that this progression started with the foundation and then built up to “all the components until [they] eventually [got] to [the] point of mastery of content.”

MF revealed her beliefs regarding active learning through her completion of the concept maps (Activity 2 and 4) activities. While reflecting on her concept maps (Activity 2 and Activity 4), MF declared her belief that active learning was “central to [her] teaching style.” MF credited the opportunity to revise her concept map (Activity 4), with affording her an opportunity to visually “map out what she believed [were] the

central components of teaching.” MF added that as a result of completing the concept map activities (Activity 2 and Activity 4) she came to the realization “that [she] truly tried to embrace her beliefs about active learning.” While reflecting on her review of the best practice literature, MF acknowledged her belief that she was responsible for structuring her course in a manner that would foster active learning. She shared her belief that active learning is “an experience co-constructed by instructors and students.... [and occurs through] “interaction with the students, and student interaction with the course and course materials.”

MF revealed her beliefs regarding the value of online courses and the ability to convert face-to-face courses into online courses, through her completion of the concept maps (Activity 2 and Activity 4) and interview activities. During the interview, MF reflected that her belief that learning occurring within the online environment was as valuable and rigorous as some face-to-face courses. MF stated that she believed that faculty could facilitate learning within online courses. She shared that her completion of the concept map activities (Activity 2 and Activity 4) confirmed her belief that she could successfully incorporate her face-to-face instructional practices into the design of her online classes, which included the integration of instructional and assessment activities from her face-to-face courses into her online course.

While reflecting on the concept map (Activity 2), MF declared her belief that the type of instructional activities she incorporated into her courses resulted in students “learning the content in a meaningful way that reflect[ed] [her] general instructional practices.” MF stated that her use of daily quizzes confirmed that her online “students [were] clearly grasping the material to [the] extent that [it] match[ed] or exceed[ed]

typical content retention in [her] in-person course.” While reflecting on her online courses during the interview, MF shared her belief that adopted instructional strategies were appropriate for both the face-to-face and online environment; however, their execution within the online environment would require some adjustment. During the interview, she stated that the process would require the instructor to understand their “content delivery strategies [and when necessary] ... adjusting them for the online environment.”

MF revealed her beliefs regarding the faculty ability to manage their time within an online course through her completion of the concept map (Activity 2 and Activity 4) activities. While reflecting on the concept maps she developed (Activity 2 and Activity 4), MF shared her belief that time management within the fast-paced online courses was important. Within the design of her concept maps (Activity 2 and Activity 4),

MF illustrated her belief that individually, instructors and students are responsible for the management of their time within the online learning environment. While reflecting on her concept map (Activity 4), MF declared her belief that, an instructor’s ability to “manage their time well” is necessary in order to achieve active learning in an online course. She stated that in order for an instructor to support students and instructional strategies like active learning, they must “be fully prepared and practicing their” time management skills.

MF revealed her beliefs regarding student and faculty interaction through her completion of the concept map (Activity 2) and best practice literature (Activity 4) activities. While reflecting on her review of the best practice literature through the discussion forum (Activity 4), MF shared her belief that the execution of instructional

strategies like active learning would require that she interact with her students. Through reflection on her concept map (Activity 2) via the forum, MF shared her belief that in order for engagement to occur, “the instructor and student needed to take a proactive role in creating an engaging environment.”

MF revealed her beliefs regarding student engagement through her completion of the concept map (Activity 2) and interview activities. While reflecting on her concept map (Activity 2), MF shared her belief that she can facilitate student engagement through her “implementation of instructional strategies and activities (and ... focus on content).” During the interview, MF shared her belief that creating engagement within her online course was “less about how [she] taught and more about the environment [she] created” as well as the available delivery options. Through reflection on the best practice literature (Activity 4), MF shared her belief that in addition to faculty “interaction with the students [it also required] student interaction with the course and course materials” was needed to support student engagement. Within the discussion forum (Activity 4) MF stated that “it [was] important that students actively [engage] with the material [by being] proactive about learning (reading, preparing, etc.) ... [and practicing] what they [were] learning about.” MF concluded that in order to support student engagement within her course, it will require “students [to] complete assignments that [mimick] the type of work they might” complete as a professional within the field.

**MF findings for research question 2.** Through the participation in the module’s self-reflection (introduction discussion -Activity 1, concept map - Activity 2, best practice literature - Activity 4, and interview) and peer interaction (introduction discussion - Activity 1 and community discussion - Activity 3) activities, MF identified

several areas of concerns including communication, student engagement, student and faculty interaction, group work, course content, and time management.

MF became concerned with those areas when she recognized there were problems with her existing conceptions when transferring her current practices to the online environments. These concerns are reflection of feelings of dissatisfaction. Several conceptual change theorists have defined dissatisfaction as part of the conceptual change process. For example, Sadera and Hargrave (2005) defined dissatisfaction as “the mental state of the learner when he or she realizes that his/her current solution to a problem is not adequate...[which] causes the [learner] to question the validity of his/her existing conception” (p. 298). Posner et al. (1982) defined dissatisfaction as occurring when learners experience unresolved anomalies within their conceptions and no longer trust in the ability of their current conceptions to resolve the issue. According to Nussbaum and Novick (1982), when a learner recognized a problem and was unable to solve the problem with his/her existing conceptions, the learner would experience a feeling of dissatisfaction. Those definitions share many similarities. For the purpose of this study, Nussbaum and Novick’s (1982) definition of dissatisfaction was adopted since the professional development module was designed following Nussbaum and Novick’s conceptual conflict guidelines.

***Communication.*** Through the completion of the module’s peer interaction (introduction discussion - Activity 1) activity, MF that identified her ability to communicate clearly with her students was a concern. For example, when reading her peer TE’s posts on how TE presented content within his online course, MF realized that her ability to present concise and efficient message was a concern because she tended to

be verbose when communicating with her students. In other words, when interacting with her peers in the discussion forum, MF recognized that her communication with her students in the online environments was a problem and she was not able to solve it with her current conception on written communication, which resulted in her feeling of dissatisfaction.

***Student engagement.*** Through the completion of the module's self-reflection (best practice literature - Activity 4 and interview) and peer interaction (community discussion - Activity 3) activities, MF identified that her ability to incorporate engaging instructional activities within her online course was a concern. For example, when reflecting on her teaching philosophies after reading the best practice literature (Activity 4) for teaching and learning within the online environment, MF realized that her ability to support consistent student engagement within her online courses was a concern because she did not know how to translate her current student engagement strategies into her online course. Within her face-to-face writing course, MF supported student engagement through the instructional use of peer review and feedback exercises. She accomplished this within her face-to-face course by having students partner with their peers to review each other's work while she walked around the room providing feedback when necessary to address their concerns. In other words, when interacting with her peers and reflecting individually in the discussion forums, MF recognized that her ability to instructionally incorporate engaging learning activities

within her online course was a problem and she was not able to solve it with her current conception on engaging students during instruction.

***Student and faculty interaction.*** Through the completion of the module's self-reflection (interview) activity, MF identified that her ability to interact dynamically and synchronously with her students within her online course was a concern. For example, when reflecting on her instructional practices while responding to the prompting interview questions, MF realized that her ability to interact synchronously with her online students was a concern, because within her face-to-face classroom, she walked around the room in order to interact with her students, manage the classroom discussions, as well as, review and provide feedback on her students work. However, she could not achieve this in her online class. In other words, when reflecting as a result of completing the module activities, MF recognized that interaction within online courses was a problem and she was not able to solve it with her current conception on supporting student and faculty interaction within the online environment.

***Group work.*** Through the completion of the module's self-reflection (best practice literature - Activity 4 and the interview) activities, MF identified that her ability to incorporate group work that facilitates the student experiences associated with completing face-to-face "peer review and feedback" activities into her online courses was a concern. For example, during the interview, MF shared that her ability to implement peer review and feedback exercises within her online writing course was a concern because she was unsure how to "achieve that level of engagement and that level of just hands-on experience" which occurs as a result of face-to-face group work within her online course. In other words, when self-reflecting via the discussion forums and

interview activities, MF recognized that her ability to emulate instructionally the experiences associated with face-to-face group work within her online course was a problem and she was not able to solve it with her current conception on supporting group work within the online environment.

**Course content.** Through the completion of the module's peer interaction (introduction discussion - Activity 1) activities, MF identified that her ability to manage the lifecycle of her instructional content was a concern. For example, when reading her peer BS's posts regarding her management and evaluation of her instructional videos, MF realized that her ability to strategically manage and evaluate her online instructional videos was a concern because the subject matter discussed within her videos tended to focus on current topics, which meant that the videos quickly became dated and unusable. MF shared that as an instructor of a public relations writing course she had to cover within her videos "the latest trends, technologies, and examples both to keep things current and to keep [her] examples relatable." While interacting with her peer, BS, MF shared that after reading BS comment, she realized that her conversational teaching style and topics covered within her videos meant that they would not "have a great shelf life." In other words, when interacting with her peers in the discussion forum, MF recognized that her instructional content creation process was a problem and she was not able to solve it with her current conception on strategizing the efficient creation of course content.

**Visual content.** Through the completion of the module's self-reflection (interview) and peer interaction (community discussion - Activity 3) activities, MF identified that her ability to integrate visual content in her online course was a

concern. For example, when reviewing her peer JC's concept map, MF revealed to JC that she had a "really hard time creating graphics and visual tools both for [herself] and [her] students." MF shared that her inability to create the visual content was not as a result of her inability to use technologies, but based on the fact that she was not a visual learner. In other words, when interacting with her peers in the discussion forum and reflecting as a result of completing the module activities, MF recognized that her ability to create of visual content for her online courses was a problem and she was unable to solve it with her current conception on representing information visually.

***Time management.*** Through the completion of the module's self-reflection (introduction discussion - Activity 1 and concept map - Activity 2) and peer interaction (community discussion - Activity 3) activities, MF identified that her ability, as well as her student's ability to manage time, was a concern. While responding to her peer, AC comment in the community discussion forum (Activity 3) regarding the appearance of time management within her concept map, MF realized that her ability to manage her time was a concern because she recognized that the lack of proper time management skills could influence her ability to infuse active learning in her online course. In other words, when interacting with her peers in the discussion forums or self-reflecting via the discussion forums or interview, MF recognized that her ability to manage her time in the online environment was a problem and she was not able to solve it with her current conception on the management of time.

**MF findings for research question 3.** Through the completion of the module's self-reflection (concept map, journal, best practices literature and interview) and peer interaction (community discussion) activities, MF was able to identifying plausible

solutions to address her concerns regarding course design, use of visuals, communication, student engagement, group projects, student and faculty interaction, and time management.

*Course design.* Through the completion of the module's self-reflection exercises (concept map - Activity 2, best practice literature - Activity 4, and interview), MF was able to identify instructional design strategies as plausible solutions, she could implement to address her concerns about her ability to incorporate her current instructional philosophy and practices into her online course. She credited the concept map (Activity 2) activity with affording her an opportunity to reflect on her current instructional practices and the relationships between the concepts included with her map. She added that reflection via the concept map exercise contributed to her refining some of the instructional practices she was implementing "within [her] courses" such as discussions and collaboration. MF stated that reflecting on the concepts afforded her an opportunity to "visually and critically evaluate how and why [she used] certain practices" within her course.

During the interview, while reflecting on how she could design instructional activities to engage her students. MF stated that she "came to the realization and understanding that [instructing an] online class [did] not mean [that] activities should become monotonous." MF concluded that her online course activities could emulate the diversity she offered in her face-to-face courses. She concluded, in order to engage students online, faculty needed to diversify their course activities. MF added that student engagement should not be limited to instructional activities that simply required students to respond to discussion board prompts throughout the semester.

During the interview, MF stated that she was interested in learning about the instructional strategies her peers implemented within their courses. In addition to seeking expertise from her peers, MF also expressed interest in learning from the authors of the articles included within the best practice literature activity (Activity 4). During the interview, MF stated that authors of the best practice literature (Activity 4) were very informative. She found the author's experiences with their use of instructional strategies and converting face-to-face courses into online courses helpful. From her review of the best practice literature (Activity 4), MF learned about the author's use of instructional strategies such as reflection, incremental activities, and credit for peer evaluations.

MF shared that the completion of the module reflection activities helped her to reflect pictorially and textually on her pedagogical beliefs. Initially she expressed some concern regarding her ability to translate these beliefs into the online learning environment. While completing the module reflection activities, she discussed addressing her concern by using tools such as the creation of videos and regular student assessment, to help her create a course that reflected her beliefs about developing a creative, interactive, and engaging online environment.

The review of the literature on team-based learning provided via the best practice literature (Activity 4) resulted in MF recognizing that the ideas discussed aligned with her current instructional practices. She stated that she frequently used team-based learning in her face-to-face courses. MF also credited her review of the literature on team-based learning with inspiring her to consider the possibility of using team-based learning as a tool to assess students and to spur friendly competition amongst students.

MF believed she could increase student engagement by awarding quiz credit to students participating in the team-based peer evaluation exercises.

***Use of visuals.*** Through her completion of the module's self-reflection (interview) and peer interaction (community discussion forum - Activity 3) activities, MF identified solutions she could implement to address her concerns regarding the integration of visual content in her online courses. During the interview, MF reflected on how she could use visual elements in her courses to bridge the gap between herself, a non-visual learner, and her visual learning students. MF was inspired to consider the use of videos after witnessing the researcher's inclusion of videos throughout the module. MF stated that the "video really worked. It created this level of engagement" within the module. MF credited her decision to incorporate visuals within her course to her interaction with peer, JC, via the community discussion forum (Activity 3) exercise. While responding to her peer JC post to the community discussion forum, MF acknowledged JC's graphical ability after reviewing his concept map. She asked JC to share how he translated information graphically. MF also asked JC to share how he came "up with solutions for incorporating handmade components into [his] digital work." MF added that because of her interaction with JC, she internalized and identified the use of visuals as an instructional strategy. This development was consistent with MF's goals, as she was seeking solutions to incorporate more visual content into her course.

***Communication.*** While reflecting on the best practice literature (Activity 4), MF was able to identify solutions to address her concern regarding her ability to communicate assignment requirements clearly to her students. After reviewing Palsolé and Awalt (2008) article, MF decided to use "a flowchart for the syllabus [in order] to

visually show [her students] how the assignments would build on one another.” MF declared that she would illustrate to her students the due date of assigned tasks by creating “a weekly module calendar to help [them] see when they should” submit their work.

***Student engagement.*** Through her completion of the self-reflection (concept map - Activity 2 and journal - Activity 3) MF identified several solutions to address her concern regarding student engagement. During the interview, MF stated that faculty “need to change up [their] activities [and that] there has to be something different to engage students.” While reflecting through the journal (Activity 3), MF identified the use of peer review activities as a plausible solution for engaging students. MF shared that she was considering replicating peer-driven editing and reviewing activities that she currently incorporated in her face-to-face classroom setting into her prospective online PR writing course. Through her completion of the concept map (Activity 2) activity, MF identified the use discussion forums within her online courses as a plausible solution. While reflecting on her concept map (Activity 2), MF shared that she incorporated the term discussion within her map because it reflected “the types of discussions [she hoped] to promote in the classroom.”

***Group projects.*** Through the completion of the module’s self-reflection (journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (community discussion - Activity 3) exercises, MF identified plausible solutions to address her concerns regarding her ability to incorporate group projects into online courses. While interacting with her peers through the community discussion forum (Activity 3), MF shared that she had never implemented group projects within her online

courses. While discussing the topic of group projects with her peer AC within the forum, MF inquired about the successes and issues she encountered while implementing group projects within her online course. MF revealed to her peer, JA, that students within her face-to-face courses were collaborating within the online environment to hold group meetings and facilitate completion of the group project. As a result of reflecting on the actions of her face-to-face students, MF identified the implementation of group projects within the online environment as a plausible solution. As a result of her participation in the module self-reflection and peer interaction activities, MF identified the use of WebEx meetings, team-based learning, competitive environment, synchronous online group meetings, Blackboard Collaborate, and student evaluations as solutions to support her implementation of group projects within her online course.

***WebEx meetings.*** Through the completion of the module's self-reflection (journal - Activity 3) and peer interaction (community discussion forum - Activity 3) activities, MF identified WebEx as a plausible solution. While replying to her peer, SR post in the community discussion forum (Activity 3), MF shared that she identified WebEx as a plausible solution to facilitate meetings with groups. Within her response she reflected on the possibility of using WebEx to create an environment where students could work together, and she could monitor their efforts by joining the meetings as well. JA through the journal (Activity 3) shared, in order to support WebEx meetings, she would need to establish "rules and guidelines for synchronous learning" and determine how to monitor the activities. Additionally, to address previous difficulties she experienced while facilitating group meetings in WebEx, she identified the development of "strategies for grouping students" as a plausible solution. While responding to her peer, SR question in

the community discussion forum (Activity 3), MF declared that she would limit group meetings to two or three team members at a time.

***Team-based learning.*** Through the completion of the module's self-reflection (interview and best practice literature - Activity 4) activities, MF identified team-based learning as a plausible solution to address her concern regarding her ability to implement group projects within the online environment. While reflection on her review of the best practice literature (Activity 4) during the interview, MF identified team-based learning (TBL) as a plausible alternative to support group projects. She found the articles both informative and helpful because the concepts and ideas discussed in the literature tied directly to the author's experiences. MF expressed interest in how the authors applied the use of TBL within online courses. MF recognized that she frequently implemented TBL within her face-to-face classroom. She shared that she enjoyed "reading about TBL, how it work[ed], what some of the pitfalls [were], and ways it [could] be implemented."

MF also shared that the literature revealed challenges associated with this solution. Some of the challenges MF found within the literature regarding the implementation of TBL included negative attitudes towards group work, inconsistent participation, and inability to incorporate synchronous group meetings. MF stated that she particularly liked the idea of using regular peer evaluations, a mixture of team and individual assessment, scheduled synchronous meetings, and faculty engagement with students within sessions to overcome these challenges and achieve learning objectives. MF also discussed the articles' focus on incremental learning activities, which she embraced as a plausible solution for supporting online group projects because she incorporated the strategy in her face-to-face courses.

***Competitive environment.*** Through the completion of the module's self-reflection (best practice literature - Activity 4) activity, MF identified the creation of a competitive learning environment as a plausible solution to address her concern regarding student engagement within the online groups. While reflecting on her review of the best practice literature (Activity 4), MF identified the creation of a competitive, but collaborative environment within her online course as a plausible solution to support group projects. She identified the idea of having students collaborate as a team on a press release writing assignment as a plausible solution. While working in groups students were to compose and present their press release. Students would then vote on the best press release, and the winning team would earn extra credit. MF believed that this activity would "encourage students to work together and deliberate, which [she] believed [was] as much part of the learning process [as] doing work independently."

***Synchronous online group meetings.*** Through the completion of the module's self-reflection (journal - Activity 3 and interview) activities, MF identified synchronous online group meetings as a plausible solution to address her concern regarding her ability to implement group projects within the online environment. Through the journal (Activity 3), MF identified the use of WebEx to facilitate group meetings were the students complete the peer editing and reviewing of assignments. To ensure diversity amongst the members of the groups, MF considered the idea of randomly assigning students to groups. MF believed her solution would "only work if students [had] a specific time they [were] expected to be online." During the interview, MF stated that she intended to communicate to students considering enrolling in her course within the syllabus and university course schedule the requirement of synchronous online meetings.

***Blackboard collaborate.*** Through the completion of the module's self-reflection (interview) activity, MF identified the use of Blackboard Collaborate meeting room as a plausible solution to address her concern regarding group projects. MF believed that her use of Blackboard Collaborate would also provide opportunities for synchronous group interaction. MF stated that she was inspired to explore the use of Blackboard Collaborate multiple room feature to encourage group work, feedback, student sharing, and faculty engagement. To address her concern regarding her ability to monitor group interactions, MF added Blackboard Collaborate rooms could provide a virtual way for her to ensure that the students remained on task while participating in the group sessions.

***Student evaluations.*** Through the completion of the module's self-reflection (best practice literature - Activity 4) activity, MF was also able to identify the use of student evaluation forms and rubrics to support her implementation of groups. MF concluded that to support new instructional "approaches, particularly the competitive writing, [she] would implement a few strategies" which included creating an evaluation form and rubric. MF credited her review of the Educause (2010) article for her identification of the assignment rubrics as a plausible solution. To ensure students' participation in group assignments, she intended to "create a simple peer evaluation form that [the] students could fill out after each assignment to evaluate both themselves and their peers." To ensure that students contributed equally to the group projects, she also intended to incorporate a peer evaluation component that would entail that a "certain percentage of the individual score [be based] on the final team product." To ensure that students understood the grading process for assignments, she intended to create a rubric for each assignment. She added that the rubric would contribute to assessment transparency.

***Student and faculty interaction.*** Through the completion of the module's self-reflection (best practice literature - Activity 4 and interview) and peer interaction (community discussion - Activity 3) activities, MF identified WebEx and office hours as plausible solutions to address her concern regarding student and faculty interaction. During the interview, MF stated identified plausible solutions that would afford her an opportunity to interact with her online students and groups synchronously. After reviewing the best practice literature (Activity 4), MF identified monitoring groups synchronous meetings via WebEx as a plausible solution. She intended to interact with the students by joining the groups online within their separate meeting spaces. Upon entering the meeting spaces, MF planned to ask group members to share their work with her, as well as provide an update on what transpired during their meeting. While discussing her solution with the researcher during the interview, the researcher also suggested that MF instruct her students to submit a summary of accomplishments that occurred during each meeting. MF identified the suggestion as a plausible solution to her concern and noted the idea within a notebook that she maintained for her online courses.

While responding to her peer, JA post within the community discussion forum (Activity 3), MF inquired about plausible solutions to improve her online office hours. She informed her peer, SR that she was interested in learning about her use of incentives to encourage students to participate in the online office hour sessions that she facilitated.

***Time Management.*** Through the completion of the module's peer interaction (community discussion - Activity 3) activity, MF identified plausible solutions to the concern regarding her ability to manage appropriately her time while instructing her online courses. While interacting with her peers via the community discussion forum

(Activity 3), MF identified a well-designed course and faculty interaction as plausible solutions she could implement. While engaging with her peer, JA, via the community discussion forum (Activity 3), MF reflected on her struggles with time management as a student. MF stated that after participating as a student within the module, she reflected on her own experience and those of her students. According to MF, as a result, she recognized that when creating course requirements for her students, she had to “be mindful of whether [she was] making good and appropriate use of [their] time.” While interacting with her peer, AC, within the forum (Activity 3) MF discussed the role faculty played in assisting students with managing their time. MF identified her ability to assist her students with managing their time as a plausible solution. She stated that though the levels of success may vary, by helping “students manage their workload, they eventually [would] start to manage their time on their own.”

**Summary of case MF.** Through the completion of the self-reflection and peer interaction activities, MF was able to navigate successfully through the process of declaring her preconceptions regarding teaching and learning in online environments, identifying concerns within her existing conceptions when assessing the transferability of her current instructional practices within an online environment, and identifying plausible solutions to address those areas of concerns. The module activities provided MF an opportunity to reflect verbally and pictorially on her existing conceptions regarding teaching and learning in online environments. The activities included the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the community discussion (Activity 3), the best practice literature (Activity 4), and the interview

exercises. As a result of participating in the activities, MF declared her attitudes, assumptions, and beliefs regarding teaching and learning within the online environment.

Through participation in the self-reflection and peer interaction exposing events, MF was able to articulate her attitudes regarding teaching philosophy, visual content, and student and faculty interaction. The self-reflection activities included the introduction discussion (Activity 1), the concept map (Activity 2), the best practice literature (Activity 4), and the interview exercises. Dialogue with her peers within the introduction discussion (Activity 1) and community discussion (Activity 3) forums further supported MF with declaring her preconceptions as well as afforded her an opportunity to become aware of the preconceptions of others. For example, while self-reflecting and interacting with her peers within the introduction discussion (Activity 1) forum, MF declared her love for interacting with her students within the face-to-face classroom environment.

Reflecting visually and verbally through her participation in the concept maps (Activity 2 and Activity 4), the best practice literature (Activity 4), and the interview exercises resulted in MF declaring her assumptions regarding student engagement and time management. For example, while reflecting visually through the creation of the concept map (Activity 4), MF was able to reveal her assumption that the inclusion of collaborative opportunities within her online course would increase student learning.

MF's responses to the self-reflection and peer interaction activities also revealed her beliefs regarding visual content, online and face-to-face teaching philosophies, active learning, online courses, time management, student and faculty interaction, and student engagement. The exercises included the concept map (Activity 2 and Activity 4), the community discussion (Activity 3), best practice literature (Activity 4) and the interview.

For example, while visually reflecting through the creation of the concept map (Activity 2), MF shared her belief that active learning was a central component of her teaching style.

The module activities acted as a discrepant event, which resulted in MF declaring concerns within her preconceptions that would hinder her from successfully delivering instruction within the online environment. MF's statements revealed concerns regarding communication, student engagement, student and faculty interaction, group work, course content, visual content, and time management within the online learning environment. The exercises that acted as discrepant events included the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 2), the community discussion (Activity 3), the best practice literature (Activity 4), and the interview exercises. While reflecting on teaching and learning process within the online environment, MF was able to articulate conflicts between her current instructional practices and those she desired to implement within her online courses. Her awareness became apparent early within the module through her participation in the introduction discussion (Activity 1) exercise. MF's reflective statements indicated her concerns regarding time management and communication within the online environments.

The self-reflecting and peer interacting activities also resulted in MF identifying plausible solutions to address her concerns regarding course design, use of visuals, communication, student engagement, group projects, student and faculty interaction, and time management. The self-reflection occurred, through MF's completion of the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the best practices literature (Activity 4), and the interview exercises. Peer interaction through the completion of the

community discussion (Activity 3) exercise also supported MF with identifying plausible solutions. For example, while interacting with her peer, JC, MF identified the use of visuals as an instructional strategy and she would like to explore further ways to incorporate more visual content within her courses.

### **Case Two: JA**

JA was an assistant professor at the studied institution and had just completed her first year within this position during the summer of 2016. She identified herself as both an instructor or teacher and a researcher. JA had no experience instructing either an online or a blended course before completing the module. However, she had completed an online course as a student. JA credited her discipline of criminal justice and previous learning experiences with influencing her instructional practices. Prior to beginning her career in academia, she participated in formal teacher preparation training. JA shared that she continued to pursue professional development to enhance and develop her instructional skills. While interacting with her peers via the introduction discussion (Activity 1), JA stated that she was interested in additional professional development opportunities because she intended to develop an online version of her face-to-face course. She was interested in learning “more about techniques and approaches to online methods of teaching” so that she could incorporate them into her online course.

JA provided answers to pre-module survey questions that revealed her existing beliefs regarding the ability of online courses to provide similar quality as the face-to-face courses in the areas of services, support, and quality. When asked about the achievement of learning outcomes within quality online courses in comparison to face-to-face courses, JA stated that she strongly agreed that online courses could achieve the

same learning outcomes as face-to-face courses within her discipline. She moderately agreed that she could accomplish the same learning outcomes in her online courses. JA also indicated that she believed the quality of the instruction delivered by faculty could meet the learning objectives. JA added that she also believed that faculty could respond to student inquiries in online courses similarly, to how they could in face-to-face courses. When responding to questions regarding an instructor's ability to interact with their students during class, JA believed that the interaction occurring within an online course would be of a lower quality than that taking place within a face-to-face course.

JA was an engaged participant and completed the required module activities. While completing the community discussion (Activity 3) exercise, when required to respond to the post of two peers, JA exceeded the requirements by engaging with three of her peers as well as the researcher. Upon completion of the module, JA participated in a synchronous WebEx online interview, but unlike the researcher, she did not use a web camera during the meeting.

Table 8

*JA Concept Map Modifications Table*

Structure of Concept Map	Original Concept Map	Revised Concept Map
Focal Concept	Online Instruction	Online Instruction
Number of Incomplete Propositions	15	23
Number of Completed Propositions	0	1
Include Linking Words	None were used	1
Cross-links	0	4

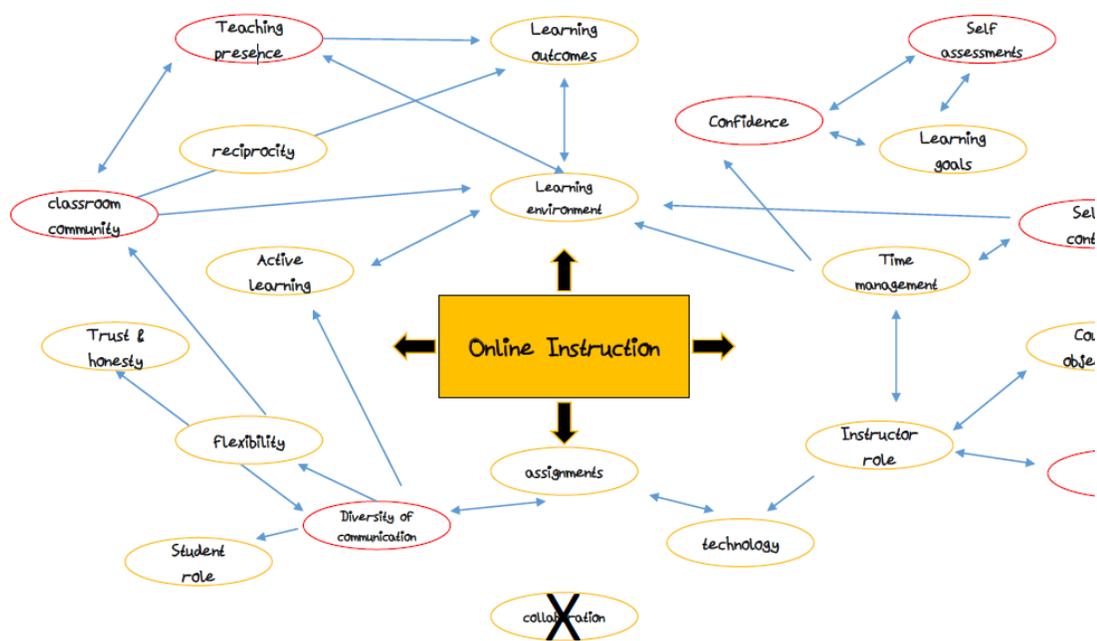


Figure 4. Case JA original (top) and revised (bottom) concept maps.

**Analyzing both concept maps.** When comparing the two concept maps (Figure 4) and assessing the modifications made to the revised concept maps (Table 8), the researcher observed that JA experienced deep learning following completion of the module activities. The criteria for deep learning state that there is a significant improvement from the original map showing a linkage between the newly learned concepts and original conceptions (Hay, 2007). She used MindMeister to create her original concept map (Activity 2) and Microsoft PowerPoint to recreate her revised concept map (Activity 4). JA described her original concept map (Activity 2) as simple. She credits its simplicity to her lack of experience with creating concept maps and using MindMeister (online mapping tool). During the interview, when discussing the changes she made to the revised map (Activity 4), JA stated that the modifications were as a result of having “a little bit more time” and her review of the best practice literature (Activity 4). Due to this enhanced understanding, she was able to create an image that reflected more accurately “a representation of [her] reflections.

***Focal concept and propositions.*** The focal point for both the original and revised concept map was the term, *online instruction*. JA did not include any propositions within her original concept map; however, when revising the map, she incorporated one completed proposition. Within the revised map, JA increased the number of incomplete propositions (e.g., lacked linking words) from 15 to 23.

***Linking words and crosslinks.*** JA did not include many linking words within the design of either concept maps, with no linking words in the original map (Activity 2) and only one in the revised map (Activity 4). Within her revised concept map (Activity 4), she only included the linking word *reciprocity* within the design of the map.

Additionally, JA did not include the use of cross-links within the original concept map. Within the revised concept map, JA illustrated the existence of relationships between the subdomains by including four cross-links between the terms *confidence* and *time management*; *self-control* and *learning environment*; *learning environment* and *classroom community*; and *classroom community* and *flexibility*.

**Original concept map.** When asked to depict pictorially the relationship between the concepts provided within the module activity, JA created a concept map that represented the hierarchical structure of a spoke. The use of a spoke structure represents a “simple association with no understanding of processes or interactions” related to the topic (Kinchin, Hay, & Adams, 2000, p. 48). The concept map created by JA also lacked cross-links, which Novack and Cañas (2008) stated demonstrates that the learner does not understand the “relationships between the subdomains” within the concept map. It appears that her original concept map (Activity 2) illustrated a simple relationship between the concept *online instruction* and the remaining concepts included within the map. According to JA, the initial map was overly simplistic and lacked connections and reciprocity amongst the concepts because she had no experience with creating a concept map nor with using the MindMeister tool prior to completing the module.

The focal point of JA’s original concept map was the term, *online instruction*. The term appeared in a blue oval-shape at the center of the image. In addition to the focal term, JA included 15 concepts within the design of the concept map. Eight of these concepts appeared in the parking lot list of terms provided via the assignment instructions. The concepts included were *learning outcomes*, *instructor role*, *active learning*, *time management*, *learning environment*, *student role*, *technology*, and

*collaboration*. She also added seven concepts not included in the parking lot list within the design of her concept map: *online instruction, flexibility, assignments, reciprocity, learning goals, course objectives, trust, and honesty*.

Through the design of her original concept map, JA identified the existence of a singular relationship between the concept *online instruction* and 14 of the concepts included within the map. She arranged these 14 concepts in a circular pattern around the central concept, *online instruction*, using a single line that connected the terms. The terms included *flexibility, assignments, reciprocity, learning goals, course objectives, trust and honesty, learning outcomes, instructor role, active learning, time management, learning environment, student role, technology, and collaboration*. Though JA visually demonstrated the existence of the relationships, she did not create complete propositions within the map. Without the inclusion of linking words, it was difficult for the researcher to determine the intended relationships between the concepts and the central term.

**Revised concept map.** During her interview, JA revealed that having time to reflect and the review of the literature resulted in the redesign of her original map. The revised map clearly illustrated significant changes to the structure and content of the map. JA stated during the interview that she “resorted to [her] old pal PowerPoint to improve [her] concept map.” The revised concept map illustrated the existence of complicated relationships between the clustered concepts and the central concept, as well as the relationships between the 14 included concepts. The first noticeable change resulted from her use of PowerPoint to create the revised and more detailed concept map. JA used the concept, *online instruction*, as the focal point of the concept map for both maps; however, in the revised map, the term appears inside of a gold rectangle with four arrows

strategically placed in the center of the four straight lines. Though the focal point remains the concept of *online instruction*, the structure of the concept map morphed into a net. The term net conceptual map depicts a “complex interaction at different conceptual levels... [and] can support reorganization to emphasize different components to appreciate a ‘larger world view’ or to compensate for a missing link” (Kinchin, Hay, & Adams, 2000, p. 48).

JA enclosed the 14 not included in the parking lot list and seven newly added terms included within the revised map (Activity 4) individually inside of a red circle. Though the term *collaboration* appears on the original concept map, JA did not include the term within the design of the revised map. She visually represented this change by placing an X on top of the circle containing the term *collaboration*. JA stated that she removed the term because she “felt it was expressed inherently in other ideas.”

JA included one complete proposition within the design of her revised map. The proposition included a line connecting the concepts *classroom community*, *learning outcomes* and *reciprocity*. The term *reciprocity* was a linking word incorporated at top of the line and connected the concepts *learning outcomes* and *classroom community*. Additionally, there were no lines directly connecting the term *reciprocity* to another term. The remainder of the parent propositions were incomplete because they did not include any linking words.

Though the revised map included only one complete proposition, it did include the joining of concepts with two distinct line types. For the revised map, JA added arrows to the end of the lines connecting the terms to demonstrate the existence of directional relationships between the concepts. JA referred to the arrows as connectors, stating that

“[she] added connectors throughout and it was critical to [her] view of the ideas that [she] add reciprocal connectors as some ideas and concepts feed off each other.” The first line, which included an arrow, consisted of one connector at the end of the line. Within the revised concept map, the single connector signified the existence of 13 distinct relationships between the concepts. The second line included the use of two connectors placed on both ends of the line. The lines, which included the two connectors, signified 11 distinct relationships between the concepts.

Unlike the original concept map, the revised map depicted the inclusion of four cross-links. The inclusion of these cross-links represents JA’s understanding of the “relationships between the subdomains” within the revised concept map. These long lines, which include one arrow or connector, reached across different segments of the concept map. The cross-links represent relationships between the concepts *self-control* and *learning environment*; *classroom community* and *learning environment*; *classroom community* and *flexibility*; and *active learning* and *diversity of communication*.

**Responses to research questions.** The following sections discuss how the module activities assisted JA’s conceptual change process. The researcher presents responses to address the three research questions. The researcher analyzed JA’s responses captured during the interview to the prompting questions, as well as her posted responses to the module Blackboard discussion forums and journal exercises. JA’s responses to the prompting questions regarding her attitudes, beliefs, and assumptions; areas of concern or dissatisfaction; and plausible solutions fell into several categories illustrated in Figure 5.

Research Question 1	
Completed Module Activities	Identified Themes
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> concept map, journal, best practice literature review, revised concept map, and Interview</li> <li>• <b>Peer Interaction:</b> community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Attitudes:</b> teaching philosophy and student development</li> <li>• <b>Assumptions:</b> cookie-cutter and prefabricated online courses, student and faculty interaction, assignments, and time management</li> <li>• <b>Beliefs:</b> student and faculty interaction, student engagement, lack of visuals, instructional resources, teaching philosophy, and time management</li> </ul>
Research Question 2	
Completed Module Activities	Identified Themes
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> introduction discussion forum, concept map, journal, best practice literature review, revised concept map, and Interview</li> <li>• <b>Peer Interaction:</b> introduction discussion forum and community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Concerns</b> <ul style="list-style-type: none"> <li>○ limitations of prefabricated and cookie-cutter courses</li> <li>○ instructional resources</li> <li>○ lack of variety in traditional assignments</li> <li>○ exploring new technologies</li> <li>○ student engagement</li> <li>○ student and faculty interaction</li> <li>○ communication</li> <li>○ time management</li> </ul> </li> </ul>
Research Question 3	
Completed Module Activities	Identified Plausible Solutions
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> introduction discussion forum, concept map, journal, revised concept map, best practice literature review, and Interview</li> <li>• <b>Peer Interaction:</b> community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Solutions</b> <ul style="list-style-type: none"> <li>▪ revise assignments and assessments</li> <li>▪ self-assessments activities</li> <li>▪ student centered assignments</li> <li>▪ group projects</li> <li>▪ non-textbook readings</li> <li>▪ instructional videos</li> <li>▪ facilitated meetings (WebEx)online office hours (WebEx)</li> <li>▪ Blackboard Journal and discussion forum</li> <li>▪ video presentations (Panopto)</li> <li>▪ Skype &amp; Google Hangout accounts</li> <li>▪ podcast</li> <li>▪ concept map (continuous reflection)</li> </ul> </li> </ul>

Figure 5. Case JA Identified Themes

**JA findings for research question 1.** JA was able to identify and define her attitudes, assumptions, and beliefs regarding teaching and learning within the online environment upon completing the conceptual conflict module's self-reflection and peer

interaction exercises. JA identified and defined her attitudes about teaching philosophy and student engagement through her participation in the concept maps (Activity 2 and Activity 4), the journal (Activity 3), and the interview exercises. The defining of her assumptions regarding cookie-cutter and prefabricated online courses, communication, student and faculty interaction, and time management through her completion of the community discussion (Activity 3), the journal (Activity 3), and the interview exercises. JA was able to define her beliefs regarding student and faculty interaction, student engagement, lack of visuals, instructional resources, teaching philosophy, and time management through her completion of the concept map (Activity 2), the community discussion (Activity 3), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises.

*Attitudes.* Through the completion of the self-reflection exercises reflection (concept maps, journal, and interview) activities, access to the module resources, and participation in the discussion forums, JA was able to define or identify her negative attitudes regarding her ability to implement her teaching philosophy in an online course. JA also expressed both her positive and negative attitudes towards student engagement within the online environment.

During the interview, JA shared that she was fearful that she could not implement her teaching philosophy within the online environment. Through the completion concept maps (Activity 2 and Activity 4) JA thought “about all [the] strengths and weaknesses” within her approach to teaching. When describing her approach to teaching, within her journal post (Activity 3), JA stated that she was “very focused on creating a lively,

interconnected classroom environment [but that she was] not sure how [she] would do this with an online class.”

While reflecting on her concept map (Activity 2), JA revealed her positive attitude regarding her ability to engage her students. JA shared that what she “[liked] about the prospect of teaching online [was] the chance to have students participate more actively in discussions.” During the interview, while reflecting on the design of her courses, JA shared that she took pride in the “very dynamic interactive classroom experience” she incorporated into her face-to-face courses. JA also shared during the interview, that her completion of the module reflective activities revealed a weakness in her approach to student engagement. When reflecting through the journal (Activity 3), JA stated that when considering teaching an online course, she feared the prospect of having to “promote student interaction.”

*Assumptions.* Through the completion of the module’s self-reflection (journal - Activity 3, and interview) and peer interaction (community discussion - Activity 3) activities, JA was able to define or identify her assumptions regarding cookie-cutter and prefabricated online courses, student and faculty interaction, assignments, and time management.

Through the journal (Activity 3) and the interview activities, JA revealed assumptions she made regarding faculty who developed or instructed both cookie-cutter and prefabricated online courses. During the interview, while reflecting on the design of cookie-cutter and prefabricated online courses, JA assumed that they were created by "copying [and] pasting [a] face-to-face course into an online course." She shared her assumption that persons developing cookie-cutter courses were taking “the lazy way

out... and just hoping for” a favorable outcome when designing their course. While reflecting through the journal (Activity 3), JA described a prefabricated course as being one in which someone other than the instructor “designed all the material and assignments.” She shared her assumption that colleagues who instructed prefabricated courses were “simply handed an entire course on Blackboard” and did not contribute to the design of the course. JA also declared her assumption that faculty instructing prefabricated courses were only responsible for grading student submissions. During the interview, JA declared her assumption that faculty teaching prefabricated courses did not interact with their students and communication was limited to responses to questions regarding assignments. Statements made by JA during the interview suggested she assumed that prefabricated courses lacked engagement, active learning, classroom community, and the interest of students.

While reflecting during the interview, JA revealed her assumptions regarding the perceptions she assumed her students had about how she interacted with them. JA acknowledged her assumption that the use of email to communicate with her students would result in her inability to create a rapport with them. As a result, she also assumed that her students would come to see her as just “a name in an email.” During the interview, JA also revealed her assumption regarding her student's perceptions about her course assignments. JA stated that students considered some of the assignments she incorporated into her course “[as] being busy work.”

JA revealed her assumptions regarding the time management practices of faculty and student through her participation in the community discussion forum (Activity 3). While interacting with her peer BS via the community discussion (Activity 3) regarding

time management, BS revealed her assumption regarding student's time management practices. JA assumed that when assigned soft deadlines for assignments that "students usually [felt as though] they [had] all the time in the world ... and therefore [did] not manage their time well." Within the community discussion forum (Activity 3) while interacting with her peer MF, JA discussed the similarities in their assumptions regarding time management. While reflecting on MF's concept map (Activity 3), JA shared her assumption that they "both [looked] at time management as the responsibility of both [the] student and instructor." When discussing the time management practices of faculty, JA assumed that, like herself, other faculty "always ... underestimate" the time required for grading student submissions for face-to-face courses.

**Beliefs.** Through the completion of the module's self-reflection (concept map, best practice literature, interview) and peer interaction (community discussion) activities, JA was able to define or identify her beliefs regarding student and faculty interaction, student engagement, lack of visuals, instructional resources, teaching philosophy, and time management.

JA revealed her beliefs regarding the interaction between students and faculty through her completion of the concept map (Activity 2), best practice literature (Activity 4), and interview activities. While reflecting on her concept map (Activity 2), JA revealed her belief that the lack of face-to-face contact within the online learning environment required the establishment of "some kind of virtual connection" between the instructor and student. Despite the fact she had never taught an online course, JA believed that the supporting interaction would "involve some trust and honesty between the instructor and

student.” She credited her completion of the concept map for her declaration of her beliefs regarding the necessity of honesty between faculty and students.

While reflecting on her review of the best practice literature through the discussion forum (Activity 4), JA shared her belief that she was “very accessible to students via email.” She also declared her belief that the use of email to communicate with her students was “stale in terms of current social media trends.” She credited the best practice literature (Activity 4) with helping to reshape her beliefs regarding the role of faculty and how they are “to interact with students regardless of” the modality of instruction.

JA revealed her beliefs that she currently incorporated excellent opportunities for engagement within her face-to-face courses through her completion of the concept map (Activity 2) and community discussion (Activity 3) activities. While reflecting on her concept map (Activity 2), JA declared her belief that online courses could provide more opportunities than face-to-face courses for students to participate actively in discussions. While reflecting on her interaction with her peers through the community discussion forum (Activity 3), JA stated that engaging as a student with her peers resulted in her dispelling her belief that engagement within the online courses is limited.

JA revealed her beliefs regarding the lack of visuals incorporated within her courses through her completion of the journal (Activity 3) activity. While reflecting in the journal (Activity 3), JA revealed her belief that the lack of visuals within the online environment would affect her ability to incorporate dynamic instruction within her online course and how she could address the instructional needs of her students. JA shared that within her face-to-face course, she dynamically adjust her instructional practices based on

“student reactions, their faces, how they respond to material” within her face-to-face courses.

JA revealed her belief regarding diversifying the types of instructional resources she incorporated into her courses through her completion of the interview activity. During the interview, JA declared her belief that the use of instructional reading resources was more appropriate than a textbook for an online course. JA stated that "having a set of readings rather than a textbook, per se, [would] be a lot more advantageous for the learning process and the engagement process" when instructing online courses. While reflecting on her completion of the reflective activities, JA declared her belief “that there are so many resources [other than textbooks] available to make an online class so much more engaging.”

JA revealed her belief regarding her teaching philosophies for both online and face-to-face courses through her completion of the concept map (Activity 2), best practice literature (Activity 4), and interview activities. While reflecting on her concept map through the discussion forum, JA declared her belief that “online classes [afforded] students ... an opportunity to learn in a different environment with as much if not more flexibility” than a face-to-face course. She stated that online instruction allowed flexibility for the students and opportunities for them to collaborate. While reflecting on her review of the literature through the best practice literature forum (Activity 4), JA shared her belief "that the two types of courses [face-to-face and online] not fundamentally different if approached with the same goals in mind.” She credited her completion of the module reflection activities for the restructuring of her beliefs regarding online and face-to-face courses. While reflecting during the interview, JA

declared her belief that she did a “pretty good [of integrating] active engagement [and] active learning within the classroom setting.” JA credited “the whole module helped [her] put into concrete terms and words and ideas some of [her] thoughts about [her] teaching practices.” JA shared, before completing the module activities, she had never reflected on her approach to teaching.

JA revealed her belief regarding time management through her completion of the community discussion (Activity 3) activity. Through the review of her peers BS and MF concept map posts to the forum, JA declared her belief that time management was critical for both students and faculty and they were both responsible for the management of their time. While reviewing her peers' concept maps, JA recognized that both BS and MF included the concept time management within the design of their maps. JA first responded to, BS's concept map by stating that time management was critical for both students and faculty. After reviewing MF's concept map, JA acknowledged that they both included time management within their maps and identified it as a responsibility of both students and faculty.

**JA findings for research question 2.** Through the participation in the introduction discussion forum (Activity 1), the concept maps (Activity 2 and Activity 4), the community discussion (Activity 3), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises, JA was able to identify several areas of concerns including limitations of prefabricated and cookie-cutter courses, instructional resources, lack of variety in traditional assignments, exploration of new technologies, student engagement, student and faculty interaction, communication, and time management. JA became concerned with those areas when she recognized there were

problems with her existing conceptions when transferring her current practices to the online environments. As Nussbaum and Novick (1982) indicated that when a learner recognized a problem and was unable to solve the problem with his/her existing conceptions, the learner would experience a feeling of dissatisfaction.

***Limitations of prefabricated and cookie-cutter courses.*** Through the completion of the module's peer interaction (journal - Activity 3, concept map forum - Activity 4, and interview) activities, JA identified that her ability to engage students within a prefabricated or a cookie-cutter course was a concern. She described a pre-fabricated or cookie-cutter course as one where "someone else designed all the material and assignments beforehand" and she did not contribute to the design of the online course. For example, when reflecting in the journal on the prospect of instructing a pre-fabricated course, MF realized this was a concern because she was concerned that if assigned to instruct a prefabricated and cookie-cutter online course that she could not make any changes to the course and interactions with her students would be restricted to grading their assignments. In other words, when reflecting in the discussion forum, journal and interview, MF recognized that her inability to engage with students within a prefabricated course was a problem and she was not able to solve it with her current conception on the design of prefabricated courses.

***Instructional resources.*** Through the participation in the self-reflection (best practice literature - Activity 4 and interview) activities, JA identified that her ability to integrate different media (video and textbook alternatives) into the design of her online courses was a concern. For example, when reflecting on her use of instructional resources during the interview, JA realized that her ability to align the placement of the videos with

the learning objectives was a concern because she was unaware of how to instructional integrate videos into her course. In other words, when reflecting in the discussion forum and interview, JA recognized that her ability to integrate video and alternatives to textbooks within her online course was a problem and she was not able to solve it with her current conception on the instructional use of media.

***Lack of variety in traditional assignments.*** Through the completion of the module's self-reflection (concept map forum -Activity 2, journal - Activity 3, and interview) activities, JA identified that her use of traditional assignments to assess students within her online courses was a concern. For example, when reflecting through the journal (Activity 3) on the need to use creative assignments to engage online students, JA realized that her ability to incorporate diverse assessment strategies to evaluate student achievement of learning goals within the online environment was a concern because she tended to use traditional assignments like papers, essays, and multiple-choice quizzes within her course. In other words, when reflecting within the discussion forum and interview, JA recognized that her use of traditional assignments within online courses was a problem and she was not able to solve it with her current conception on assessment strategies.

***Exploring new technologies.*** Through the completion of the module's self-reflection (journal - Activity 3 and best practice literature - Activity 4) activities, JA identified that her use of traditional assignments to assess students within her online courses was a concern. For example, when reflecting through the journal (Activity 3) on the prospect of teaching an online course, JA realized that her ability to use new technologies to create a lively and interconnected online classroom environment was a

concern because she feared the prospect of having to explore new technologies for her online course. In other words, when reflecting within the journal (Activity 3) and discussion forum (Activity 4), JA recognized that her apprehension regarding her exploration of new instructional technologies was a problem and she was not able to solve it with her current conception on assessment of new instructional technologies.

***Student engagement.*** Through the completion of the module's self-reflection (concept map - Activity 2 and interview) and peer interaction (community discussion - Activity 3) activities, JA identified that her ability to incorporate opportunities for student engagement within her course was a concern. For example, when reading her peer JC's post on how JC intended to incorporate active learning to support student engagement within his online course, JA realized that her ability to incorporate opportunities for students to participate more actively in discussions was a concern because she was unsure of her ability to incorporate instructionally student engagement into her online course. In other words, when interacting with her peers in the discussion forum and self-reflecting within the discussion forum and interview, JA recognized that her ability to engage her online students was a problem and she was not able to solve it with her current conception on supporting online student engagement.

***Student and faculty interaction.*** Through the completion of the module's self-reflection (introduction discussion -Activity 1, concept map - Activity 2, journal -Activity 3, best practice literature - Activity 4, and interview) activities, JA identified that her ability to interact with students in online courses was a concern. For example, when reflecting within the journal (Activity 3) regarding her ability to interact with online students, JA realized that the lack of visual presence was a concern because it would

impact her ability to provide dynamic instruction based on the physical cues provided by students within the online environment. In other words, when reflecting within the discussion forums, journal, and interview, JA recognized that the lack of physical presence within online courses would influence her ability to interact with her students was a problem and she was not able to solve it with her current conception on student and faculty interaction within online courses.

***Communication.*** Through the completion of the module's self-reflection (concept map - Activity 2, best practice literature - Activity 4, and interview) activities, JA identified that her ability to use diverse communication tools was a concern. For example, when reflecting on her use of email to communicate with her online students within the best practice literature forum (Activity 4), JA described email as being a "stale" technology in comparison to the available social media tools like Skype being used for communication purposes. In other words, when reflecting through the discussion forums and interview, JA recognized that her outdated means of communication was a problem and she was not able to solve it with her current conception on how to support communication with current technologies.

***Time management.*** Through the completion of the module's self-reflection (concept map - Activity 2) and peer interaction (community discussion - Activity 3) activities, JA identified that the time management abilities of both her students and herself was a concern. For example, when reviewing her peer BS's concept map (Activity 3), JA realized that her ability to provide timely feedback to her students was a concern because she tended to underestimate the time required for grading her student submissions. In other words, when interacting with her peers in the discussion forums,

MF recognized that her mismanagement of time was a problem and she was not able to solve it with her current conception on time management.

**JA findings for research question 3.** Through her completion of the self-reflection and peer interaction activities, JA was able to identify plausible solutions to address her concerns regarding lack of variety in traditional assignments, instructional resources, lack of visuals, student and faculty interaction, lack of student engagement, exploration of new technologies, communication, and prefabricated and cookie-cutter courses. Based on her responses, the completion of the self-reflection exercises (concept map - Activity 2 and Activity 4, journal - Activity 3, best practices literature - Activity 4, and interview) and peer interaction (introduction discussion forum - Activity 1 and community discussion - Activity 3) helped her to identify these solutions.

*Lack of variety in traditional assignments.* Through her completion of the self-reflection (concept map - Activity 2, best practice literature - Activity 4, and interview) and peer interaction (community discussion forum - Activity 3) activities, JA identified the use of creative instructional assignments and group projects as a plausible solution to address his concern regarding her use traditional assignments to assess students within her online courses. During the interview, JA shared that the module's structured individual reflection and peer interaction activities provided an opportunity for her to "actively and conscientiously [think] about how ... to create a better learning environment", which included diversifying her assignment choices. She also credited her completion of the module reflective activities, with her transition "away from ... what [she saw] as the traditional assessments and evaluation of student learning." According to JA, participation in the module also prompted her to reconsider her expectations

regarding the outcomes and purposes of the assignments within her courses. Through her review of the best practice literature (Activity 4), JA identified as a plausible solution the use of self-assessment activities for both her students and herself to gauge how the class was progressing.

To address her concern regarding her use of traditional assignments, JA identified her ability “to become more creative in [the] assignments” as plausible solution. When interacting with the researcher via the community discussion forum (Activity 3), she added that for these changes to occur, she would require both “inspiration and guidance” from the best practice literature (Activity 4) on assessment. During the interview, she stated that the resources provided via the best practice literature (Activity 4) provided “insight on how to make [assignments] more interesting and creative.” She added that the review of the literature “really did give [her] a better structure [on] how to create a much more student-oriented approach to [her] assignments.”

JA stated that the literature provided helpful information on how she could vary her assignments, incorporate engaging activities into her online classes, and facilitate discussions via the use of videos. She found the resources so helpful that she intended to put “together a binder of all the reading materials so that [she could] use them for future reference.” Interaction with her peers via the introduction discussion (Activity 1) and community discussion (Activity 3) forums resulted in AC identifying the instructional use of group projects as a plausible solution to address her concern her use traditional assignments to assess students within her online courses. While interacting with her peer, MF via the community discussion forum (Activity 3), JA stated that “[she] hadn't thought

about the group project as a [possible solution], although now with so many different technologies it is probably a viable and worthwhile option.”

***Instructional resources.*** Through the completion of the module’s self-reflection (introduction discussion - Activity 1 and best practice literature - Activity 4) activities, JA identified non-textbook resources and visuals as plausible solutions to address her concern regarding ability to integrate different media (video and textbook alternatives) into the design of her online courses. During the interview, JA identified the use of non-textbook readings as a plausible solution to address her concerns regarding the use of textbooks. While reflecting on her concern, JA discussed the use of non-textbook readings within her face-to-face course. She stated that using readings instead of the textbook “would be a lot more useful” for her students. JA believed that providing her online students with “a set of readings rather than a textbook, per se, might be a lot more advantageous for the learning process and for the engagement process.”

While reflecting on the best practice literature (Activity 4), JA identified the use of visuals within her course as a solution to address her concern regarding her ability to integrate videos into the design of her course. JA stated that reviewing the articles increased her “confidence and [gave her] hope and ideas on how to successfully incorporate videos into the class dynamic.” During the interview, she shared that “some of the literature, gave [her] some ideas of how to best incorporate videos [into her course]” as well as the use of WebEx, a web conferencing tool. JA credited her review of the module welcome videos for identification of similar recordings as a plausible solution she could use to present course content.

***Student and faculty interaction.*** Through the completion of the module's self-reflection (concept map - Activity 2 and best practice literature -Activity 4) and peer interaction (community discussion - Activity 3) activities, JA was able to identify solutions to address her concern regarding her ability as the instructor to her to interact with her online students.

Through the concept map forum (Activity 2), JA stated that the lack of face-to-face contact within the online learning environment would require the establishment of "some kind of virtual connection." JA shared that she "tended to be a very traditional professor, but now [believed] there may be other interesting ways to establish a connection with students." While interacting with interacting with the researcher via the community discussion forum (Activity 3), identified the use of WebEx to interact with her students via online office hours as a plausible solution. In response to the researcher's suggestion to use the tool, JA shared that she had no experience using WebEx, but that she was interested in learning how to use WebEx. Within the best practice literature (Activity 4), JA credited her review of the articles for her identification of new instructional practices to address her concern regarding interaction within the classroom community. According to JA, she was able to identify "new instructional practices and ideas [she] want[ed] to explore and implement." She added that the new instructional practices and ideas "[did] not necessarily conflict with [her] current approaches, but [instead] enhance[d] and expand[ed]" upon them. JA stated that the module reflective activities "re-shaped what [she] believed about how she [was] to interact with students regardless of [the] medium."

***Student engagement.*** Through the completion of the module's self-reflection (journal – Activity 3 and interview) activities, JA was able to identify Blackboard discussion forum and journal as plausible solutions to address her concern regarding her ability to incorporate opportunities for student engagement within her online course.

During the interview, JA credited her use of the Blackboard discussion forum and journal via the module self-reflection and peer interaction activities for her identification of these tools as plausible solutions to address her concern regarding student engagement. JA described her inaugural use of the Blackboard journal (Activity 3) as an exercise of submitting her commentary. She considered the Blackboard journal as a plausible solution she could use to support student reflection on the course material and participation in discussions. JA stated that the experiences provided examples of how she could use the Blackboard technologies to support student engagement in her courses. The module's "discussion forum [activities] kind of showed [her] that [that it was] possible ... to create active discussion amongst the students." She added that completing the discussion forum activities afforded her an opportunity to conceptualize her ideas and experiences. While reflecting on the discussion forum activities, JA stated the most important component of her experience was addressing the "key questions" incorporated into the discussion forum and journal individual reflective activities. The key questions were the questions the researcher incorporated into all of the module activities.

***Communication.*** Through the completion of the module's self-reflection of the self-reflection (concept map - Activity 2, best practice literature - Activity 4, and interview) activities, JA identified videos, Google Hangouts, Skype, discussion forums,

and podcast as plausible solutions to address her concern regarding that her ability to diversify the communication tools she uses within her online courses.

During the interview, JA identified video as a plausible solution to address her concern regarding communication. As a module participant, JA noticed how the researcher used video to communicate with the module participants. The videos included messages intended to welcome participants to the module, review the module objectives, and provide instructions for the assignments. The researcher used Panopto to record the videos, which she incorporated throughout the module activities.

During the interview, JA identified the creation of videos similar to the modules welcome videos included in the module as a plausible solution. She proposed releasing the videos to her students at least two weeks before the semester started. JA considered the video more personable than the standard email message she used to communicate with her students. During the interview, JA identified Panopto as the presentation recording software she intended to use to record her video presentations.

Through the best practice literature forum (Activity 4), JA the creation of “a dedicated Skype account or even Google Hangouts account” as a plausible solutions to “[to] open up different avenues of communication.” JA also identified as a plausible solution, the use of WebEx to communicate synchronously with her students during online office hours and continuing instruction during periods of inclement weather. While reflecting on her concept map (Activity 2), JA identified the use of Skype, discussion forums, and podcast as plausible solutions to address her concern regarding communication within online courses. She credited her development of the concept map (Activity 2) with her realization that she could use the communication tools she currently

incorporated within her face-to-face course into her online course. While reflecting on the tools, JA shared that she often used podcasts in her face-to-face courses and her students had responded well to her use of them.

***Prefabricated and cookie-cutter courses.*** Through the completion of the module's self-reflection (concept map - Activity 2 and Activity 4, best practice literature - Activity 4, and interview) activities, JA identified the change in her philosophical opinion regarding the teaching of prefabricated or cookie-cutter courses as a plausible solution to address her concern regarding her ability to students within a prefabricated or a cookie-cutter online course. Through the best practice literature forum (Activity 4), JA credited her interaction with peers for the change in her philosophical opinion about the teaching of prefabricated or cookie-cutter courses. JA stated that as a result of her conversations with others she determined that she could make improvement to a prefabricated or cookie-cutter course. She added that cookie-cutter and prefabricated courses, as well as non-cookie-cutter and prefabricated courses, were "not fundamentally different if approached with the same goals in mind." To support her efforts of developing desirable online courses, JA identified the concept map (Activity 2 and Activity 4) as a tool she could use to address her concern regarding prefabricated courses. She stated that the reflective process of creating the concept map would "keep [her] inspired and ... from taking what [she called] the lazy way out of just copy, pasting [her] face-to-face into an online [course] and just hoping for the best."

**Summary of case JA.** Through the completion of the self-reflection and peer interaction activities, JA was able to navigate successfully through the process of declaring her preconceptions regarding teaching and learning in online environments,

identifying concerns within her existing conceptions when assessing the transferability of her current instructional practices within an online environment, and identifying plausible solutions to address those areas of concerns. The module activities provided JA an opportunity to reflect verbally and pictorially on her existing conceptions regarding teaching and learning in online environments. The activities the introduction discussion forum (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the community discussion (Activity 3), the best practice literature (Activity 4), and the interview exercises. As a result of participating in the activities, JA declared her attitudes, assumptions, and beliefs regarding teaching and learning within the online environment.

Through participation in the self-reflection exposing events, JA was able to articulate her attitudes regarding teaching philosophy and student engagement. The self-reflection activities included the concept maps (Activity 2 and Activity 4), the journal (Activity 3) and the interview exercises. For example, while reflecting within the concept map (Activity 2) discussion forum, JA declared her like for the prospect of her online students participating more actively in discussions.

Reflecting verbally through her participation in the journal (Activity 3), the community discussion forum (Activity 3), and the interview exercises resulted in JA declaring her assumptions regarding cookie-cutter and prefabricated online courses, student and faculty interaction, assignments, and time management through her completion of the module activities. For example, while verbally reflecting through the journal (Activity 3) exercise, JA revealed her assumption that faculty who instruct courses created by someone interaction with students is limited to the grading of submitted assignments.

JA's responses to the self-reflection and peer interaction activities also revealed her beliefs regarding student and faculty interaction, student engagement, lack of visuals, instructional resources, teaching philosophy, and time management. The exercises included the concept map (Activity 2), the journal (Activity 3), the community discussion forum (Activity 3), the best practice literature (Activity 4), and the interview exercises. For example, while visually reflecting through the creation of the concept map (Activity 2), JA shared her belief that online courses supported collaboration and offered a flexible learning environment for her online students.

The module activities acted as a discrepant event, which resulted in JA declaring concerns within her preconceptions that would hinder her from successfully delivering instruction within the online environment. JA's statements revealed concerns regarding prefabricated and cookie-cutter courses, instructional resources, lack of variety in traditional assignments, exploration new technologies, student engagement, student and faculty interaction, communication, and time management. The exercises that acted as discrepant events included the introduction discussion forum (Activity 1), the concept maps (Activity 2 and Activity 4), the community discussion (Activity 3), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. While reflecting on teaching and learning process within the online environment, JA was able to articulate conflicts between her current instructional practices and those she desired to implement within her online courses. Her awareness became apparent through her participation in the journal (Activity 3). JA's reflective statements indicated her concerns regarding how the lack of visual presence within the online environment would affect her

ability to support student interaction and respond to the learning needs of her online students.

The self-reflecting and peer interacting activities also resulted in JA identifying plausible solutions to address her concerns regarding the lack of variety in traditional assignments, instructional resources, student and faculty interaction, student engagement, communication, and prefabricated and cookie-cutter courses. The self-reflection occurred, through JA's completion of the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the best practices literature (Activity 4), and the interview exercises. Peer interaction through the introduction discussion (Activity 1) and the community discussion (Activity 3) also supported JA with identifying plausible solutions. For example, while reflecting verbally through the review of the best practice literature (Activity 4), JA identified resources she could refer to for instructional guidance on how to vary her assignments, incorporate engaging activities into her online classes, and facilitate discussions via the use of videos.

### **Case Three: JC**

JC was a visiting lecturer who taught Graphic Design at the studied institution. In previous years, he worked there in the position of both an adjunct professor and a visiting lecturer. When responding to the pre-module self-report survey, he identified himself as an instructor or teacher and researcher. During the interview, JC shared that he began his teaching career as a darkroom technique instructor for a talented and gifted high school summer program while completing his undergraduate studies. While in graduate school, JC focused on teaching and pedagogy because of his intention to pursue a teaching career

within the college setting. According to JC, he pursued a teaching career because he found it to be gratifying.

His responses to the pre-module self-report survey also credited his professional discipline, department, administrative policies, and previous learning experiences with influencing his instructional practices. JC shared that before beginning his academic career, he had completed formal teacher preparation training. Since beginning his career in academia, JC continues to pursue professional development opportunities to enhance and develop his instructional skill set.

Prior to completing the module, JC had no experience with instructing an online or a hybrid course. However, he did have experience with online courses as a graduate student, as he had taken one online course. Though he was not instructing an online course, JC shared that he incorporated what he called hybrid components into his face-to-face art studio course. JC stated that he posted all his course materials to a Blackboard site and incorporated the Blackboard discussion board feature into his face-to-face courses.

While reflecting on his participation in the module via the introduction discussion forum (Activity 1), JC stated that he was completing the workshop offered by the researcher's department to “improve the online elements of [his face-to-face] course... and to be prepared should the opportunity to teach an online course arise.” From his participation in the module and the workshop, he added that he hoped to identify new ideas that he could implement to reduce lecture time when flipping elements of his face-to-face courses. Flipping is an instructional strategy designed to promote active learning by utilizing class time for interactive lessons and converting lectures into an independent

learning activity completed by students before meeting in person (Matsuda, Azaiza, & Salani, 2017).

JC provided answers to the pre-module survey questions that revealed his existing beliefs regarding the ability of online courses to provide the equivalent of face-to-face courses in the areas of services, support, and quality. When asked about the achievement of learning outcomes within quality online courses in comparison to face-to-face courses, JC moderately agreed that online courses could achieve the same learning outcomes within his discipline and for the courses he instructs. JC also indicated that he believed that the quality of the instruction delivered by faculty to meet the learning objectives and to respond to student inquiries for online courses was equivalent to face-to-face courses.

When responding to questions regarding an instructor's ability to interact with their students, both inside and outside of the classroom environment, JC had two different perceptions. He believed that interaction within an online class resulted in a lower quality experience than that experienced in a face-to-face course. Despite this view, JC believed that interaction with students outside of the online classroom provided the same quality experience as that fostered in face-to-face courses.

JC was an engaged participant during the module and completed all of the module activity requirements. Instead of just responding to the post of one peer, JC interacted with six of his peers while participating in the introduction discussion (Activity 1) exercise. Additionally, while interacting with his peers via the community discussion (Activity 3), he responded to two of his peers, exceeding the required response to the post of just one participant. At the end of the module, JC participated in the synchronous WebEx online interview, and like the researcher, he used a web camera.

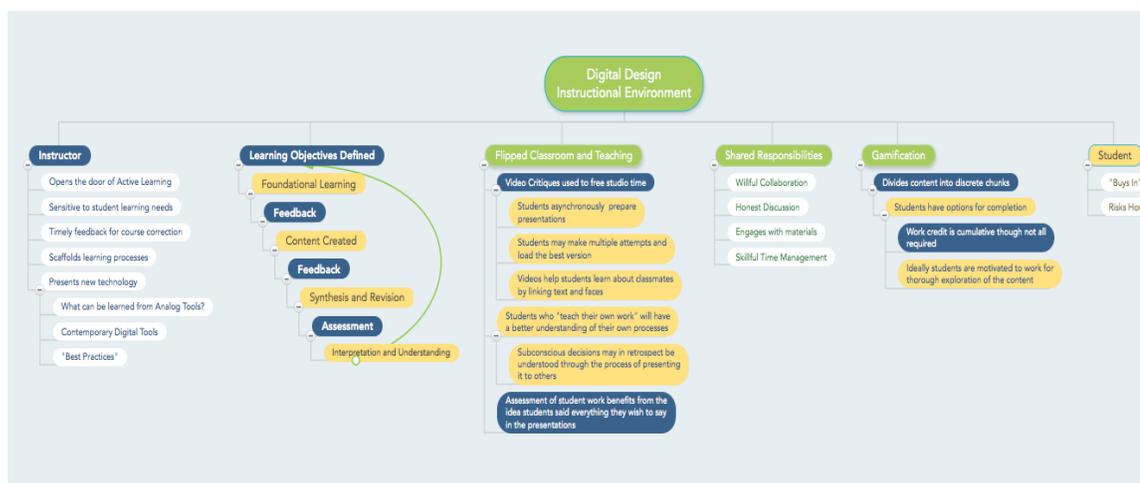


Figure 6. Case JC Revised Concept Map.

Table 9

JC Concept Map Modifications Table

Structure of Concept Map	Original Concept Map	Revised Concept Map
Focal Concept	Digital Design Instructional Environment	Digital Design Instructional Environment
Number of Incomplete Propositions	17	34
Number of Completed Propositions	0	0
Include Linking Words	None were used	None were used
Cross-links	0	0

**Analyzing both concept maps.** During the initial data collection process, the researcher captured two concept maps (Activity 2 and Activity 4) via links provided by JC within the discussion forums. When analyzing them, the researcher discovered that the two maps were, in fact, the same (Figure 6). To complete the revised concept map exercise (Activity 4), JC updated the original concept map via the use of MindMeister. Because he did not create two separate concept maps, JC unintentionally altered the live

version of the original concept map (Activity 2). The researcher was unable to obtain the original concept map from JC; therefore, the researcher based the analysis of the original concept map on the descriptive information provided via the concept maps' (Activity 2 and Activity 4) discussion forums. When comparing the described modifications (Table 9) made to the two maps, it appeared as though JC experienced deep learning following completion of the module. The criteria for deep learning states that there was a significant improvement from the original map, showing a linkage between the newly learned concepts and original conceptions (Hay, 2007). During the interview, when discussing the changes he made to the revised map (Activity 4), JC shared that he did so in order to “incorporate the information from the literature review [Activity 4].” The changes included the addition of several new columns to the map, with the gamification column experiencing the most critical change.

***Focal concept and propositions.*** The focal point used for both the original and revised concept maps was the term *digital design*. Based on the revised concept map, the researcher assumed, from the information provided in the discussion forum, that JC included 17 incomplete propositions (i.e., lacked linking words) within the original concept map (Activity 2). JC included 34 incomplete propositions within the design of his revised map (Activity 4).

***Linking words and crosslinks.*** JC did not include any linking words or crosslinks within the original (Activity 2) or revised concept (Activity 4) maps. Based on JC's reflective statements regarding the modifications he made to the original map (Activity 2), the researcher assumed that no linking words nor crosslinks appeared within the original concept map (Activity 2). Though he made changes to the original map

(Activity 2), JC did not include any linking words or cross-links within the revised concept map (Activity 4).

**Original concept map.** Though the researcher was unable to capture the original map, she was able to determine because of JC's post to the discussion forum (Activity 2), that he was concerned about his ability to create the concept map using the suggested MindMeister tool. Based on JC's responses to the Activity 2 and Activity 4 discussion forums, as well as viewing the revised concept map (Activity 4), the researcher classified it as a net structure. When using MindMeister to design the original map, JC stated in his reflective statement (Activity 2) that it "did not provide the granular design capability [he] would have liked. [JC added that he] would have been able to make [the concept map] more swiftly in InDesign or Illustrator." He added that his original "concept map [Activity 2] show[ed] the *instructor* in blue, *student* in yellow, and the *interconnected activities* of the instructor and student in green (the printer color wheel mix of blue and yellow). There was a feedback relationship rather than a simple transmission of information." Statements made by JC suggested that the term *learning objectives defined* was included within the original map (Activity 2) as well. The only terms JC included within his map from the provided parking lot list of terms were *instructor* and *student*.

**Revised concept map.** According to JC's post to the revised concept map (Activity 4) discussion forum, he made significant changes to the structure and content of the map. He used MindMeister to design a net structured concept map. The revised concept map (Activity 4) depicted a "complex interaction at different conceptual levels... [and could] support reorganization to emphasize different components to appreciate a 'larger worldview' or to compensate for a missing link" (Kinchin, Hay, & Adams, 2000,

p. 48). Within his post to the discussion forum (Activity 4), JC stated that he “added branches for ‘*Flipped Classroom and Teaching*’ and ‘*Gamification*’ as shared responsibilities” to his revised map. JC used lines to illustrate relationships between the focal point and the concepts within the six columns. He also used the lines to illustrate relationships between the concepts within each of the individual columns first, second and third-tier concepts.

JC incorporated some combinations of the parking lot terms *content, assessment, learning, student, environment, discussion, time management, instructor, active learning, instructional design, asynchronous, and collaboration* into statements and phrases within his revised concept map (Activity 4). The focal point and first tier of the map was the term *Digital Design Instructional Environment*. The concepts included in the second tier were *instructor, learning objectives defined, flipped classroom and teaching, shared responsibilities, gamification, and student*. The term *assessment* was the only parking lot term JC incorporated into the design of his revised concept map (Activity 4). He also incorporated 38 concepts or statements that did not appear within the original parking lot terms list, and 31 of those terms appeared in the third tier of his concept map (Activity 4).

**Responses to research questions.** The following sections discuss how the module activities assisted JC’s conceptual change process. The researcher presents responses to address the three research questions. The researcher analyzed JC’s responses captured during the interview to the prompting questions, as well as his posted responses to the module Blackboard discussion forums and journal exercises. JC’s responses to the prompting questions regarding his attitudes, beliefs, and assumptions; areas of concern or dissatisfaction; and plausible solutions fell into several categories illustrated in Figure 7.

**JC findings for research question 1.** JC was able to identify and define his attitudes, assumptions, and beliefs regarding teaching and learning within the online environment as a result of completing the module self-reflection and peer interaction exercises. He revealed his attitudes towards teaching philosophy, student development, and peer interaction through his completion of the introduction discussion forum (Activity 1), and the interview exercises. JC also shared his assumptions regarding the misconceptions regarding student engagement and misconceptions about online courses through his completion of the introduction discussion forum (Activity 1) and the interview exercises. Through self-reflection and peer interaction, JC discussed his beliefs regarding active learning, use of technology, teaching philosophy, student interaction and engagement, student and faculty interaction, and lack of visuals. JC completion of the introduction discussion (Activity 1), the concept map (Activity 2), the community discussion (Activity 3), the best practice literature (Activity 4), and the interview exercises revealed his beliefs.

Research Question 1	
Completed Module Activities	Identified Themes
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> introduction discussion forum, concept map, journal, best practice literature review, and Interview</li> <li>• <b>Peer Interaction:</b> introduction discussion forum and community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Attitudes:</b> teaching philosophy, student development and peer interaction</li> <li>• <b>Assumptions:</b> student engagement, misconceptions about online courses</li> <li>• <b>Beliefs:</b> active learning, use of technology, teaching philosophy, student interaction and engagement, student and faculty interaction, and lack of visuals</li> </ul>
Research Question 3	
Completed Module Activities	Identified Solutions
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> introduction discussion forum, concept map, journal, best practice literature review, and interview</li> <li>• <b>Peer Interaction:</b> introduction discussion forum and community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Concerns</b> <ul style="list-style-type: none"> <li>▪ student misperceptions about online courses</li> <li>▪ face-to-face collaboration</li> <li>▪ course assignments</li> <li>▪ instructional use of technology</li> <li>▪ student access to technologies</li> </ul> </li> <li>▪ student engagement</li> <li>▪ communication</li> <li>▪ lack of visuals</li> <li>▪ clarity of course instructions</li> <li>▪ faculty support</li> <li>▪ Faculty Responsibilities</li> </ul>
Research Question 3	
Completed Module Activities	Identified Plausible Solutions
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> introduction discussion forum, concept map, journal, best practice literature review, and interview</li> <li>• <b>Peer Interaction:</b> introduction discussion forum and community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Solutions</b> <ul style="list-style-type: none"> <li>▪ gamification</li> <li>▪ Panopto</li> <li>▪ Blackboard Collaborate</li> <li>▪ online discussion forums</li> <li>▪ student groups</li> <li>▪ inquire about available technologies</li> <li>▪ administrator install applications</li> <li>▪ student recorded presentations</li> </ul> </li> <li>▪ create video tutorials</li> <li>▪ screen capture technologies</li> <li>▪ develop rich course</li> <li>▪ online presentations</li> <li>▪ useful resources</li> <li>▪ upload photo or image</li> <li>▪ peer interaction</li> <li>▪ implement solutions in face-to-face course</li> </ul>

Figure 7. Case JC Identified Themes

*Attitudes.* Through the completion of the module's self-reflection (introduction discussion and interview) activities, JC was able to define or identify his positive attitude towards his teaching philosophy, positive attitude towards student development, and positive attitude towards interacting with peers experienced with teaching blended or online courses. While reflecting through his participation in the introduction discussion forum (Activity 1), JC revealed that he liked the profession of teaching. JC shared that he became a teacher because he found it "really rewarding." He stated that interest in teaching began while he was an undergraduate art student. While an undergraduate student, JC became a "darkroom technique instructor for [his] college's Talented and Gifted high school summer program." JC added that while pursuing his graduate degree he "focused on teaching and pedagogy" because he intended to "teach at the college level."

Through his participation in the introduction discussion forum (Activity 1), JC revealed his positive attitude towards student development. While reflecting within the forum, JC stated that "teaching art [was] terrific ... [because] it [was] great to see the development of [student skills] over time within a single course or" multiple courses. JC expressed excitement over the prospect of seeing students in his foundational courses "make unique solutions for problems."

During the interview, while reflecting on his interaction with his peers in the introduction discussion (Activity 1), JC expressed a positive attitude regarding his ability to interact with his peers experienced with instructing blended and online courses. According to JC, participating in the discussion forums with peers experienced with teaching hybrid and online courses was helpful. Through his interaction with his peers, he

was able to obtain “information about different [technologies] that they use and ... best practices” they implemented within their courses. JC concluded that he benefited more from his interaction with his peers than from the individual reflective exercises.

*Assumptions.* Through the completion of the module’s self-reflection (introduction discussion - Activity 1 and interview) and peer interaction (introduction discussion) activities, JC was able to define or identify his assumptions regarding student engagement within online courses and misconceptions his students have about online courses. During the interview, JC revealed his assumptions regarding his student’s ability to engage within the online environment. JC assumed that the lack of synchronous interaction and physical separation would distract his students and affect their ability to collaborate within his online course. Through his participation in the introduction discussion forum (Activity 1), JC also assumed that some of his students did not fully participate in the online environment. When reflecting the discussion board assignment incorporated within his course, JC stated that though his assignments were partially successful and assumed that “not all students [participated] in good faith.” JC also assumed that the lack of clarity in his course assignments was not the catalyst for his students’ lack of participation within the discussion forums. He assumed that his instructions made clear to his students to his students the requirements for the assignments within his course.

While interacting with her peers via the introduction discussion forum (Activity 1), JC shared his assumption that his students held several “[misconceptions] regarding online courses.” The first assumption about his student’s perceptions regarding his course that JC shared his peers was that his students believed that online courses “[were] easier

than face-to-face” courses. JC also shared his assumptions that his students questioned the quality of online courses and believed that online courses could not cover course material in “the same depth” as within face-to-face courses.

**Beliefs.** Through the completion of the module’s self-reflection (introduction discussion, concept map, best practice literature, and interview) and peer interaction (community discussion) activities, JC was able to define or identify his beliefs regarding active learning, use of technology, teaching philosophy, student interaction and engagement, student and faculty interaction, and lack of visuals.

While reflecting on his review of the best practice literature (Activity 4), JC shared within the discussion forum his belief that he needed to incorporate active learning within the design of his online design studio course. JC stated his belief that his online students should have the same opportunity to participate in an active learning space that he affords his face-to-face students. While reflecting on the design of his online course within the best practice literature forum, JC declared his belief that the “simple transmission of information” via the use of videos within his course would not support active learning. He declared his belief that supporting active learning within the online environment would require that he “incorporate the participation [exhibited by his] during class by his face-to-face students within his online course. JC also shared via the forum his belief that in order to support active learning within his online course he needed to translate “the active learning environment [established within his face-to-face] design studio” into his online studio course”

While responding to his peers through the community discussion forum (Activity 3), JC shared his belief that an interconnected relationship existed between technology

and instructional design. JC declared his belief that methods in which “the instructor and student interact with the [technology incorporated within the course] could strongly influence their experience [with] the instructional design” strategies applied to the course.

While reflecting on the use of Blackboard within his courses through the introduction discussion forum (Activity 1), JC declared his belief that his students appreciated his use of Blackboard course site. According to JC, his students appreciated that with Blackboard he posted all of his course assignments at the beginning of the semester, posted additional resources throughout the semester, and posted assignment grades and feedback. JC statement regarding his student’s appreciation for his use of Blackboard was substantiated by student feedback. While interacting with his peers via the community discussion (Activity 3) activity, JC revealed his belief that he could use the Blackboard discussion forums to support student accountability within his course. He declared that the forums supported accountability by making public students’ online participation within the forums visible to their peers and the instructor. He added that the asynchronous nature of the post also allowed more time for students to contribute and faculty to review and grade assignments.

Through his completion of the self-reflection (introduction discussion, best practice literature, and interview) and peer interaction (community discussion) activities, JC revealed his beliefs regarding his teaching philosophy towards online courses and student critique activities. During the interview, JC revealed his belief that commonalities existed between the coursework of his online and face-to-face courses. He also stated his belief that the online course “operates in parallel to the face-to-face” course. JC declared his belief that online and face-to-face courses can use the learning objectives, but the

actual instructional tools used within the different learning environments to achieve those objectives may be different.

During the interview, JC revealed his beliefs regarding the use of student critique activities with his face-to-face studio courses. JC declared his belief that the most valuable component of a face-to-face studio course is his student's ability to critique their peers work, as well as having their work critiqued. While interacting with his peers via the community discussion (Activity 3) activity JC shared his belief that his students benefited from the opportunities to participate in constructive criticism activities.

Through his completion of the self-reflection (introduction discussion, journal, and interview) and peer interaction (community discussion) activities, JC revealed his beliefs regarding student interaction and engagement within the online teaching and learning environment. While reflecting during the interview, JC shared his belief that the art studio course he instructs was intended to provide an opportunity for students within a physical space to work together and to view their peers work. Through the introduction discussion forum (Activity 1), JC shared that students within his face-to-face course engaged in cohorts working together rather than as individuals competing with each other within the classroom environment. While discussing student engagement via the community discussion forum (Activity 3), JC revealed his belief that face-to-face interaction tended to favor students who were "extroverts and gregarious introverts." He added that the physical interaction, which occurred between the students, could serve as inspiration for them and provide an opportunity for them to learn from each other. Though JC believed there were benefits to his students interacting with each other within the online environment, he also believed that distractions could also affect their ability to

participate within his course. Through reflection in the journal (Activity 3) JC declared his belief that students within his face-to-face and online courses could face distractions, but his online student's exposure to distraction could be more extensive due to their participation in the online environment.

Through his completion of the self-reflection (concept map) activity, JC revealed his beliefs regarding the interactions that occur between students and faculty. While reflecting on his inclusion of the terms instructor and student within his concept map (Activity 2), declared his belief that an interconnected relationship exists between the instructor and student. JC also shared his belief that the establishment of a relationship between faculty and students occurred as a result of interaction through feedback within the course.

Through his completion of the peer interaction (introduction discussion) activity, JC revealed his beliefs regarding the lack of visuals of his students within the online teaching and learning environment. While interacting with his peer, KC via the introduction discussion (Activity 1) activity, JC revealed his belief that images of his students assisted him with getting to know their names and assist with his ability to recognize them during roll call within his face-to-face course. JC believed that his inability to recognize his students visually could affect communication within his course. While engaging with his peer, BS within the introduction discussion forum (Activity 1), JC referenced an article, he read prior to the module, which stated that a professor's ability to recall their student's name was one of the biggest influencers on how the student would engage within the course. JC declared his belief that the lack of visuals within an

online course could make an instructor's attempt to learn their students' names more difficult.

**JC findings for research question 2.** Through the participation in the introduction discussion forum (Activity 1), the concept map (Activity 2), the community discussion (Activity 3), the journal - Activity 3, the best practice literature (Activity 4), and the interview exercises, JC was able to identify several areas of concerns including misperceptions about online courses, face-to-face collaboration, course assignments, instructional use of technology, student access to technologies, student engagement, communication, lack of visuals, clarity of course instructions, faculty support, and faculty responsibilities. JC became concerned with those areas when he recognized there were problems with his existing conceptions when transferring his current practices to the online environments. As Nussbaum and Novick (1982) indicated that when a learner recognized a problem and was unable to solve the problem with his/her existing conceptions, the learner would experience a feeling of dissatisfaction.

*Student misperceptions about online courses.* Through the completion of the module's peer interaction (introduction discussion - Activity 1) activity, JC identified that his ability to address the students' misperceptions regarding online courses was a concern. For example, while reflecting on his peer JA post regarding the misperceptions students had regarding online courses within the introduction discussion forum (Activity 1), JC identified that his ability to address the misperceptions students have regarding online course such as that they "are easier than face-to-face or that they do not promote enough interaction with students", was a concern. In other words, when interacting with his peers in the discussion forum, JC recognized that his ability to address the

misperceptions students have regarding online courses was a problem and he was not able to solve it with his current conception on the instructional design of an online course.

***Face-to-face collaboration.*** Through the completion of the module's self-reflection (introduction discussion - Activity 1, concept map - Activity 2, journal - Activity 3, and interview) activities, JC identified that his ability to foster collaboration within an online studio course as a concern. For example, when reflecting on the incorporation of collaborative activities in online courses within the journal (Activity 3), JC identified his ability to emulate the face-to-face interaction, as a concern because face-to-face interaction affords an immediacy "that helps collaboration [through] nonverbal cues like eye contact, posture, orientation, and verbal cues like inflection and stress help us interpret statements. In other words, when reflecting individually in the discussion forums, JC recognized that his ability to foster "an active learning environment and collaboration" within in the online environment was a problem and he was not able to solve it with his current conception on collaboration for studio courses within online courses.

***Course assignments.*** Through the completion of the module's self-reflection (introduction discussion - Activity 1 and the interview) and peer interaction (community discussion – Activity 3) activities, JC identified that his ability to implement student critique assignments within the online environment was a concern. For example, when reflecting in the introduction discussion forum (Activity 1) on the design of his studio course, JC realized that his ability to incorporate criticism assignments within an online course was a concern because he wanted to incorporate opportunities for his online students to participate fully in the critique process. The

critiques within face-to-face courses occur “in a physical space where students work together so they can see what their peers are doing” and participate fully in the critique process. In other words, when interacting with his peers in the discussion forum and reflecting during the interview, JC recognized that his ability to integrate critique assignments within an online studio course was a problem and he was not able to solve it with her current conception on online studio course assignments.

***Instructional use of technology.*** Through the completion of the module’s self-reflection (concept map – Activity 2) activity, JC identified his ability to incorporate the use of analog technologies and handmade components was a concern. For example, when reflecting in the concept map discussion forum (Activity 2) on the development of his online studio course, JC realized that his ability to convert the analog technologies and handmade components within his online course because his online students are not able to directly interact with the technologies or the physical objects. In other words, when reflecting in the discussion forum, JC recognized that digitizing the analog technologies or experiences from his face-to-face courses into the online environment was a problem and he was not able to solve it with his current conception on digital technologies.

***Students’ access to the technologies.*** Through the completion of the module’s peer interaction (introduction discussion - Activity 1) activity, JC identified that his ability to ensure the accessibility of technologies required for his course was a concern. For example, when reflecting through the forum on his use of multiple technologies, MF realized that his ability to ensure student access to the technologies within his online course was a concern because he was unaware of solutions at the studied institution where his students could access the required technologies. JC within his face-to-face

studio course requires his students to use of specialty font, tablets, smartphones, and apps. Often he finds that his students do not have access to the technologies or will not procure the required technologies. In other words, when reflecting in the discussion forum, JC recognized that his ability to provide access to the technologies used within his course was a problem and he was not able to solve it with his current conception on student access to technology.

***Student engagement.*** Through the completion of the module's self-reflection (introduction discussion – Activity 1, journal – Activity 3, and interview) activities, JC identified that his ability to maintain student engagement within his online course was a concern. For example, when reflecting in the journal (Activity 3) on student engagement, JC realized that his ability to manage student engagement within his online course was a concern because student distractions, which usually plagues his when using their computers in his face-to-face course such as Facebook, increases due to their accessibility and digital nature of the online environment. In other words, when reflecting individually in the discussion forum, journal, and interview, JC recognized that his ability to incorporate activities to reduce student disengagement was a problem and he was not able to solve it with his current conception on engaging students during instruction.

***Communication.*** Through the completion of the module's self-reflection (introduction discussion – Activity 1) activity, JC identified that his ability to recognize his online students by name when communicating with them within the online environment was a concern. For example, when responding to his peer KC's post regarding KC concerns about online courses within the introduction forum (Activity 1), JC realized that his ability to establish a connection with his online students by using

their names when communicating with them was a concern, because the electronic rosters often lacked pictures he could use to associate with their names. Additionally, JC's ability to communicate with his online students through email and instant communication tools was a concern because his students use aliases instead of the name that appears on the roster. In other words, when interacting with his peers in the discussion forum, JC recognized that communicating with his students by name was a problem and he was not able to solve it with her current conception on classroom communication.

*Lack of visuals.* Through the completion of the module's peer interaction (introduction discussion - Activity 1) activity, JC identified that his ability to see a visual representation of his students as a concern. For example, when reading his peer KC's post on how KC establishes relationships with her students, JC realized that his ability to see pictures of his students within the online environment was a concern because he tended to use the visual of his face-to-face students to establish a connection with his students while taking roll and learning their names. When interacting with face-to-face students electronically via email or online discussion forums he references their course roster or the Blackboard course site, which according to him are either outdated or not provided. He recognized that the lack of visuals within the online environment would make the process of establishing a connection with his online students even more difficult. In other words, when interacting with his peers in the discussion forum, JC recognized that the lack of visuals within the online environment was a problem and he was not able to solve

it with his current conception on the lack of visual presence within the online environment.

***Clarity of course instructions.*** Through the completion of the module's self-reflection (introduction discussion - Activity 1) activity, JC identified that his ability to provide course instructions that clearly outlined the requirements for his course was a concern. For example, when reflecting on his instructional use of Blackboard within his face-to-face course, JC realized that his ability to provide clear and concise assignment instructions on how his students were to interact with Blackboard was a concern because he tended to have his students submit their assignments to the Blackboard course site and participate in the discussion forum activities. JC informed his face-to-face students before the beginning of the semester his assignment requirements. Despite this fact every semester, his students informed him that they did not understand the assignment requirements. In other words, when reflecting in the discussion forum, JC recognized that his ability to present clearly the requirements for his assignments was a problem and he was not able to solve it with her current conception on communicating clear course requirements.

***Faculty support.*** Through the completion of the module's self-reflection (introduction discussion forum - Activity 1) activity, JC identified that his ability to access the guidance and support required to develop his desired online course was a concern. For example, when reflecting on the process of design an online course, MF realized that his ability to design his online art studio course was a concern because he did not know how to articulate the level of creativity required to design his course online. In other words, when reflecting in the discussion forum, JC recognized that his

instructional design skills was a problem and he was not able to solve it with his current conception on course design.

***Faculty responsibilities.*** Through the completion of the module's self-reflection (best practice literature – Activity 4) activity, JC identified that his ability to manage the responsibilities assigned to online faculty was a concern. For example, when reflecting in the discussion forum on online student submissions, JC realized that his ability to manage the grading process was a concern because his online courses would include more formative assessments than summative assessments, which would require him to provide feedback and grades quickly. In other words, when reflecting in the discussion forum, JC recognized that his potential increase in student submissions was a problem and he was not able to solve it with his current conception on faculty management of the assessment process.

**JC findings for research question 3.** The completion of the self-reflection and peer interaction activities resulted in JC identifying plausible solutions to address his areas of concern. JC credited his completion of the self-reflection (introduction discussion - Activity 1, best practices literature - Activity 4, concept maps (Activity 2 and Activity 4, and interview) and peer interaction (introduction discussion - Activity 1 and community discussion - Activity 3) exercises with his identification of these possible solutions. Through his responses to these activities, JC identified solutions to resolve his concerns regarding specifically, lack of student engagement, student access to technology, clarity of course instructions, misconceptions about online courses, lack of visuals, decreased peer interaction, and course design.

***Student engagement.*** Through the completion of the module's self-reflection (best practice literature - Activity 4, and interview) and peer interaction (introduction discussion - Activity 1 and community discussion - Activity 3) activities, JC identified gamification, Panopto, Blackboard Collaborate, and online discussion forums as a plausible solution to address his concern regarding his ability to maintain student engagement within his online course. During the interview, JC credited his ability to identify useful information he could use to "help improve engagement" on his review of the best practice literature (Activity 4). JC also credited interaction with his peer via the introduction discussion (Activity 1) and community discussion (Activity 3) forums for his identification of solutions to address his concerns. JC concluded that his participation in these activities led to him identifying instructional activities and technologies that he could implement within his online course to support student engagement.

***Gamification.*** Through the completion of the module's self-reflection (best practices literature and interview) activities, JC identified the use of gamification as a plausible solution to address his concern regarding his ability to maintain student engagement within his online course. He proposed the use of game design elements for educational purposes. Through his review of the best practices literature (Activity 4), JC identified use of gamification as a solution he could implement to support active learning within his course. After reviewing the literature on gamification, JC revised his concept map (Activity 4) and added a column for gamification to his updated map. Within his reflective statement, JC shared that he found the practices that discussed gamification within the resources helpful and he intended to explore the use of gamification in his

courses. During the interview, JC declared that he saw gamification as an interesting way to allow students to diversify their experience by allowing them to plan their route through the course assignments.

While reviewing the best practice literature (Activity 4), JC stated that he would need to consider how to parse the project learning outcomes into discrete segments or projects to ensure “that all objectives [were] met even though some of the exercises [were] effectively optional.” JC added that by “creating lots of little opportunities for participation and learning that add up to a full grade, the student would be able to choose which activities to complete.” JC acknowledged that the inclusion of gamification would require that he reserve more time for grading the segmented projects. Within the forum (Activity 4), JC concluded that gamification would support students with a range of skill sets, as well as afford those with less artistic ability an opportunity to develop their skills while earning extra points. According to JC, “it would be prudent [for him] to present [gamification] to the program director as a new teaching method and discuss how it [would] meet the course learning objectives.”

*Panopto.* Through the completion of the module’s self-reflection (best practices literature - Activity 4 and interview) activities, JC identified the use of Panopto as a plausible solution to address his concern regarding his ability to maintain student engagement within his online course. While reflecting in the best practice literature (Activity 4), JC identified Panopto as a solution students could use to record their presentations. According to JC, students who were nervous about speaking in front of their peers would benefit because it afforded them an opportunity to “practice their presentations, work from a script when describing their work, and make multiple versions

before choosing the best [recording]” to submit. During the interview, JC described his proposed solution as a teaching opportunity for students. He stated that as a result of recording their presentations, his students “would kind of go through their assignment and present it as if they were the instructor, talking about strengths and decisions.”

Additionally, JC stated that recording student presentations would reduce the amount of time reserved for presentations within his face-to-face courses. He said that he intended to use Panopto to record student case studies and final project presentations for his courses.

To support his decision to explore the use of video for student presentations and critiques, JC stated that he would seek out assistance to develop the skill set necessary to use Panopto. He added that in preparation for his students’ use of “Panopto or another student recording process, the first step would be for [him] to practice using the tools [himself].” JC added that he intended to flip some of his lectures by using Panopto during the summer of 2016. The flip was a version of blended instruction where instead of face-to-face lectures students would view recorded lectures online instead.

*Blackboard collaborate.* Through the completion of the module’s peer interaction (introduction discussion - Activity 1 and interview) activities, JC identified Blackboard Collaborate as a plausible solution to address his concern regarding his ability to maintain student engagement within his online course. JC shared, within his introduction discussion forum (Activity 1) his intention to organize synchronous interactions within his courses via the use of Blackboard Collaborate. While interacting with the researcher and his peer, DS, within the forum, JC learned about the synchronous communication tool, Blackboard Collaborate. He intended to use Collaborate to interact with his students

synchronously. During the interview, JC also identified Blackboard Collaborate as a tool he could use to improve “peer-to-peer interaction with [the] digital elements of the [course].”

***Student access to technology.*** Through the completion of the module’s peer interaction (introduction discussion - Activity 1 and interview) activities, JC identified strategies to address his concern regarding his ability to ensure his students can access the technologies required for his online course. While interacting with his peers via the introduction discussion forum (Activity 1), JC identified contacting persons at the studied institution as a plausible solution. JC shared with his peers that he intended to contact the manager of the college lab to determine if his students could check out iPads. While interacting with the researcher via the introduction discussion forum (Activity 1), JC also identified contacting representatives from the library as a solution. While reflecting on contacting personal from the library, JC stated that “it did not occur to him that the [institutions’] library might have mobile [technologies]” available that students could check out as well. During the interview, JC shared that he also intended to ask the personnel from the library if his students could access technologies required to record their project presentations. While interacting with her peers via the introduction discussion forum (Activity 1), JC identified requesting the assistance of staff to ensure that the required applications are installed on the devices. He stated that “[as long as] students provide notification in advance to someone with administrator privileges”, administrators can install the applications onto the devices for his students.

***Clarity of course instructions.*** Through the completion of the module’s self-reflection (introduction discussion - Activity 1 and best practice literature - Activity 4)

activities, JC identified plausible solutions to address his concern regarding his to provide course instructions that clearly outlined the requirements for his online course. While interacting with her peer, BS via the introduction discussion forum (Activity 1), JC identified technologies, he could use to record his video tutorials. While interacting with his peer, BS, via the introduction discussion forum (Activity 1), JC expressed his interest in creating video tutorials covering “analog drawings and screen recordings of using tools in Photoshop, InDesign, and Illustrator” for his students. Within the forum, BS provided suggestions on how to create his tutorials. To further assist with resolving his concern, JC inquired about BS experiences with creating video tutorials. Through the best practice literature forum (Activity 4), JC identified his creation of tutorials as a solution to address his concern. He stated that he intended to create “tutorials for students, so they [would] have clear guides [on] how to set up and prepare [their assignment] files.”

*Misconceptions about online courses.* Through the completion of the module’s self-reflection (concept map - Activity 2, best practice literature - Activity 4, and interview) and peer interaction (introduction discussion - Activity 1) activities, JC was able to identify plausible solutions to address his concern regarding his ability to address the misperceptions his students have regarding online courses.

While interacting with her peers via the introduction discussion forum (Activity 1), JC identified the development of “a rich course” as a solution to address his concern. He also credited the opportunity to interact with his peers for his identification of resources he intends on referring to while designing his course. While reflecting on the design of the course through the concept map forum (Activity 2), JC stated that he needed to determine the requirements for developing "a learning experience commensurate with face-to-face

courses.” During the interview, JC credited his review of the best practice literature (Activity 4) with providing an opportunity for him to look "at some of the other aspects and other arguments for the benefits of online [instruction] and how it [needed] to be different than the face-to-face [course]." JC described the opportunity to review the literature as a beneficial experience because it exposed him to information regarding useful techniques that he had not encountered before the module. While reflecting on his review of the best practice literature (Activity 4), JC stated that he found the resources regarding online learning to be helpful, and that he intended to explore practices like gamification and online presentations in a hybrid context within his face-to-face courses. During the interview, JC stated that the module “laid a good foundation for things” he could incorporate into the online elements of his face-to-face courses.

***Lack of visuals.*** Through the completion of the module’s self-reflection (introduction discussion – Activity 1) activity, JC was able to identify plausible solutions to address his concern regarding his ability to see a visual representation (picture or image) of his students. While interacting with his peer, SR via the introduction discussion forum (Activity 1), JC identified the uploading of pictures as a solution. JC shared with his peer, SR, that in previous courses to address the lack of visuals he required students to post either a photo or a small self-portrait drawing for the online segments of his face-to-face Blackboard course site. He reflected on the validity of this solution after realizing that he did not have an image linked to his Blackboard account. After his peer, KC, pointed out his lack of a photo, JC uploaded a picture to his Blackboard account.

***Peer interaction.*** Through the completion of the module’s peer interaction (community discussion – Activity 3) and self-reflection (interview) activities, JC was

able to identify interactions with his peers as plausible solutions to address his concern regarding his ability to access the guidance and support required to develop his desired online course. While interacting with his peers via the community discussion forum (Activity 3), JC was able to identify valuable resources he could use to support the addressing his concerns. During the interview, JC shared that he found reading his peers' reflections to be the most helpful in providing the support he required to address his concerns. He added that interacting with his peers allowed him to an opportunity to identify and share plausible solutions to his concerns. JC added that he especially found discussions with peers experienced in teaching hybrid or online courses to be helpful. While reflecting on his interaction with his peers, JC stated that the information his peers shared about the different technologies they used and adopted best practices were plausible solutions could use to resolve his concerns. According to JC, reviewing their posts was helpful because his peers all came from different disciplines, had different experiences, and adopted different approaches to resolving their concerns. In addition, JC sought out solutions from his peers. While engaging in the community discussion forum (Activity 3), JC asked his peer, TE, to share his experiences with implementing solutions to address his similar concerns. JC asked him to discuss the technical hurdles he had to overcome because of his decision to use technical solutions outside of the infrastructure provided by the studied institution. JC intended to use TE's responses as solutions to address his concerns.

***Course design.*** Through the completion of the module's self-reflection (concept maps and interview) activities, JC was able to identify reflection via the concept map (Activity 2 and Activity 4) activities as a strategy that he could adapt to address his

concerns regarding his ability to design assignments that support student-to-student interaction and engagement within the online environment. At the time of the study, JC was not instructing online courses, but he intended to deliver some portions of his face-to-face course within the online environment. JC intended to use the concept map (Activity 2 and Activity 4) activity at the conclusion of the module as a tool to reflect on how to redesign certain segments within his course.

**Summary of case JC.** Through the completion of the self-reflection and peer interaction activities, JC was able to navigate successfully through the process of declaring his preconceptions regarding teaching and learning in online environments, identifying concerns within his existing conceptions when assessing the transferability of his current instructional practices within an online environment, and identifying plausible solutions to address those areas of concerns. The module activities provided JC an opportunity to reflect verbally and pictorially on his existing conceptions regarding teaching and learning in online environments. The activities included the introduction discussion (Activity 1), the concept map (Activity 2), the community discussion (Activity 3), the best practice literature (Activity 4), and interview exercises. As a result of participating in the activities, JC declared his attitudes, assumptions, and beliefs regarding teaching and learning within the online environment.

Through participation in the self-reflection and peer interaction exposing events, JC was able to articulate his attitudes regarding teaching philosophy, student development, and peer interaction. The self-reflection activities included the introduction discussion (Activity 1) and interview exercises. Dialogue with his peers within the introduction discussion (Activity 1) forum further supported DS with declaring his

preconceptions as well as afforded him an opportunity to become aware of the preconceptions of others. For example, while self-reflecting during the introduction discussion exercise (Activity 1), JC declared his pleasure in witnessing his students develop their skills over the course of a single or multiple semesters.

Reflecting visually and verbally through his participation in the introduction discussion (Activity 1) and the interview exercises resulted in JC declaring his assumptions regarding student engagement and misconceptions by others regarding online courses. For example, while reflecting reflectively verbally through the introduction discussion forum post (Activity 1), JC revealed his assumption that his students' lack of participation within his course was not because his assignment instructions lacked clarity.

JC's responses to the self-reflection and peer interaction activities also revealed his beliefs regarding active learning, use of technology, teaching philosophy, student interaction and engagement, student and faculty interaction, and lack of visuals. The self-reflection and peer interaction exercises included the introduction discussion (Activity 1), the concept map (Activity 2), the community discussion (Activity 3), the best practice literature (Activity 4), and the interview exercises. For example, while verbally reflecting on the best practice literature (Activity 4), JC shared his belief that the online version of his design studio course must incorporate the active learning environment experience found within his face-to-face design studio course.

The module activities acted as a discrepant event, which resulted in JC declaring concerns within his preconceptions that would hinder him from successfully delivering instruction within the online environment. JC's statements revealed concerns regarding dissatisfactions with student misperceptions about online courses, face-to-face

collaboration, course assignments, instructional use of technology, student access to technologies, student engagement, communication, lack of visuals, clarity of course instructions, faculty support, and faculty responsibilities. The exercises that acted as discrepant events included the introduction discussion (Activity 1), the concept map (Activity 2), the journal (Activity 3), the community discussion (Activity 3), the best practice literature (Activity 4), and the interview exercises. While reflecting on teaching and learning process within the online environment, JC was able to articulate conflicts between his current instructional practices and those he desired to implement within his online courses. His awareness became apparent through his participation in the introduction discussion (Activity 1). JC's reflective statements indicated his concern regarding his ability to incorporate student critique activities, which normally occurs in person within the art studio, into an online course.

The self-reflecting and peer interacting activities also resulted in JC identifying plausible solutions to address his concerns regarding lack of student engagement, student access to technology, clarity of course instructions, misconceptions about online courses, lack of visuals, decreased peer interaction, and course design. The self-reflection occurred, through JC's completion of the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the best practices literature (Activity 4), and the interview exercises. Peer interaction through the completion of the introduction discussion (Activity 1) and community discussion (Activity 3) exercises also supported JC with identifying plausible solutions. For example, while reflecting on best practice literature (Activity 4), JC identified the use of video recorded tutorials as an instructional

as an instructional strategy and he would like to explore to further in order to ensure the clarity of assignment requirements within his courses.

#### **Case Four: DS**

DS was an adjunct professor in the field of psychology and education. DS identified herself as an instructor/teacher. She primarily taught research methods and statistics courses at the studied institution. DS also instructed as an adjunct professor for multiple institutions. Prior to completing the module, DS had experience with instructing online courses and completed one online course as a student in 2003. According to DS, she became interested in a career in academia while pursuing her doctoral degree. At the time of the study, DS stated that she had 13 years of experience teaching both undergraduate and graduate level courses. Prior to beginning her academic career, DS had formal college teacher preparation training. DS shared that since starting her career she had pursued professional development in order to enhance and develop her instructional expertise as well as technical skill set. Additionally, DS credited her department, previous learning experiences, and adopted practices of her discipline with influencing her instructional practices.

While introducing herself to her peers, DS shared that she had taught online courses since 2009 at other institutions, but not at the studied institution. DS stated that she gravitated towards instructing online courses due to family obligations. According to DS, “after [her] daughter was born she began teaching online [because it] ... allowed [her] to continue teaching while staying home with [her] daughter.” She returned to the face-to-face classroom after her daughter began school. During the interview, DS also credited

her experiences as an online instructor to her participation in a thorough state-mandated review system, which provided her feedback on her online courses.

DS's responses to the pre-module self-report survey questions revealed her existing beliefs regarding the ability of online courses to provide the equivalent to in-person courses in the areas of services, support, communication, and quality. When asked about the achievement of learning outcomes within quality online courses in comparison to face-to-face courses, DS stated that she strongly agreed that online courses could achieve the same learning outcomes as face-to-face courses within her discipline and the courses she instructed. DS also indicated that she believed in the ability of the online instructor to deliver the necessary content to meet the learning objectives. In addition, she believed online faculty could provide quality responses to student inquiries within online courses the same as in face-to-face courses. She also shared her belief that the quality of her responses to student questions, regarding logistics and other concerns, as well as grading, was the same as a face-to-face course. When responding to questions regarding an instructor's ability to interact with their students during and outside of the classroom environment she had differing views. DS stated that she believed the quality of this interaction within an online course was the same as a face-to-face course, but thought that interaction with students outside of the classroom was lower in quality than what would transpire within a face-to-face course.

DS was an engaged participant in the module and exceeded the exercise participation requirements. She exceeded the expectations by posting ten responses to her peers and the researcher in the introduction discussion forum (Activity 1). She also posted four responses to the community discussion forum (Activity 4) exercise. During

the interview, when asked to assess the module, she stated that she felt “it was personalized ... to each person in the workshop.” At the conclusion of the module, DS attended the synchronous WebEx online interview and used a web camera.

Concept Map

Tuesday, June 7, 2016  
9:14 AM

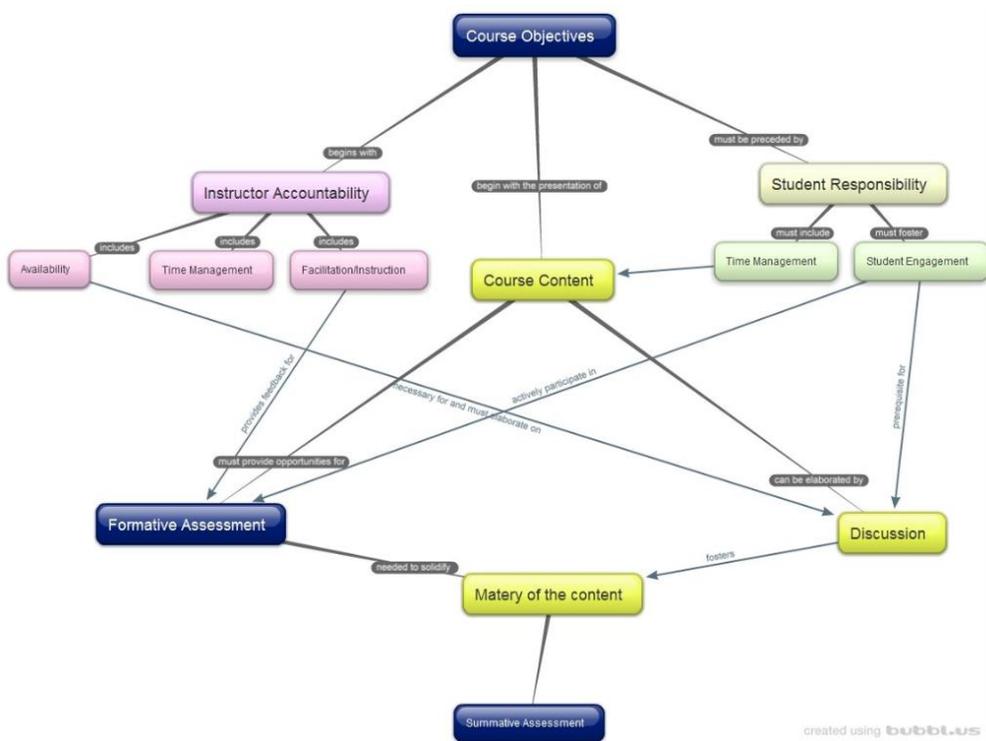
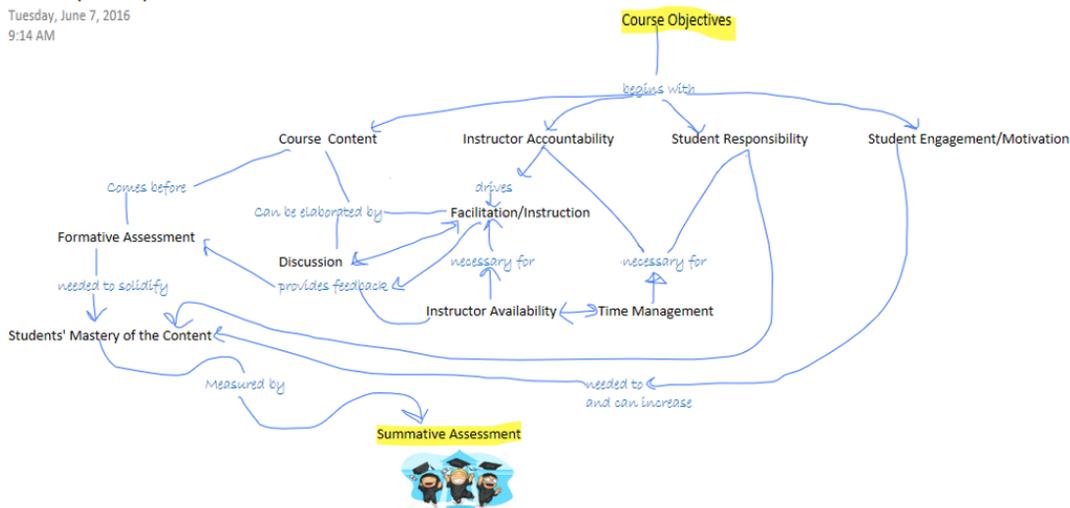


Figure 8. Case DS Original (top) and Revised (bottom) Concept Maps.

Table 10

*DS Concept Map Modifications Table*

Structure of Concept Map	Original Concept Map	Revised Concept Map
Focal Concept	Course Objectives	Course Objectives
Number of Incomplete Propositions	2	1
Number of Completed Propositions	17	16
Include Linking Words	17	23
Cross-links	2	4

**Analyzing both concept maps.** The researcher captured two concept maps (Figure 8) via links provided by DS within the discussion forums (Activity 2 and Activity 4). DS experienced deep learning following the completion of the module as illustrated in the significant improvement that she made on her revised concept map as compared to her original concept map. The criteria for deep learning requires a significant improvement showing a linkage between the newly learned concepts found in the updated map and the original conceptions in the original map (Hay, 2007). DS used Microsoft Word to develop her original concept map (Activity 2) and Bubbl.us to create her revised concept map (Activity 4).

**Focal concept and propositions.** The focal point used for both the original and revised concept maps was the term *course objectives*. The term *course objectives* appeared at the top of both maps. DS included 17 completed propositions and two

incomplete propositions within the original map (Activity 2). Within the revised map (Activity 4), she included 16 completed propositions and one incomplete proposition.

**Linking words and crosslinks.** DS included nine unique linking words within the design of her original concept map (Activity 2). She used several of the terms multiple times. The linking words included in the original map were *needed to and can increase*; *measured by*; *needed to solidify*; *comes before*; *can be elaborated by (3 times)*, *provides feedback (3 times)*; *drives*; *necessary for (4 times)*; and *begins with (4 times)*. The revision of the map resulted in the inclusion of 17 different linking words. The linking words incorporated into the revised concept map (Activity 4) included the terms *can be elaborated by*; *must foster*; *must include*; *must be preceded by*; *begin with the presentation of*; *begins with*; *includes (appeared 3 times)*; *must provide opportunities for*; *needed to solidify*; *fosters*; *prerequisite for*; *actively participate in*; *necessary for and must elaborate on*; and *provides feedback for*. DS included two crosslinks within her original map (Activity 2). The crosslinks within her original map existed between the terms *student engagement/motivation* and *students' mastery of the content*, as well as *student responsibility* and *students' mastery of the content*. Within the revised concept map, DS illustrated the existence of relationships by including four crosslinks via the terms *student engagement* and *formative assessment, availability and discussion, course content* and *formative assessment*, as well as *course content* and *discussion*.

**Original concept map.** When asked to represent pictorially the relationships between the concepts provided within the concept map exercise (Activity 2), DS used Microsoft Word to illustrate a complicated web of relationships that represented the hierarchical structure of a net. The net conceptual map depicted a “complex interaction at

different conceptual levels... [and could] support reorganization to emphasize different components to appreciate a ‘larger world view’ or to compensate for a missing link” (Kinchin, Hay, & Adams, 2000, p. 48). The focal point of DS’s concept map was the concept of *course objectives*. DS did not include the use of any shapes within her concept map. In order to illustrate the relationships between the terms, DS drew a series of lines between them. Within her concept map (Activity 2) reflective statement, DS shared that when creating her map, she “targeted what [she] believe[d] to be the most fundamental components of the learning process in [her] online classroom beginning with course expectations and ending with summative assessments.”

The researcher found that DS’s original concept map, for the most part, illustrated a complex relationship between the *active learning* concept and the remaining terms included in the map. While discussing the design of her courses with her peers via the community discussion forum (Activity 3), DS stated that her “starting point [was] always [her] overall goal (course objectives) and the end point [was] how ... [to] accomplish and measure them (assessment).” In addition to the focal point term, DS included 12 concepts within the design of the concept map, and only two of the terms originated from the provided parking lot list. DS included the terms *discussion* and *time management* from the provided list of terms. The non-provided terms that appeared within her concept map included *course objectives*; *student responsibility*; *student engagement/motivation*; *summative assessment*; *instructor accountability*; *facilitation/instruction*; *instructor availability*; *course content*; *formative assessment*; and *students’ mastery of the content*.

**Revised concept map.** Revising the original concept map (Activity 4) afforded DS an opportunity to use a new tool to make her desired changes to the map. DS used

Bubbl.us to create her revised concept map (Activity 4) and incorporated the map into a multimedia presentation using Microsoft's Sway. When completing the community discussion forum (Activity 3), DS stated that the use of Bubbl.us and Sway provided her "a fun way to continue reflecting on this exercise while testing out some new tools." She also stated in her Sway presentation for the concept map exercise (Activity 4) that she believed "that if all of the components of this concept map [were] implemented judiciously ... the opportunity for student mastery of the content as demonstrated by the final summative assessments [was] an attainable goal."

The revised map maintained the net hierarchical structure; however, DS made significant changes by including new concepts, colored shapes, linking words, and arrowheads. In order to organize the revised map, DS color-coded the concepts and added shapes, unlike the original map, which only included lines and the concepts. Within the revised map, the concepts appeared within dark blue, light and dark purple, yellow, light green, and dark green colored rectangles. The linking words appeared within dark gray colored circles with white font. DS continued to use the concept *online instruction* as the focal point and included it within a yellow rectangle. DS incorporated in her reviewed map 13 of the concepts or string of concepts found within the original map (Activity 2). As she did when creating the original map, DS included the terms *discussion* and *time management* (appeared twice) within the revised map. Within the map, DS also included the terms *student responsibility*; *student engagement*; *mastery of the content*; *summative assessment*; *formative assessment*; *course content*; *course objectives*; *instructor accountability*; *availability*; *facilitation/instruction*; *time management (appeared twice)*;

and *discussion*. The terms *availability*, *student engagement*, and *master of content* were slightly modified versions of terms that appeared in the original map.

**Responses to research questions.** The following sections discuss how the module activities assisted DS's conceptual change process. Through her responses to the module activities, DS illustrated how self-reflection and peer interaction resulted in her experiencing different phases of the conceptual change process. The researcher presents responses to address the three research questions. The researcher analyzed DS's response data from the recorded WebEx interview, Sway presentation, and Blackboard discussion forums and journal exercises. DS's responses to the prompting questions regarding her attitudes, beliefs, and assumptions; areas of concern or dissatisfaction; and plausible solutions fell into several categories illustrated in Figure 9.

Research Question 1	
Completed Module Activities	Identified Themes
<p><b>Self-Reflection:</b> introduction discussion forum, concept map, journal, best practice literature review, revised concept map, and interview</p> <p><b>Peer Interaction:</b> introduction discussion forum and community discussion forum</p>	<p><b>Attitudes:</b> teaching philosophy, peer interaction, student and faculty interaction, and faculty development</p> <p><b>Assumptions:</b> students and faculty interaction and student engagement and time management</p> <p><b>Beliefs:</b> student and faculty interactions, faculty development, student engagement, teaching philosophy, and use of audio and video technology</p>
	
Research Question 3	
Completed Module Activities	Identified Solutions
<p><b>Self-Reflection:</b> introduction discussion forum, journal, best practice literature review, revised concept map, and interview</p> <p><b>Peer Interaction:</b> introduction discussion forum and community discussion forum</p>	<p><b>Concerns</b></p> <ul style="list-style-type: none"> <li>▪ peer interaction</li> <li>▪ student and faculty interaction</li> <li>▪ supporting at-risk students</li> <li>▪ converting face-to-face course</li> </ul> <ul style="list-style-type: none"> <li>▪ lack of visuals cues</li> <li>▪ development of technical skills</li> <li>▪ evaluating technologies</li> </ul>
	
Research Question 3	
Completed Module Activities	Identified Plausible Solutions
<p><b>Self-Reflection:</b> introduction discussion forum, concept map, journal, revised concept map, best practice literature review, and Interview</p> <p><b>Peer Interaction:</b> introduction discussion forum</p>	<p><b>Solutions</b></p> <ul style="list-style-type: none"> <li>▪ reinforced teaching philosophy</li> <li>▪ evaluate implementation of teaching philosophy</li> <li>▪ identify training opportunities</li> <li>▪ evaluate Sway, Adobe Captivate, Panopto, Oenote, and Powtoon</li> <li>▪ use Oenote for handwritten calculations</li> <li>▪ establish online community</li> <li>▪ synchronous meeting tools (Blackboard Collaborate &amp; WebEx)</li> <li>▪ lecture capture (Panopto &amp; Knovio)</li> <li>▪ authentic learning experience</li> <li>▪ instructional games (quiz game)</li> <li>▪ Kahoot (game-based learning platform)</li> <li>▪ peer experiences</li> <li>▪ anonymous feedback</li> <li>▪ Survey Monkey</li> <li>▪ dialogue with peers</li> <li>▪ peer feedback</li> </ul>
	

Figure 9. Case DS Identified Themes

**DS findings for research question 1.** DS identified and defined her attitudes, assumptions, and beliefs regarding teaching and learning within the online environment through her completion of self-reflection (introduction discussion - Activity 1, concept map - Activity 2 and Activity 4, journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (introduction discussion – Activity 1 and community discussion - Activity 3) exercises. She revealed her attitudes regarding teaching philosophy, peer interaction, student and faculty interaction, and faculty development through her completion of the introduction discussion forum (Activity 1), journal (Activity 3), and community discussion (Activity 3) exercises. DS shared her assumptions about student and faculty interaction and student engagement through her responses to the community discussion (Activity 3) and journal (Activity 3) exercises. DS's responses to the concept map (Activity 2), journal (Activity 3), community discussion (Activity 3), best practice literature review (Activity 4), and concept map (Activity 4) exercise revealed her beliefs regarding student and faculty interactions, faculty development, student engagement, teaching philosophy, and use of audio and video technology.

***Attitudes.*** Through the completion of the module's self-reflection (introduction discussion, journal, and interview) and peer interaction (introduction discussion) activities, DS was able to define or identify her positive attitude towards her teaching philosophy, both a positive and negative attitude towards her ability to interact with her students, a positive attitude towards her ability to interact with peers, and a positive attitude towards her ability to enhance her instructional skillset through professional development opportunities.

Through the introduction discussion forum (Activity 1), DS shared her positive attitude regarding her entry into her teaching career. DS stated that she liked teaching, and became “hooked” to the idea of a career in academia while pursuing her doctorate. Through reflection in the journal (Activity 3) DS expressed that she truly loved teaching. DS added that “as an educational psychologist, [she is] very interested in learning how to best foster student engagement and mastery of the content.” While expressing her positive attitude towards instructing within the online environment, DS shared that she began teaching online after the birth of her daughter. DS stated that teaching online courses was an excellent option for her family and provided her with an opportunity to continue teaching while staying home to care for her daughter.

Through reflection in the journal (Activity 3), DS expressed a positive attitude towards her ability to interact with her students. DS shared that she “loved teaching face-to-face courses and preferred being face-to-face with her students.” According to DS “the relationship [she develops] with [her] students ensures that they can [approach her] when they have a concern and are not hesitant to ask questions.” DS also expressed her negative attitude towards faculty and student interaction within the online learning environment. She stated that when instructing online courses “what [she missed] the most [was] the face-to-face interaction” between her students and herself.

While responding to her peers' post through the introduction discussion forum (Activity 1), DS expressed a positive attitude toward having the opportunity to interact with them via the module. DS expressed her enthusiasm by informing her peers that it was “great to meet them.” During the interview, DS shared her enthusiasm by declaring that she appreciated the opportunity to learn about the instructional practices of her peers

and the researcher. She added that it was “really helpful to hear and get feedback from other faculty” in the discussion forums. According to DS, during the module, she found it helpful to engage with other online faculty implementing similar practices within their courses.

While engaging with her peers through the introduction discussion forum (Activity 1), DS revealed a positive attitude regarding her ability to enhance her instructional skill set through professional development opportunities. DS expressed her eagerness to enhance further her online teaching skills and excitement about what she would learn through her participation in the workshop, which included the module. Through the journal (Activity 3), DS shared that she was “very interested in learning how to best foster student engagement and mastery of content.”

*Assumptions.* Through the completion of the module’s self-reflection (journal) and peer interaction (community discussion) activities, DS was able to define or identify her assumptions regarding the causes for students not interacting with faculty and the influence of course design on student engagement. While interacting with her peers via the community discussion forum (Activity 3), DS declared her assumption that students did not interact with her because they did not see her as approachable. She assumed that her students would be more willing to contact her when in need of assistance if they knew that she was approachable. Through the journal (Activity 3), DS revealed her assumption that “students who tend[ed] to be more reluctant to reach out to her” were the students that could benefit from an increase in interaction with her. While interacting with her peer, MF via the community discussion forum (Activity 3), DS shared her assumption that the creation of a “welcoming and accessible” learning environment would result in

her students engaging more in her course. Through the journal (Activity 3), DS also shared her assumption that students who “actively participate[d] and [were] engaged in the online course [were] more successful and [had] a positive experience.”

***Beliefs.*** Through the completion of the module’s self-reflection (introduction discussion, concept maps, journal, best practice literature, and interview) and peer interaction (introduction discussion and community discussion) activities, DS was able to define or identify her beliefs regarding student and faculty interaction, faculty development, student engagement, teaching philosophy, and use of audio and video technology.

DS revealed her beliefs regarding student and faculty interactions within her courses through her completion of the concept map (Activity 2) activity. While reflecting on her map within the concept map forum (Activity 2), DS revealed her belief that both the instructor and students were responsible and accountable for the learning process occurring within the course. Through the journal (Activity 3), DS shared her belief that the relationships she developed with her students were essential to their level of engagement. While reflecting on her past interactions with students, within the journal (Activity 3), DS shared that “many times the students who could really benefit from additional support (either through e-mail, phone or virtual office hours) [were] also the students who [tended] to be ... reluctant to reach out” to her for assistance.

While interacting with her peer, JA, through the community discussion forum (Activity 3), DS declared her belief that instruction within the online environment would require her to be both available and accessible to her students. DS informed her peer that

she would ensure that she should be accessible to students via email and phone; as a result, she was “constantly responding to students’ questions.”

DS revealed her beliefs regarding faculty development for online faculty through her completion of the concept map (Activity 2), best practice literature (Activity 4), and interview activities. While reflecting on her concept map (Activity 2) in the forum, DS revealed her belief that after years of teaching online courses she became acclimated to using specific methods of instruction. For this reason, DS stated within her post to the concept map forum (Activity 2) that she was “constantly pushing [herself] to expand [her] instructional toolbox with current and engaging modes of instruction and interaction with [her] students in the online learning environment.” During the interview, DS shared that the catalyst for her need to pursue professional development was the increasing student expectations due to technological advancements. She described this change as “great, because [it pushed and propelled her]” and ensured that she was accountable to their needs.

DS revealed her beliefs regarding student engagement through her completion of the best practice literature (Activity 4), concept map (Activity 4), and interview activities. While reflecting on her revised concept map within the forum (Activity 4), DS revealed her beliefs regarding the use of authentic learning to engage students, as well as, the best instructional methods to use in order to engage them. Through her reflection on the best practice literature (Activity 4), DS shared her belief that students could eliminate their lack of physical presence within the online environment by fully engaging with the provided content. She added that the engagement would entail students reviewing the material, watching every video, and taking notes while watching those videos. During

the interview, DS shared her belief that that online students did not realize that they must complete the same learning activities assigned within a face-to-face course. Information captured from students verified her belief. She shared during the interview that in order to determine her student's level of engagement she asked if they were taking notes while watching the provided videos. DS' students informed her that they were not taking notes. According to DS, she instructed her students to watch the videos again and to take notes. DS shared that after following her instructions and taking the notes, her students informed her that they found the note-taking process helpful.

DS revealed her beliefs regarding the application of her teaching philosophy within the online and face-to-face learning environments through her completion of the introduction discussion forum (Activity 1), concept map (Activity 2), community discussion (Activity 3), best practice literature (Activity 4), and interview activities. While responding to her peer, JC (Activity 1), DS shared her belief that teaching was a rewarding experience and it became apparent "in the face-to-face classroom and [could be] ambiguous at times in the online learning environment." During the interview, DS shared her belief that the virtual nature of online instruction provided an advantage over face-to-face courses, especially during times of inclement weather. .

While reflecting on her concept map (Activity 2) in the forum, DS declared her belief that the learning process began with the course expectations and ended with summative assessments. DS also revealed her belief that the key players in the learning process were the students and instructor. While interacting with her peers via the community discussion forum (Activity 3), DS shared that her review of the best practice literature (Activity 4) confirmed her beliefs regarding what were the essential

components of an online course. These essential components included the design of the course, comfort with online technologies, and time management. DS also revealed to her peers within the forum (Activity 3) her belief that “the end goal” for her course is her student’s mastery of the course content.

DS revealed her beliefs regarding the use of audio and video technology within her online courses through her completion of the introduction discussion forum (Activity 1) and interview activities. DS revealed her belief that technology enhancements improved the recorded process she implemented when creating presentations for her courses. DS credited the availability of updated technologies with affording her an opportunity to quickly record and upload her video presentations into her course site. During the interview, DS shared her belief that the ability to watch the videos regularly was a huge benefit for her students. She added that her students could review the videos repeatedly instead of asking her to repeat the information while in class. DS also believed that learning within the online environment allowed students to select a pace of learning that was appropriate for them. She added that students could choose to work at a fast or slow pace within the online environment.

**DS findings for research question 2.** Through the participation in the introduction discussion forum (Activity 1), the concept map (Activity 2), the community discussion (Activity 3), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises, DS was able to identify several areas of concerns including peer interaction, student and faculty interaction, student engagement, support for at-risk students, conversion of face-to-face courses, lack of visuals cues, development of technical skills, and evaluation of technologies. DS became concerned with those areas

when she recognized there were problems with her existing conceptions when transferring her current practices to the online environments. As Nussbaum and Novick (1982) indicated that when a learner recognized a problem and was unable to solve the problem with his/her existing conceptions, the learner would experience a feeling of dissatisfaction.

***Peer interaction.*** Through the completion of the module's self-reflection (interview) activity, DS identified that her ability to interact with knowledgeable peers within the online learning community was a concern. For example, when reflecting during the interview on the lack of face-to-face contact she had with faculty peers who instructed online courses, DS realized that her inability to interact with her peers was a concern because she used the opportunity to learn from her peers executing similar instructional practices within their online courses. In other words, when reflecting during the interview DS recognized that her inability to interact with her peers online was a problem and she was not able to solve it with her current conception on peer interaction within the online learning community.

***Student and faculty interaction.*** Through the completion of the module's self-reflection (journal - Activity 3) and peer interaction (community discussion forum - Activity 3) activities, DS identified that her ability to interact with her students online was a concern. For example, when reflecting in her journal on interaction with her students, DS realized that her ability to foster a sense of community within her online course was a concern because the online environment lacked the face-to-face interaction she used to facilitate the establishment of community within her courses. In other words, when reflecting in the journal, DS recognized that her ability to interact with her students

was a problem and she was not able to solve it with her current conception on student and faculty interaction within the online environment.

***Student engagement.*** Through the completion of the module's self-reflection (journal - Activity 3 and interview) activities, DS identified that her ability support student engagement in her online courses as a concern. During the interview, DS shared that she wanted to provide opportunities for her students to be "consistently engagement" throughout the semester. She was concerned about her ability to maintain student engagement within her course because their engagement dwindled throughout the semester. Within her journal post (Activity 3), DS added that when instructing online courses, she was concerned about her ability to increase student engagement within her course.

***Supporting at-risk students.*** Through the completion of the module's self-reflection (journal - Activity 3, and interview) and peer interaction (community discussion - Activity 3) activities, DS identified that her ability to support at-risk students within the online learning environment was a concern. DS realized that her ability to support her students was a concern because she tended to execute strategies that did not result in the feedback necessary to make the appropriate enhancements to her course materials and assignments. DS within her online course attempted to support her students by inviting them through email and phone calls to contact her for assistance. DS shared that without the feedback or comments from her students she was unable to address their concerns. In other words, when reflecting in the journal, DS recognized that her strategies to support at-risk students in the online environments was a problem, and she was not able to solve it with her current conception on engaging with students.

***Converting face-to-face course.*** Through the completion of the module's self-reflection (interview) activity, DS identified that her ability to convert her face-to-face course into an online course was a concern. During the interview, DS credited her completion of the module reflective activities with prompting her to reflect on "some of the things that [she wanted] to work through when [she thought] about online learning." DS shared that she was concerned about her ability to accomplish her course goals, which she identified as engaging and connecting with her students within her online course. While reflecting on the development of her online course, DS questioned the components of her face-to-face courses that she valued. She also was concerned about her ability to identify the best methods she could use to incorporate them into her online class. In other words, when reflecting during the interview, DS recognized that her ability to convert her face-to-face course was a problem and she was not able to solve it with her current conception on online course design.

***Lack of visuals cues.*** Through the completion of the module's self-reflection (journal - Activity 3) activity, DS identified that her ability to assess the needs of her online students through their facial and body cues was a concern. For example, when reflecting in the journal on the design of her course, DS realized that her ability to implement dynamic instruction within her online courses was a concern because she tended to use the facial and body cues of her face-to-face students to assess their comprehension of the course content and these were not available in an online course. In other words, when reflecting in the journal DS recognized that her use of visual cues to assess her student's comprehension of the material in the online environments was a

problem and she was not able to solve it with her current conception on the use of visual cues for student assessment.

***Development of technical skills.*** Through the completion of the module's self-reflection (introduction discussion - Activity 1, journal - Activity 3, and interview) activities, JC identified that her ability to acquire the skillset required for instructing within the online learning environment was a concern. For example, when reading BS' post inquiring about her experience with captioning the instructional videos she created, DS realized that her ability to caption the videos was a concern because she had no previous experience with adding closed captioning to her videos. DS admitted that despite her previous implementation of various solutions within her courses she still had much to learn. In other words, when interacting with her peers in the discussion forum as well as reflecting individually in the journal and interview, DS recognized that her current technical skillset was a problem and she was not able to solve it with her current conception on the use of instructional technologies.

***Evaluating technologies.*** Through the completion of the module's self-reflection (concept map - Activity 4) activity, DS identified that her ability to evaluate instructional technologies was a concern. For example, when reflecting in the discussion forum on the preparations needed to implement her instructional strategies within her online courses, DS realized that her ability to evaluate the technologies was a concern because she needed the time necessary to explore the plausible solutions. DS stated that before adopting any technical solution, it was vital that she had time "to evaluate which technologies [were] most appropriate" for her courses. DS stated that the process consisted of her determining the capabilities of the technologies and then the

appropriateness for her courses and course content. In other words, when reflecting in the discussion forum, DS recognized that her ability to evaluate the available technical solutions was a problem and she was not able to solve it with her current conception on the evaluation process for the instructional use of technologies.

**DS findings for research question 3.** The completion of the self-reflection and peer interaction activities resulted in DS identifying several solutions to address her previously defined areas of conflict. Based on the comments made by DS during the interview and within her activity reflective statements, it appeared that her engagement within the module activities resulted in identifying solutions to address concerns regarding teaching philosophy, evaluating technologies, student and faculty interaction, student engagement, student evaluations, and peer interaction. She credited her identification of these solutions to her participation in the self-reflection (introduction discussion - Activity 1, concept maps - Activity 2 and Activity 4, journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (introduction discussion - Activity 1 and community discussion – Activity 3) activities.

***Teaching philosophy.*** Through the completion of the module's self-reflection exercises (concept maps - Activity 2 and Activity 4, best practice literature - Activity 4, and interview) activities, DS identified reflection via the concept map activity and best practice literature resources as plausible solutions to address her concern regarding the application of her teaching philosophy within the online environment. While reflecting on her concept map (Activity 2), DS shared that the exercise provided a helpful “birds-eye-view of the goals for [her] online courses and the ways in which those goals [were to be] accomplished.” While reflecting through the concept map forum (Activity 4), DS added

that the process of creating the concept maps (Activity 2 and Activity 4) was a “good exercise to reinforce [her] teaching philosophy and evaluate how to implement it in the online learning environment.” While reflecting on her completion of the best practice literature (Activity 4) activity, DS credited the exercise with providing her access to a wide range of best practice (Activity 4) resources and literature that she could review while reflecting on her teaching philosophy. During the interview, DS stated that participating in the module “helped support [her], [reaffirmed] ideas, [and generated] new ideas for how to” accomplish her task.

***Development of technical skills.*** Through the completion of the module’s self-reflection (journal -Activity 3 and best practice literature - Activity 4), DS was able to identify professional development opportunities as a plausible solution to address her concern regarding the development of technical skills. While reflecting through the best practice literature forum (Activity 4), DS stated that the new instructional practices she intended to employ revolved “around implementing more technologically advanced, engaging modes of instruction.” To support the use of these advanced technologies, DS, while reflecting within both the journal (Activity 3) and best practice literature forum (Activity 4), stated that she intended to seek out training opportunities. DS planned to begin developing her skills during the summer of 2016.

***Evaluating technologies.*** Through the completion of the module’s self-reflection (concept maps - Activity 2 and Activity 4, best practice literature - Activity 4, and interview) and peer interaction (introduction discussion forum - Activity 1 and community discussion – Activity 3) activities, DS was able to identify Sway (presentation software), Adobe Captivate (demonstration authoring tool), Panopto

(lecture capturing software), and OneNote (digital note-taking application), and PowToon (video and presentation software) as plausible solutions to address her concern regarding her ability to evaluate instructional technologies.

While reflecting on the best practice literature (Activity 4), JC identified Sway (presentation software), Adobe Captivate (demonstration authoring tool), Panopto (lecture capturing software), and OneNote (digital note-taking application) as plausible solutions she could use to record her presentations. She added that at the time of the module, she had begun the process of evaluating OneNote, Sway, and Screencast-O-Matic (screen recorder and editing tool). Through the best practice literature forum (Activity 4), DS shared that you identified PowToon (video and presentation software) as a plausible solution while completing the module to create presentations. While interacting with her peer, BS via the introduction discussion forum (Activity 1), DS became aware of Adobe Captivate. In her effort to identify the availability of supported technologies at the studied institution, DS posted to the introduction discussion forum (Activity 1), a question regarding the availability of the technologies she intended to explore. In response to DS's inquiry, the researcher provided her information on how to submit a request to obtain a copy of the Adobe Captivate software.

While interacting with the researcher via the community discussion forum (Activity 3), DS stated that she evaluated Sway while completing the module. To evaluate the features of Sway, DS created a Sway presentation for the modules concept map (Activity 2 and Activity 4) activities. After experimenting with the technology, she decided to use another solution to create her presentations. During the interview, while evaluating her experience with creating the presentations using Sway, DS identified

OneNote as the solution she would adopt in order to capture the recording of her handwritten calculations presentations.

***Student and faculty interaction.*** Through the completion of the module's self-reflection (journal - Activity 3 and interview) and peer interaction (introduction discussion- Activity 3) activities, DS identified technologies as plausible solutions to address her concern regarding her ability to establish an online community. While interacting with her peers, via the introduction discussion forum (Activity 1), DS identified the use of Panopto, Knovio, Blackboard Collaborate and WebEx as plausible solutions to support student and faculty interaction. Within the forum (Activity 1), she discussed the features of the solutions. DS informed JC that tools like Blackboard Collaborate would allow for a virtual, face-to-face interaction that would result in making a "more genuine connection with [her] students." While interacting with her peer, JC, DS inquired about the availability of Blackboard Collaborate was available at the studied institution. Responding to this inquiry within the forum (Activity1), the researcher informed them that the solution was available at the studied institution.

***Student engagement.*** Through the completion of the module's self-reflection exercises (journal - Activity 3, concept map – Activity 4, best practice literature - Activity 4 and interview) activities, DS identified her ability to incorporate active participation and the use of games within her courses as a plausible solution to address her concern regarding incorporating consistent engagement within her online courses. Through the journal (Activity 3), DS stated that incorporating active participation would require the creation of an online learning environment that was accessible and engaging to her students. While reflecting on her concept map (Activity 4) in the forum, DS stated

that revising her map afforded her an opportunity to reevaluate the process of creating a community of learners with authentic learning experiences within the online classroom.

During the interview, DS credited her review of the best practice literature (Activity 4) with her decision to explore the instructional use of games to support student engagement. She believed that the use of games would be a fun way to engage her online students. In addition to being a fun experience for students, the quiz game could act as an excellent review for tests. While reflecting on how she could implement games within her courses, DS identified Kahoot (game-based learning platform), a technology she currently incorporated into her face-to-face classes, as a solution to she could use to support student engagement in her online courses.

***Student evaluations.*** Through the completion of the module's self-reflection exercises (journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (introduction discussion - Activity 1) activities, DS identified her assessment techniques especially for at-risk students, as a plausible solution to address her concern regarding the support at-risk students within the online learning environment. DS Participation in the self-reflection activities afforded DS the opportunity to reflect on her previous attempts at capturing feedback via surveys. Through the journal (Activity 3), DS identified capturing feedback from her students as a solution to assist her with the development of her course. DS intended to use the feedback as a tool to ensure that her courses were accessible and engaging to all students. Through the best practice literature forum (Activity 4), DS identified the collection of anonymous feedback from her students as a solution to assist with monitoring "progress, comprehension and overall responses to the courses." Through the journal (Activity 3), DS identified Survey Monkey, a polling or

surveying tool outside of the Blackboard learning management system, as a solution to collect the anonymous student feedback. She believed that the ability to submit feedback anonymously would result in students' willingness to complete the survey and provide feedback on how she could best support their learning. DS added that she intended to utilize the input to modify her courses and ensure that she met the unique needs of her students. During the interview, DS shared that upon receiving the feedback she would address concerns raised in the student feedback to ensure that her courses provide clarity and transparency.

***Peer interaction.*** Through the completion of the module's self-reflection (interview) and peer interaction (introduction discussion – Activity 1) activities, DS identified the opportunities to interact with her peers via the module as a plausible solution to address her concern regarding her lack of interaction with knowledgeable peers within the online learning community. During the interview, DS stated that she found it “really helpful to hear and receive feedback from” her peers. She noted that it was especially helpful to hear from those who were instructing online courses. Her engagement with her peers included both learning and inquiring about their usage of adopted technologies and instructional practices. For example, after learning about her peer, BS's, use of Blackboard Captivate via the introduction discussion forum (Activity 1), DS inquired about her experience with using the technology.

**Summary of case DS.** Through the completion of the self-reflection and peer interaction activities, DS was able to navigate successfully through the process of declaring her preconceptions regarding teaching and learning in online environments, identifying concerns within her existing conceptions when assessing the transferability of

her current instructional practices within an online environment, and identifying plausible solutions to address those areas of concerns. The module activities provided DS an opportunity to reflect verbally and pictorially on her existing conceptions regarding teaching and learning in online environments. The activities included the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the community discussion (Activity 3), the best practice literature (Activity 4), and the interview exercises. As a result of participating in the activities, DS declared her attitudes, assumptions, and beliefs regarding teaching and learning within the online environment.

Through participation in the self-reflection and peer interaction exposing events, DS was able to articulate her attitudes regarding teaching philosophy, peer interaction, student and faculty interaction, and faculty development. The self-reflection activities included the introduction discussion (Activity 1), the journal (Activity 3), and the interview exercises. Dialogue with her peers within the introduction discussion forum (Activity 1), DS declared her preconceptions as well as afforded her an opportunity to become aware of the preconceptions of others. For example, while self-reflecting within her journal (Activity 3), DS declared that she enjoyed interacting with students within the face-to-face learning environment.

Reflecting verbally through her participation in the journal (Activity 3) and the community discussion forum (Activity 3) resulted in DS declaring her assumptions regarding students and faculty interaction and student engagement. For example, while verbally reflecting through the community discussion forum (Activity 3), DS was able to

reveal her assumption that her online students did not interact with her because they perceived her as being unapproachable.

DS's responses to the self-reflection and peer interaction activities also revealed her beliefs regarding student and faculty interaction, faculty development, student engagement, teaching philosophy, and use of audio and video technology. The exercises included the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the community discussion (Activity 3), the journal (Activity 3), the best practice literature (Activity 4), and the interview. For example, while verbally reflecting through the community discussion (Activity 3), DS shared her belief that successful instruction within online courses would require her to be both available and accessible to her students.

The module activities acted as a discrepant event, which resulted in DS declaring concerns within her preconceptions that would hinder her from successfully delivering instruction within the online environment. DS's statements revealed concerns regarding peer interaction, student and faculty interaction, student engagement, support for at-risk students, conversion of face-to-face courses, lack of visual cues, development of technical skills, and evaluation of technologies. The exercises that acted as discrepant events included the self-reflection introduction discussion (Activity 1), journal (Activity 3), concept map (Activity 4), and interview exercises, as well as, the peer interaction introduction discussion (Activity 1) and community discussion (Activity 3) exercises. While reflecting on teaching and learning process within the online environment, DS was able to articulate conflicts between her current instructional practices and those she desired to implement within her online courses. Her awareness became apparent through

her participation in the journal (Activity 3) exercise. DS's articulated reflective statements indicated her concerns regarding her ability to support at-risk students within the online learning environment.

The self-reflection and peer interaction activities also resulted in DS identifying plausible solutions to address her concerns regarding teaching philosophy, evaluating technologies, student and faculty interaction, student engagement, student evaluations, and peer interaction. The self-reflection occurred, through DS's completion of the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. Peer interaction through the completion of the introduction discussion (Activity 1) and community discussion (Activity 3) forums also supported DS with identifying plausible solutions. For example, while reflecting on the best practice literature (Activity 4), DS identified the use of anonymous feedback from her students as an instructional strategy, and she would like to explore further as a way to monitor student progress and comprehension within her online courses.

#### **Case Five: AC**

AC was an adjunct instructor at the studied institution who taught philosophy and religious studies. She identified herself as an instructor or teacher with no formal teacher preparation training prior to beginning her academic career. At the time of the study, she had experience instructing online courses and completed at least one online course as a student. Within her post to the introduction discussion forum (Activity 1), AC shared that her entry into academia was accidental and stemmed from the lack of opportunities for persons with degrees in philosophy. Her teaching career began while she was a graduate

student. She credited the joy she received from teaching as being a factor in her career choice. AC shared that since starting her career she had pursued professional development opportunities in order to enhance her instructional skill sets. Additionally, she stated that her instructional practices were influenced by several factors. These factors included the adopted practices in her discipline of philosophy and religious studies, departmental practices, administrative practices, student feedback, and previous learning experiences with influencing her instructional practices.

AC's answers to the pre-module survey questions revealed her existing beliefs regarding the ability of online courses to provide equivalent services, support, and quality as face-to-face courses. When asked about the achievement of learning outcomes within online courses in comparison to face-to-face courses, AC stated that she moderately agreed that online courses could achieve the same learning outcomes as face-to-face courses within her discipline and the courses she taught. AC also indicated that she believed the ability to deliver the necessary content by faculty to meet the learning objectives and to respond to student inquiries for online courses was the same as face-to-face courses. AC expressed that faculty could provide quality responses to students' questions within both the face-to-face and online learning environment. When responding to questions regarding the quality of the interaction that would occur between online faculty and their students, she declared that interaction occurring during and outside of the online learning environment was of lower quality than what would occur within face-to-face courses. She also shared her belief that quality communication between online faculty and their students regarding logistics and other concerns, as well as grading, was the same within both the online and face-to-face learning environment.

AC was an engaged participant within the module and completed all of the required module activities. When required to respond to at least one peer posting in community discussion exercise (Activity 3), AC interacted with two of her peers and as a result posted three comments regarding their concept maps (Activity 2). At the conclusion of the module, AC participated in a synchronous WebEx online interview, but unlike the researcher, did not use a web camera during the meeting.

Table 11

*AC Concept Map Modifications Table*

Structure of Concept Map	Original Concept Map	Revised Concept Map
Focal Concept	Learning Objectives	Skill Set and Engagement
Number of Incomplete Propositions	13	0
Number of Completed Propositions	0	23
Include Linking Words	0	23
Cross-links	0	2

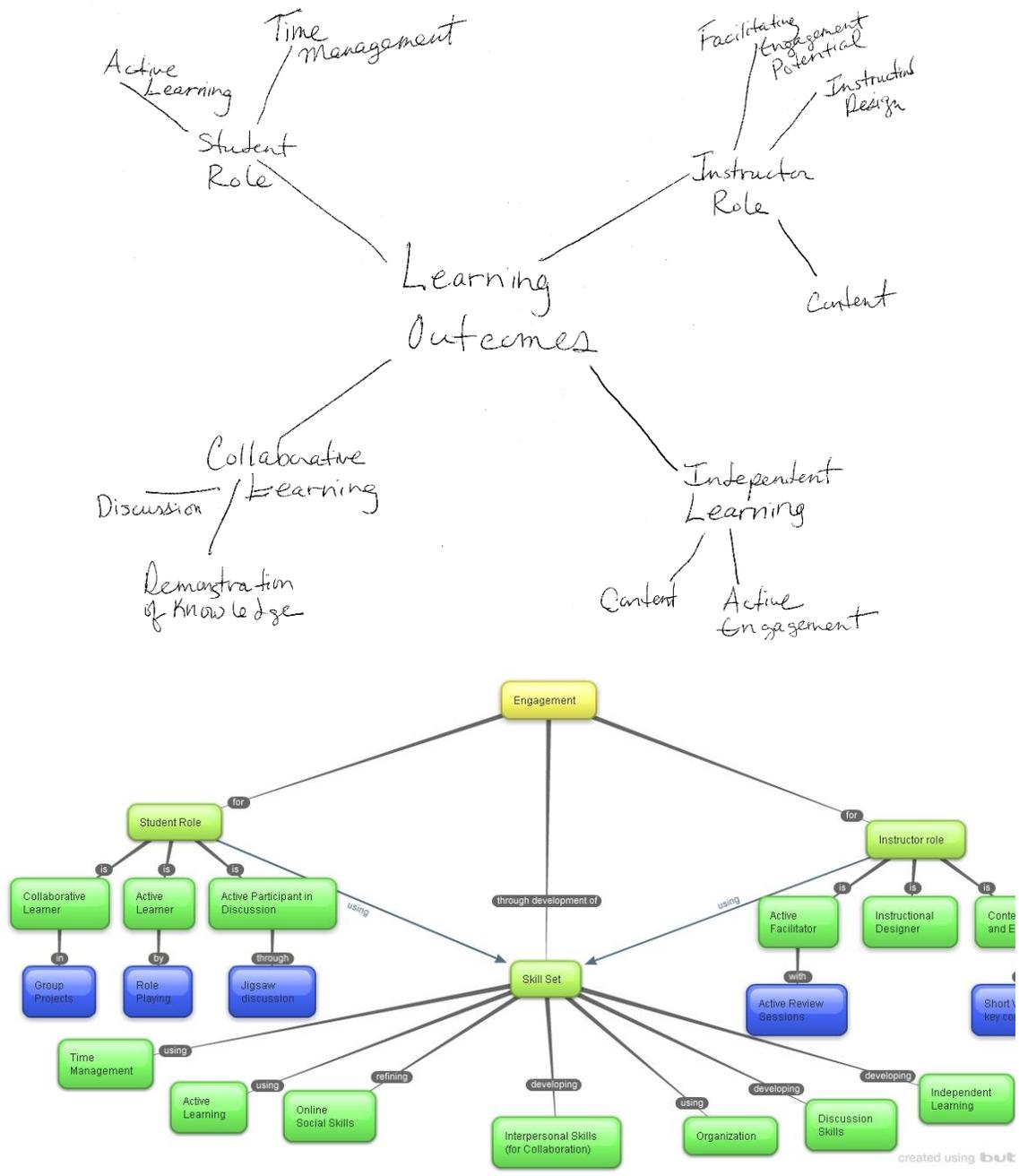


Figure 10. AC Original (top) and Revised (bottom) Concept Maps

**Analyzing both concept maps.** The researcher obtained the original and revised concept maps files (Figure 10) created by AC from the discussion forums. When comparing the two concept maps (Table 11), it became apparent that AC experienced deep learning following the completion of the module. The criteria for deep learning

states that a significant improvement occurred. AC made a significant improvement within her revised map by showing a linkage between the newly learned concepts and original conceptions (Hay, 2007). During the interview, AC stated that the creation of the original (Activity 2) and revised (Activity 4) concept map afforded her:

time to focus on one thing, which [was] the idea of how different tasks and roles [were] connected and how they feed into those larger goals... the idea that [they] were told reflect on it, not quickly, but take some real time to sit down and reflect on it. That was really helpful.

***Focal concept and propositions.*** The term *learning outcomes* appeared as the focal point for the original concept map (Activity 2). Within the map, AC included 13 incomplete propositions. After completing the individual reflection and peer interaction exercises within her revised concept map (Activity 4), AC changed the focal concept to *skill set*. She also added the concept *engagement* to the center top segment of the concept map. AC stated she included the term *engagement* because it was “something that [fed] into the skill set [and] also that the skill set [fed] into” it. Within the revised map, AC included 23 complete propositions.

***Linking words and crosslinks.*** AC did not include any linking words or crosslinks within the design of her original concept map (Activity 2). As a result of revising her concept map (Activity 4), she included 10 unique linking words, which resulted in 23 complete propositions. The linking words incorporated into the revised map included the terms *is, for, using, developing, refining, by, in, with, and through development of*. Within the revised concept map, AC illustrated the existence of relationships within the

subdomains by including two cross-links via the terms *instructor role* and *skill set* as well as *student role* and *skill set*.

**Original concept map.** When asked to depict visually the relationships between the concepts provided within the concept map exercise (Activity 2), AC drew by hand a concept map that reflected the hierarchical structure of a net. The net conceptual map depicted a “complex interaction at different conceptual levels... [and could] support reorganization to emphasize different components to appreciate a ‘larger world view’ or to compensate for a missing link” (Kinchin, Hay, & Adams, 2000, p. 48). AC’s original concept map (Activity 2) illustrated a simple relationship between the *learning outcomes* concept and the remaining terms included within the map. During the interview, AC described her design as a spider web. When discussing the central point of her map, AC stated that it was “important to have a central point that everything relates to and that relates to everything to kind of tie it together.” She added that “everything kind of feeds into that middle...you've got to have the hub in the middle of the wheel...if you don't have the hub, then the spokes don't have anything to do. And the wheel falls apart.”

AC included eight concepts from the provided parking lot list of terms within the design of her concept map. The concepts included were *active learning*, *time management*, *student role*, *learning outcomes*, *discussion*, *instructor role*, *instructional design* and *content*. The term *content* appeared twice within the concept map. She also added 5 concepts that were not included within the original provided parking lot list of terms. Though these concepts did not appear within the provided list, variations of these terms did appear. The non-provided terms that appeared within her original concept map

included *facilitating engagement potential, independent learning, active engagement, demonstration of knowledge, and collaborative learning*.

Through the design of her original concept map, AC depicted the existence of a network of relationships between *learning outcomes* and the concepts *student role, instructor role, collaborative learning, and independent learning*. To illustrate the relationship between the concepts, AC used straight lines to connect the terms. AC added incomplete propositions using lines to connect the concepts *student role, instructor role, collaborative learning* and *independent learning* to the focal concept *learning outcomes*. AC further expanded the concept map by adding additional incomplete propositions to each of the aforementioned concepts. AC illustrated individual relationships between the concepts *instructor role (facilitating engagement potential, instructional design, and content)*; *student role (active learning and time management)*; *collaborative learning (discussion and demonstration of knowledge)*; as well as *independent learning (content and active engagement)*.

**Revised concept map.** When submitting her revised concept map (Activity 4), AC stated that she “tried using a program, instead of [her] handwritten technique ... [and that her] original central concept [had] been changed.” AC used one of the suggested and free concept mapping software Bubbl.us to recreate her concept map. The revised map maintained the net hierarchal structure; however, AC made significant changes by including new concepts, colored shapes, linking words, and arrows or connectors.

AC included a new focal concept, *skill set*, within a green rectangle and the concept, *engagement*, which appeared at the top of the document within a yellow box. The revised map included 22 concepts, 5 of those concepts appeared within the original

map. She also removed the parking lot terms *content*, *instructional design*, and *discussion* which appeared in her original map. The remaining 14 concepts consisted of a variation of the provided parking lot terms or a new term not included within the list. Within the revised map, the concepts appeared within blue, light green, dark green and yellow colored rectangles. The linking words appeared within dark gray colored circles.

In addition to using colored squares for the concepts, AC also included 23 complete propositions, none of which appeared in the original map. Three of the propositions illustrated the existence of relationships between the focal concept *skill set* and the concepts *engagement*, *student role*, and *instructor role*. The terms *student role*, *instructor role*, and *skill set* all appeared within light green rectangles. The concept *engagement* appeared within a yellow rectangle. The concepts *group projects*, *role playing*, *jigsaw discussion*, *active review sessions*, and *short videos on key concepts* all appeared in blue rectangles and appeared to be activities or content used to support the roles of the student and instructor. The remaining 13 concepts appeared in dark green rectangles.

To illustrate the relationship between the concepts, AC connected the terms using a straight line and linking words, which she did not include in her original map. The linking words incorporated into the revised map included the terms *is*, *for*, *using*, *developing*, *refining*, *by*, *in*, *with*, and *through development of*. AC created two cross-links to demonstrate the relationships between the concepts *instructor role* and *skill set* as well as *student role* and *skill set*. AC used long lines, which included one arrow or connector, to reach across different segments of the concept map. AC used the linking phrase *using* for both of the crosslinks. The cross-links illustrated relationships within the

concept map between the concept *skill set* and *instructor role* and *skill set* and *student role*.

**Responses to research questions.** The following sections discuss how the module activities assisted AC's conceptual change process. Through her responses to the module activities, AC illustrated how self-reflection and peer interaction resulted in her experiencing different phases of the conceptual change process. The researcher presents responses to address the three research questions. The researcher analyzed AC's responses to the prompting questions captured during the interview and posted responses to the module Blackboard discussion forums and journal exercises. AC's responses to the prompting questions regarding her attitudes, beliefs, and assumptions; areas of concern or dissatisfaction; and plausible solutions fell into several categories illustrated in Figure 11.

**AC findings for research question 1.** AC was able to identify her attitudes of empathy, anxiousness, nervousness, and envy through the completion of the concept map (Activity 2), the community discussion (Activity 3), and the interview exercises. She also identified her assumptions about the teaching philosophy, group projects, lack of visuals, student engagement through her completion of the introduction discussion forum (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the community discussion (Activity 3) and the interview exercises. Lastly, AC shared her beliefs about student engagement, student and faculty interaction, instructional use of discussion forums, use of visuals, group project, teaching philosophy, and student development through her completion of the concept maps (Activity 2 and Activity 4), the community discussion (Activity 3), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises.

Research Question 1	
Completed Module Activities	Identified Themes
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> concept map, journal, revised concept map, best practice literature review, and interview</li> <li>• <b>Peer Interaction:</b> introduction discussion forum, community discussion forum, and WebEx meetings</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Attitudes:</b> Student engagement</li> <li>• <b>Assumptions:</b> teaching philosophy, group projects, lack of visuals, and student engagement</li> <li>• <b>Beliefs:</b> student engagement, student and faculty interaction, instructional use of discussion forums, use of visuals, group project, teaching philosophy, and student development</li> </ul>
Research Question 2	
Completed Module Activities	Identified Themes
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> introduction discussion forum, concept map, journal, revised concept map, and interview</li> <li>• <b>Peer Interaction:</b> introduction discussion forum, community discussion forum, and WebEx meeting</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Concerns</b> <ul style="list-style-type: none"> <li>○ group projects</li> <li>○ student engagement</li> <li>○ student and instructor interaction</li> <li>○ lack of visuals</li> <li>○ clarity of course instructions</li> </ul> </li> </ul>
Research Question 3	
Completed Module Activities	Identified Plausible Solutions
<ul style="list-style-type: none"> <li>• <b>Self-Reflection:</b> introduction discussion forum, concept map, revised concept map, best practice literature review, and interview</li> <li>• <b>Peer Interaction:</b> community discussion forum</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Solutions</b> <ul style="list-style-type: none"> <li>▪ group projects</li> <li>▪ jigsaw discussions</li> <li>▪ peer advice</li> <li>▪ Blackboard discussion forum subscription feature</li> <li>▪ small groups</li> <li>▪ assign 4 persons per group</li> <li>▪ early formation of groups</li> <li>▪ role-play (with seminal case studies)</li> <li>▪ Panopto</li> <li>▪ Weekly videos</li> <li>▪ synchronous meeting applications (WebEx and Skype)</li> <li>▪ telephone</li> <li>▪ email</li> <li>▪ interact with groups</li> <li>▪ two-minute videos (for instructions and overview)</li> </ul> </li> </ul>

Figure 11. AC Identified Themes

**Attitudes.** Through the completion of the module's self-reflection (concept maps and interview) and peer interaction (community discussion) activities, AC was able to

define or identify both her positive and negative attitudes towards student engagement activities. During the interview, while reflecting on her experience as a student within the module, AC shared that she disliked the act of sharing her concept maps (Activity 2 and Activity 4) publicly through the discussion forums. AC expressed concern regarding the visibility of her posted concept maps (Activity 2 and Activity 4) and the opinions her peers would have about her maps. She revealed that she experienced a sense of anxiousness and nervousness, as well as envy while completing the concept map activity (Activity 2) and then interacting with her peers via the community discussion forum (Activity 3). AC shared that her nervousness stemmed from her viewing of the sophisticated concept maps created and submitted by her peers. AC described her concept map (Activity 2) as a hand-drawn backward map created via the use of crayon. Because of AC's negative perception regarding her work, she was concerned that her peers would not take her concept map seriously.

Due to her experience with completing the concept map (Activity 2) and community discussion (Activity 3) exercises, AC gained an empathic attitude towards her students' experiences with publicly sharing their work while completing her assigned discussion forum exercises. During the interview, AC stated that, because of her completion of the discussion forum activities, she “better [appreciated] why it [made her] students nervous, [especially] students who [were] new to online learning and students who [were] coming back to college.”

During the interview, AC revealed her positive attitude regarding the feedback she received while interacting with her peers within the discussion forums. AC stated that “it was nice to see how someone else approaches” teaching and learning within the online

environment. She was especially interested in the experiences of faculty from other professional fields. She stated that it was helpful “to get feedback from other people and to see how they” approached the same idea.

**Assumptions.** Through the completion of the module’s self-reflection (concept maps -Activity 2 and Activity 4, journal - Activity 3, and interview) and peer-interaction (introduction discussion - Activity 1 and community discussion - Activity 3) activities, AC was able to define or identify her assumptions regarding teaching philosophy, group projects, lack of visuals, and student engagement. While interacting with her peer through the community discussion forum (Activity 3), AC revealed her assumption that the focal point of her peer's concept map was the term *learning outcomes*, which differed from her use of the term *skill sets*. AC stated that “what most people called learning outcomes, [she] would refer to as a skill set.” AC added that she did not consider herself “an outcomes cheerleader. But [she understood] that learning outcomes [was] a phrase a lot of people [identified] with.” During the interview, AC shared her assumption that her peers had a negative perception regarding their ability and desire to implement group projects within their courses. AC assumption that “the number one reason people [shied] away from group projects [was] because they [thought], well there’s going to be a lazy student. And [they did not] want to deal with that.”

During the interview, while reflecting on the introduction discussion (Activity 1), AC shared her assumption that several of the faculty participating in the module did not have any or little experience with instructing online courses. While interacting with her peers in the forum (Activity 1), she noticed, "that most [of her peers] didn't have a picture on their profile." When reflecting on her peer's lack of profile pictures and her experience

teaching online courses, she shared her assumption that her peers were inexperienced or new online faculty.

During the interview, AC revealed her assumption that students engaging in the required course activities experienced a sense of nervousness when required to interact with their peers in an online course. She revealed this assumption during the interview. AC assumed that because of her nervousness when asked to publicly share her work and interact with her peers via discussion forums, that her students would encounter a similar experience.

While reflecting on her concept map (Activity 2), AC revealed her assumption that “the more [she] pushed [and] encourage[d] students to participate and get through assignments, the more self-motivated they [would] become.” AC added during the interview, AC her assumption that her students’ engagement within the course was depended upon her actions. She assumed that if she showed some interest in the course that her students would reciprocate that interest. She also assumed that her engagement within the course would directly affect her students’ behavior.

During the interview, AC also revealed her assumption that some of her face-to-face students were not accustomed to courses that challenged them intellectually. AC shared that on occasion, students, specifically non-majors within her face-to-face course, verbalized negative comments regarding the course requirements. AC shared during her interview that her face-to-face students had made comments, such as “why can't [she] just tell [them] what the right answers are so [they] [could] get an A.” AC assumed that her student’s reaction was as a result of being “used to ... getting A's for memorizing things.”

During the interview, AC shared her assumption that her students reacted in such a manner because she required them to think critically for the first time. After reflecting on her revised concept map (Activity 4) during the interview, AC shared her assumption that "the number one reason why students [dropped] out of online courses" was due to their lack of engagement. Though she had no proof, AC shared within her journal post (Activity 3) her assumption that students also dropped her course because she included group projects.

*Beliefs.* Through the completion of the module's self-reflection (concept maps, journal, best practice literature, and interview) and peer interaction (community discussion) activities, AC was able to define or identify her beliefs regarding student engagement, student and faculty interaction, instructional use of discussion forums, use of visuals, group project, teaching philosophy, and student development.

AC revealed her beliefs regarding her student's engagement within her courses through her completion of the interview activity. During the interview, AC shared her belief that students who did not engage in her course discussion forums "vanished" from her course. According to AC, after making their initial post to the forums, some of her students "decide not to do anything else." Despite her attempts to communicate with students falling behind on assignment submissions, some of the students would not respond to her inquiry. AC added that despite the flexibility of the assignments, some of her students did not participate fully in the class.

AC revealed her beliefs regarding the lack of interaction between her students and herself during the interview. AC declared her belief that her students were nervous about contacting her because they did not know her. She added that when initiating contact with

students who were falling behind in their work some of them would not respond to her inquiry. She shared that conversations with her students revealed that they did not respond to her because they believed that she would yell at them about their performance in her course.

AC revealed her beliefs regarding the instructional use of discussions forums to support student learning through her completion of the best practice literature (Activity 4), community discussion (Activity 3), and interview activities. During the interview, AC declared her belief that her instructional use of discussion forums was an essential component of her course. She stated that “the inclusion of a strong discussion board element in a course ... [helped her] students learn and use the important terms and concepts.” Through the best practice literature forum (Activity 4), AC shared her belief that a “strong discussion element [was] necessary for greater retention and application of the important ideas included in [her] courses and field. Discussion [was] a medium for use, and ‘use it or lose it’ is something [she does] take very seriously.” While responding to her peer MF’s post within the community discussion forum (Activity 3), AC shared her belief that her students considered the discussion forums were to be the most “fruitful” part of her unit. AC informed her peer, MF that “time and again students [told her] that once they get used to [the discussion forums, they consider them the] most interesting and fruitful part of every unit because they [got] to see many points of view in a low-impact environment.”

AC revealed her beliefs regarding the use of visuals within the online environment through her completion of the best practice literature (Activity 4) and interview activities. During the interview, AC revealed her belief that the inclusion of

Blackboard profile pictures supported faculty and students ability to interact within the online course site. She added that within the online environment having “a face or at least an object to focus on” while interacting with course participants was helpful.

During the interview, AC declared her belief the participants should use webcams during online synchronous meetings. AC expressed regret for her decision not to use a web camera during the module’s online synchronous meetings. She expressed her belief that the meeting would have been better if the facilitator could have seen her. When reflecting on the experience, AC stated that she found the facilitator’s use of a webcam helpful during the meetings.

While reflecting on her review of the best practice literature (Activity 4), AC acknowledged her belief that the instructional use of videos within an online course could improve the learner's experience. She added that without the use of videos it was “not easy to communicate enthusiasm in an online environment.” Though she supported the use of videos, AC also declared her belief that “rehearsed and [non-spontaneous] ... videos [could not] get across how enthused [instructors were] ... about a topic.”

AC revealed her beliefs regarding the instructional use of group projects within the online environment through her completion of the community discussion (Activity 3), journal (Activity 3), and interview activities. Through the journal (Activity 3), AC declared her belief that the inclusion of group projects would “increase engagement and improve collaborative learning” in her courses. While interacting with her peer, MF, via the community discussion forum (Activity 3), AC shared her belief that her students responded positively to her inclusion of group projects within her courses. AC informed her peer MF that she received positive feedback from her students regarding the group

projects. During the interview, AC revealed her belief that the engagement, which occurred between students and faculty, was an example of a group project. AC recognized the modules inclusion of discussion board activities (Activity 1 and Activity 3), where she was required to read her peers post and communicate with her peers as a group project. According to AC, this group project also included the collaboration, which occurred between the researcher and the module participants.

AC revealed her belief regarding the application of her teaching philosophy within the online learning environment through her completion of the concept map (Activity 2 and Activity 4) and interview activities. While reflecting on her concept map within the forum (Activity 4), AC revealed that her “general belief about online courses [was] that engagement [consisted of] hard work and encouraging active learning in an online setting [and required] a great deal of encouragement from the facilitator.” During the interview, while reflecting on her concept maps (Activity 2 and Activity 4), AC revealed her belief that an engaged instructor was essential to student success.

During the interview, AC declared her belief that collaborative learning was a skill required of her students and shared that she intended to identify activities to support her efforts. Through the concept map forum (Activity 2), AC shared her belief that if incorporated within her course, collaborative and independent activities would support student learning. She concluded that collaborative and independent activities would provide an opportunity for students to “learn from each other, to test out ideas with real people, and to improve their powers of written expression.”

AC revealed her beliefs regarding the need for students in the philosophy field to develop their skills necessary to collaborate and participate in arguments through her

completion of the interview activity. During the interview, AC shared her belief that the ability to collaborate within groups was a skill her students needed to develop. She added that students entering the work environment would be required to work with people they did not know and with whom they may not necessarily agree with in order to complete a project. AC also revealed her belief regarding the need for her students to develop the skills necessary to participate in arguments. AC added that her students must "be able to assess someone else's presentation of argument and conclusion ... [as well as] critically assess [their] own argument."

**AC findings for research question 2.** Through the participation in the introduction discussion forum (Activity 1), the concept maps (Activity 2 and Activity 4), the community discussion (Activity 3), the journal (Activity 3), and the interview activities, AC was able to identify several areas of concerns including course alignment, group projects, student engagement, student and instructor interaction, lack of visuals, and clarity of course instructions. AC became concerned with those areas when she recognized there were problems with her existing conceptions when transferring her current practices to the online environments. As Nussbaum and Novick (1982) indicated that when a learner recognized a problem and was unable to solve the problem with his/her existing conceptions, the learner would experience a feeling of dissatisfaction.

**Course alignment.** Through the completion of the module's self-reflection (concept maps - Activity 2 and Activity 4 and interview) activities, AC identified that her ability to ensure instructional alignment in her online course was a concern. For example, when reflecting on her concept maps, AC shared that before she could incorporate

instructional activities such as group projects into her online course, she needed to ensure that the selected activities aligned with her course objectives.

In other words, when reflecting in the interview on her concept maps, AC recognized that the ensuring alignment with her online courses was a problem and she was not able to solve it with her current conception on course design.

**Group projects.** Through the completion of the module's self-reflection (journal - Activity 3 and interview) and peer interaction (introduction discussion - Activity 1 and community discussion – Activity 3) activities, AC identified that her ability to implement group projects within her online course was a concern. For example, when reading her peer MF's post on how MF implemented group projects within her online course within the community discussion forum (Activity 3), AC realized that her ability to implement online groups with the appropriate number of participants was a concern because the assigning of a large number of students would impact the group cohesiveness and their ability to collaborate within her online courses. AC admitted that she had middling success with group projects and credited them for being the catalyst for her students withdrawing from her course. In other words, when interacting with her peers and reflecting individually in the journal and interview, AC recognized that her ability to implement group projects within her online course was a problem and she was not able to solve it with her current conception on course design.

**Student engagement.** Through the completion of the module's self-reflection (interview) activity, AC identified that her ability to engage her students was a concern. For example, when reflecting on her participation in the module discussion forums during the interview, AC realized that the potential number of students within her course would

affect her students' ability to interact with their peers within the discussion forum. In other words, when reflecting in the interview on her engagement within the module discussion forums, AC recognized that her instructional use of discussion forums was a problem and she was not able to solve it with her current conception on using discussion forums to engage students.

***Student and instructor interaction.*** Through the completion of the module's self-reflection (interview) activities, AC identified that her ability to interact with her online students was a concern. For example, when reflecting during the interview on her students admitted nervousness regarding interacting with her, AC realized that her ability to promote student and instructor interaction within her online course was a concern because she tended to schedule non-required class meet-ups in order to afford her students opportunities to interact with her. AC shared that her previous attempts to schedule online meetings were unsuccessfully due to her students' busy schedules. In other words, when reflecting during the meeting, AC recognized that interacting with her online students was a problem and she was not able to solve it with her current conception on supporting student and faculty interaction within the online environment.

***Lack of visuals.*** Through the completion of the module's self-reflection (interview) and peer interaction (discussion forum (Activity 1) activities, AC identified that her ability to see a visual representation of her students within the online environment was a concern. For example, when reflecting in the discussion forum on her experience within the module, AC realized that her ability to see images or video of her students was a concern because she considered the use of visual imagery (pictures and videos) to be an important and necessary component of instruction within online courses.

AC stated that the absence of visuals was one thing she saw lacking in the online environment. While reflecting on her completion of the module she mentioned that the module participant's lack of profile pictures and webcams during the WebEx meetings confirmed her concern regarding the impact that the lack of visuals could have on online student's ability to connect with others. In other words, when reflecting in the discussion forum and interview on her inability to see a visual of her students within the online environment, AC recognized that the lack of visuals within the online environment was a problem and she was not able to solve it with her current conception on the lack of visual presence within the online environment.

***Clarity of course instructions.*** Through the completion of the module's self-reflection (interview) activity AC identified that her ability to provide course instructions that clearly outlined the requirements for her discussion forum assignments was a concern. For example, when reflecting on instructional use of Blackboard discussion forums within her online courses during the interview, AC realized that her ability to provide clear and concise instructions for the assignment was a concern her students informed her that they were not completing the assignments because they were not aware of the assignment requirements. In other words, when reflecting in the interview, AC recognized that her ability to present clearly the requirements for her assignments was a problem and she was not able to solve it with her current conception on course design.

**AC findings for research question 3.** The completion of the self-reflection and peer interaction activities in the *What's on Your Mind?* module resulted in AC identifying several solutions to address her concerns. AC discussed the solutions she intended on implementing or further exploring in order to address her concerns regarding group

projects, variety of assignments, student and faculty interaction, clarity of course instructions, time management, and course alignment. She credited her completion of the self-reflection (introduction discussion - Activity 1, concept maps - Activity 2 and Activity 4, best practice literature - Activity 4, and interview) and peer interaction (community discussion - Activity 3) exercises with her identification of following solutions to address her areas of concern.

***Group projects.*** Through the completion of the module's self-reflection (introduction discussion - Activity 1, journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (community discussion - Activity 3) activities, AC identified the adoption of group projects as a plausible solution to address her concern regarding her ability to implement group projects within her online course. AC's participation in the module activities afforded her an opportunity to reconsider her interest in the instructional use of group projects. Through the journal (Activity 3) and interview, AC declared that she intended to reintroduce group projects into her upcoming fall online course as a solution. While reflecting on her interaction with peers via the community discussion forum (Activity 3), AC stated that the opportunity to interact with her peers influenced her decision. While reflecting on the best practice literature (Activity 4), AC identified jigsaw discussions as an instructional strategy she could use to support groups. According to AC, the "jigsaw discussion method [looked] really interesting and appealing, and [she considered it] a good way to foster cohesiveness within small groups, and a class."

***Blackboard discussion forum.*** Through the completion of the module's self-reflection (journal post - Activity 3) and peer interaction (community discussion forum -

Activity 3) activities, AC identified the Blackboard discussion forums as a plausible solution to address her concern regarding her ability to implement group projects within her online course. During the interview, when describing her participation in the community discussion forum (Activity 3), AC stated that “reading other people’s maps and commenting on” their post resembled the act of partaking in a group activity. Through the journal (Activity 3), AC shared that “seeing the maps of others and reading feedback on [her] own map,” encouraged her to reconsider the inclusion of group projects within her online course. AC also sought out advice from her peers to address her concerns regarding group projects. While interacting with her peer, MF, via the community discussion forum (Activity 3), AC shared that, like herself, MF “also tried group projects in online courses, with middling success, so [she] would love to find out how” her group project efforts fared.

While interacting with her peer, NW via the community discussion forum (Activity 3), AC identified the use of the Blackboard discussion forum subscription feature as a solution to support groups. While discussing her previous experience with collaborative or group projects, AC shared that she had successfully incorporated Blackboard tools, such as the group feature, to support collaboration and group projects within her courses. AC suggested to NW that she used the Blackboard discussion subscription feature to capture a snapshot view of the students and instructors engagement in the discussion forum activities. After making this suggestion, AC shared that she intended to try the feature herself while instructing an upcoming online summer course.

*Group size.* Through the completion of the module's self-reflection (introduction discussion - Activity 1, best practice literature - Activity 4, and interview) and peer interaction (community discussion -Activity 3), AC identified the limiting group membership to four students per group as a plausible solution to address her concern regarding her ability to implement group projects within her online course. During the interview, while reflecting on her participation in the discussion forums, AC described interactions with her peers as taking place within a "nice, small group." AC determined that she would organize students within her online courses into small groups. She shared that the use of small groups would result in a more manageable experience for her students. AC realized that having 25 students contributing to a discussion forum could become taxing for the participants.

While reflecting on the best practice literature (Activity 4), AC identified assigning four students per group as the solution. Through the best practice literature forum (Activity 4), AC sought out the opinions of her peers regarding her decision to assign four students to each group. Although the forum was not a group activity, AC informed her peers that she "would love to hear everyone's thoughts" on her proposal to limit the group size to four students. During the interview, AC stated that she intended to organize her students into "small groups at the beginning [of the course] so that they [could] get to know each other." AC identified the early formation of small groups as a solution to assist her students in establishing relationships with their peers. Through the best practice literature forum (Activity 4), AC shared that she intended to rotate the group membership weekly in order to assist her students with getting to know their peers.

***Variety of assignments.*** Through the completion of the module's self-reflection (best practice literature - Activity 4 and concept map – Activity 4) activities, AC identified jigsaw discussion and role-play instructional assignments as plausible solutions to address her concern regarding student engagement within her online courses.

One of the assignments she identified supported the formation of small groups, and provided a method to diversify the variety of assignments was the use of jigsaw discussion forums. While reflecting on the implementation of the jigsaw discussions within her course via the best practice literature forum (Activity 4), AC stated that “each module [within her course had] some objectives which [could] easily [be translated] into points of a jigsaw discussion” activity. She shared that she intended to implement the jigsaw discussions into her online course during the upcoming fall semester. AC also credited her review of the best practice literature (Activity 4) for her decision to implement a role-playing assignment within her upcoming fall courses. While reflecting individually via the best practice literature forum (Activity 4), AC stated that she intended to support her implementation of role-play in the educational setting by using “seminal case studies from the required text.”

***Student and faculty interaction.*** Through the completion of the module's self-reflection (interview) activity, AC identified the use of Panopto and WebEx as plausible solutions to address her concern regarding her ability to interact with her online students. During the interview, AC discussed the researcher's practical use of visuals via Panopto recorded video presentations. AC shared that she intended to use the lecture capture software, Panopto, to create within her online courses weekly visual introductory videos. She would also use Panopto to incorporate a visual image of herself in the online

environment. During the interview, AC shared that she hoped providing these visuals to her students would ease any anxiety they had regarding contacting her. She hoped that the use of videos and visuals would increase the likelihood that her students would “contact [her], reply when [she] contact[ed] them... [as well as be] less nervous about” acknowledging when they needed help. During the interview, AC also shared that she intended to use tools, such as synchronous meeting applications (WebEx and Skype), telephone, and email to encourage interaction within her online course, as well as to interact with groups. During the interview, AC shared that she also intended to explore the use of WebEx in order to incorporate opportunities for her to interact with her students via synchronous online meetings.

*Clarity of course instructions.* Through the completion of the module’s self-reflection (interview) activity, AC identified the use of video and synchronous tools as plausible solutions to address her concern regarding the clarity of her discussion assignment instructions. During the interview, AC shared that she intended to use short video recordings and WebEx synchronous meetings within her online course in order to provide clear instructions to her online students. AC credited her identification of these solutions to her participation as a student in the module. She credited the experience of participating in the module with revealing that she could use videos to present clear instructions to her students. As a module participant, she viewed Panopto presentations recorded by the researcher to communicate the module requirements to the participants. The short videos introduced the module activities, as well as provided instructions and expectations for the discussion forum exercises. In addition to providing guidelines, the videos also displayed screenshots of the Blackboard course site and PowerPoint

presentations. During the interview, while reflecting on the presentation of the instructions within the module, AC stated that she was considering the diverse ways she could present information within her course.

AC also stated that in order to provide her students with clear instructions and an overview of the requirements for course activities, she intended to incorporate similar videos within her course. She planned to create “short two-minute video[s] where [she] very simply explain[ed] how many discussion posts and why [she required students to post] three.” During the interview, AC shared that she identified to use WebEx to host online synchronous meetings in which she would provide information regarding the assignments to the attendees. AC stated that she intended to display course materials on the screen so that students” could view the documents she referred to during the meeting.

***Time management.*** Through the completion of the module’s self-reflection (interview) activity, AC identified the use of schedule for students as a plausible solution to address her concern regarding student’s lack of engagement due to their time management practices. During the interview, AC identified a schedule students could adhere to in order to assist them with managing their time. AC stated that her students should access the course Blackboard site and engage in the discussion forums daily to ensure that they had adequate time to complete the assignments. AC stated that the act of “logging in every day [to the Blackboard course site] was important.” AC added that students should login and at least read the discussion forum post to remain up-to-date on what conversations were occurring. During the interview, AC credited her

participation in the module discussion forums with confirming her solution that students should devote “10 to 15 minutes [per] day” on the course discussions

**Course alignment.** Through the completion of the module’s self-reflection (interview) activity, AC identified reflection via the development of a concept map as a plausible solution to address her concern regarding the alignment of her course goals, module objectives, assessments, learning activities and instructional resources. During the interview, AC shared that reflecting via the concept maps was necessary for her to reflect fully on the design of her course. Additionally, she considered the concept map exercise a tool that she could use to reflect on both her face-to-face and online courses. According to AC, the concept map exercise could be used as a catalyst for her to “think seriously about all the different roles and tools and skills ... developed in [the] face-to-face setting and ... online setting ... [as well as] how they’ll sometimes be different because the setting is different.”

**Summary of case AC.** Through the completion of the self-reflection and peer interaction activities, AC was able to navigate successfully through the process of declaring her preconceptions regarding teaching and learning in online environments, identifying concerns within her existing conceptions when assessing the transferability of her current instructional practices within an online environment, and identifying plausible solutions to address those areas of concerns. The module activities provided AC an opportunity to reflect both verbally and pictorially on her existing conceptions regarding teaching and learning in online environments. The activities included the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the community discussion (Activity 3), the best practice literature (Activity

4), and the interview exercises. As a result of participating in the activities, AC declared her attitudes, assumptions, and beliefs regarding teaching and learning within the online environment.

Through participation in the self-reflection and peer interaction exposing events, MF was able to articulate her attitude regarding empathy for the experiences of her students. The self-reflection activities included the concept map (Activity 2) exercise. Dialogue with her peers within the community discussion (Activity 3) further supported AC with declaring her preconceptions as well as afforded her an opportunity to become aware of the preconceptions of others. For example, while self-reflecting and interacting with her peers within the community discussion (Activity 3), MF declared her feeling of empathy for the nervousness experienced by her online students when required to participate in online discussion forums.

Reflecting visually and verbally through her participation in the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the community discussion (Activity 3), the journal (Activity 3), and the interview exercises resulted in AC declaring her assumptions regarding teaching philosophy, group projects, lack of visuals, and student engagement. For example, while reflecting verbally through the journal (Activity 3), JA was able to reveal her assumption that the inclusion of group projects within her courses was the catalyst for students dropping out of her online course.

AC's responses to the self-reflection and peer interaction activities also revealed her beliefs regarding student engagement, student and faculty interaction, instructional use of discussion forums, use of visuals, group projects, teaching philosophy, and student

development. The exercises included the concept maps (Activity 2 and Activity 4), the community discussion (Activity 3), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. For example, while verbally reflecting through the journal (Activity 3), AC shared her belief that the inclusion of group projects would increase engagement and improve collaborative learning within her online courses.

The module activities acted as a discrepant event, which resulted in AC declaring concerns within her preconceptions that would hinder her from successfully delivering instruction within the online environment. AC's statements revealed concerns regarding course alignment, group projects, student engagement, student and instructor interaction, lack of visuals, and clarity of course instructions. The exercises that acted as discrepant events included the introduction discussion (Activity 1), the concept maps (Activity 2 and 4), the journal (Activity 3), community discussion (Activity 3), and the interview exercises. While reflecting on teaching and learning process within the online environment, AC was able to articulate conflicts between her current instructional practices and those she desired to implement within her online courses. Her awareness became apparent through her participation in the community discussion (Activity 3). AC's reflective statements indicated her concerns regarding her ability to implement successfully group projects within her online courses.

The self-reflection and peer interaction activities also resulted in MF identifying plausible solutions to address her concerns regarding group projects, variety of assignments, student and faculty interaction, clarity of course instructions, time management, and course alignment. The self-reflection occurred, through AC's completion of the introduction discussion (Activity 1), the concept maps (Activity 2 and

Activity 4), the best practice literature (Activity 4), and the interview exercises. Peer interaction through the completion of the community discussion (Activity 3) exercise supported AC with identifying plausible solutions. For example, while reflecting verbally through the best practice literature (Activity 4) exercise, AC identified the use of the jigsaw discussion activity as an instructional strategy she would like to explore further in order to support group projects within her online course.

### **Cross-Case Analysis**

The *What's on Your Mind?* conceptual change diagram (Figure 12) reflects the complicated and interconnected relationship that exists between the study participants' individual and collective experiences while transitioning through the different phases of the conceptual change process. The diagram illustrates that the catalysts for participants experiencing the conceptual change process were prompted by the six self-reflection and two peer interaction exercises incorporated within the module. Participation in these exercises afforded the faculty an opportunity to define their preconceptions, identify concerns regarding teaching and learning within the online environment, as well as identify plausible solutions to address these concerns. The exercises also afforded participants an opportunity to view the execution of engaging self-reflection and collaborative activities within the online environment.

The conceptual conflict instructional strategy provided guidelines for structuring the professional development activities incorporated within the module. Participation in these activities supported faculty with experiencing some variation of the three phases of the conceptual change process. Based on the findings from the analysis of the individual cases and cross-case analysis, the inclusion of multiple opportunities to self-reflect and interact with peers may result in conceptual change.

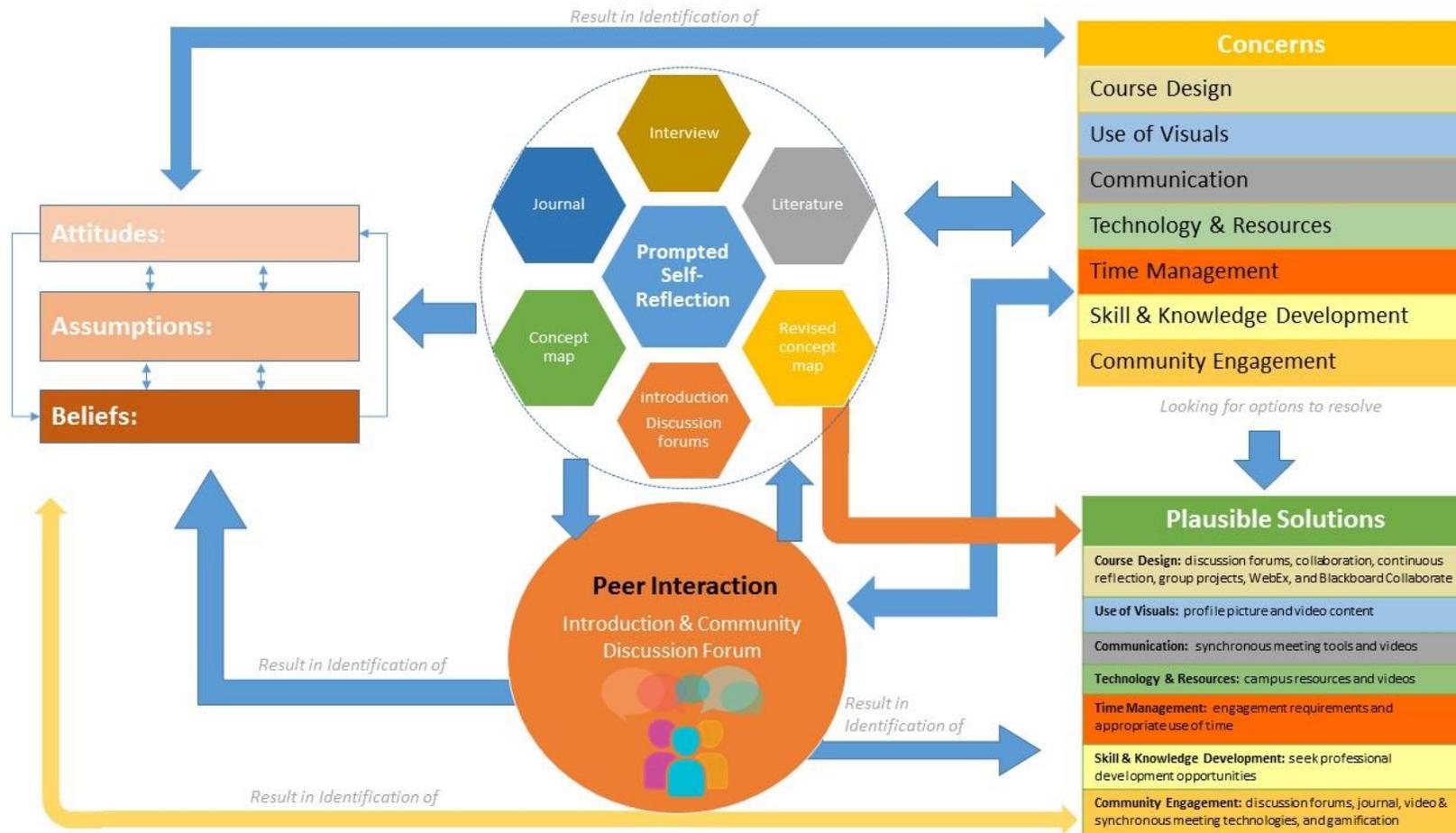


Figure 12. *What's on Your Mind?* conceptual change diagram. The diagram illustrates the complicated and interconnected relationship that exists between the study participants' individual and collective experiences while completing the prompted self-reflection and peer interaction exercises. The diagram also demonstrates the relationships that exist between the subdomains (attitudes, assumptions, and beliefs, concerns, and solutions) and the experiences of the participants while completing the self-reflection and peer interaction exercises.

## **Self-Reflection**

By design, the module included six separate opportunities for the participants to reflect individually on teaching and learning within the online environment. The activities consisted of the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), journal (Activity 3), the best practice literature review (Activity 4), and the interview exercises. As illustrated in the diagram, faculty participation in the prompted self-reflection exercises resulted in them defining their attitudes, assumptions, and beliefs, which have a symbiotic relationship with each other. Self-reflection also afforded them an opportunity to define their concerns regarding the transferability of their desired instructional practices into the online environment. The relationship that exists between the act of self-reflecting and defining concerns are bidirectional. The act of self-reflecting resulted in faculty defining their concerns, as well as pre-existing concerns influenced their responses to the self-reflection exercises. Additionally, the act of self-reflecting resulted in faculty identifying plausible solutions that could address their concerns. The interaction, which occurred among the participants, also prompted them to self-reflect. The act of engaging in dialogue or reviewing the reflective statements of their peers prompted faculty to self-reflect. The activities themselves also afforded participants an opportunity to view the researcher authentic execution of self-reflection exercises within the online environment.

## **Peer Interaction**

The module provided participants with two opportunities to interact actively through dialogue with their peers while completing the introduction discussion forum (Activity 1) and community discussion forum (Activity 3) exercises. The act of

dialoguing with their peers within the discussion forums resulted in faculty defining their attitudes, assumptions, beliefs, concerns, as well as plausible solutions to address these concerns. While interacting with their peers, faculty also learned about each other, shared their own experiences, and exchanged ideas.

Within their responses to the exercises, participants defined their attitudes, assumptions, and beliefs. The interaction, which occurred via these activities, also had a bidirectional relationship with concerns. Within their responses to the peer interaction exercises, faculty would define their concerns, however, within their post, they also discussed pre-existing concerns. The opportunity to share concerns allowed peers to reveal solutions they had implemented previously to address the concern or discuss plausible solutions they intended to explore. As previously mentioned, peer interaction also prompted additional self-reflection.

### **Bidirectional Relationships among Subdomains**

The diagram also illustrates the cross-links or relationships that existed among three of the subdomains within the conceptual change process. These domains included the attitudes, assumptions, beliefs, concerns, and solutions discussed by the participants. Though positioned across the diagram, a bidirectional relationship exists among these subdomains. The initial act of defining their attitudes, assumptions, beliefs, concerns, and solutions resulted in participants exploring them further through self-reflection and peer interaction. A bidirectional relationship existed between the attitudes, assumptions, and beliefs section of the diagram and the concerns and solutions subdomains of the diagram. The attitudes, assumptions, and beliefs of the participants directly influenced the concerns participants mentioned in their statements. The concerns discussed by the

participants also directly influenced by the attitudes, assumptions, and beliefs they revealed in their statements. The influence of these concerns revealed themselves within the statements made by the participants regarding their attitudes, assumptions, and beliefs about teaching and learning within the online environment. The concerns raised by the faculty also resulted in their identification of plausible solutions. The solutions discussed by the participants are also, directly and indirectly, influenced by their attitudes, assumptions, and beliefs. For example, upon completing the module, JA was able to identify solutions to address her concern regarding prefabricated courses. Her ability to identify the solutions resulted in a shift in her attitudes and beliefs regarding these courses. The *What's on Your Mind?* conceptual change diagram (Figure 12) illustrates the complicated and interrelated relationships among all the segments of the diagram. The below section provides the detailed results of the cross-case analysis conducted by the researcher for the case participants MF, JA, JC, DS, and AC. The cross-case analysis process was conducted for the concept map activity and each of the three research questions. Within the sections, the researcher illuminated the themes that emerged for the concept map activity and three research questions.

### **Concept Map Analysis**

The researcher's review of the concept map submissions revealed that as a result of completing the module exercises all the participants experienced deep learning. Deep learning required that when revising the original concept map (Activity 4) that the participants made a significant improvement to the map, which illustrated a link between the newly learned concepts and original conceptions (Hay, 2007). AC, JC, DS, and MF's original and revised concept maps represented the hierarchical structure of a net. The

original concept map (Activity 2) created by JA represented the hierarchical structure of a spoke, and upon revising the map, she transformed it into a net structured map.

### **Research Question 1 Cross-Case Analysis Findings**

The module activities helped participants identify or define their attitudes, beliefs, and assumptions regarding teaching and learning within the online environment. The participants' (MF, AC, JC, DS, and JA) responses to the self-reflection and peer interaction exercises' prompted questions, revealed these attitudes, beliefs, and assumptions through their completion of the introduction discussion forum (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the community discussion (Activity 3), the best practice literature (Activity 4), and the interview exercises. Completing a comparison of the individual cases resulted in the identification of six major themes regarding their attitudes, beliefs, and assumptions: teaching philosophy, community engagement, time management, course design, skill and knowledge development, and use of visuals. Within each section, a table lists the participant pseudonyms, theme, and the type of module activities that resulted in the identification of their attitudes, beliefs, and assumptions.

Table 12

*Case Participants Attitudes and Module Activities*

Case	Teaching Philosophy	Skill and Knowledge Development	Community Engagement
MF	Self-Reflection		Self-Reflection & Peer Interaction
AC			Self-reflection & Peer Interaction
DS	Self-Reflection	Self-reflection & Peer Interaction	Self-reflection
JA	Self-Reflection		Self-Reflection
JC	Self-Reflection	Self-Reflection	Self-Reflection & Peer Interaction

**Attitudes.** Through self-reflection and peer interaction, AC, MF, JC, JA, and DS revealed their attitudes (Table 12) towards teaching and learning within the online environment. The case participants defined their attitudes through their participation in the self-reflection (introduction discussion – Activity 1, concept maps – Activity 2 and Activity 4, journal – Activity 3, and interview) and peer interaction (introduction discussion – Activity 1 and community discussion – Activity 3) exercises. Three major themes emerged from the analysis of the five participant’s attitudes: teaching philosophy, skill and knowledge development, and community engagement. The participants’ (AC, MF, JC, JA, and DS) statements illustrated their positive, negative or neutral feelings towards the themes. Since MF was the only participant to reveal her attitude regarding the use of visuals within online courses, it is not considered a theme, but it warranted mention and appears at the conclusion of this section.

**Community engagement.** Through self-reflection and peer interaction, MF, DS, AC, JA, and JC revealed their positive and negative attitudes regarding community

engagement within the online environment. Though community engagement was the overarching theme, participants' responses revealed their specific attitudes regarding student and faculty interaction, peer to peer interaction, as well as student engagement.

They shared their attitudes within their responses to the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the community discussion forum (Activity 3), the journal (Activity 3), the best practice literature (Activity 4) and the interview exercises.

The case participants MF and DS shared their attitudes regarding student and faculty interaction within the face-to-face classroom environment. MF's completion of the introduction discussion exercise (Activity 1) revealed her positive attitude towards her ability to engage with students in her face-to-face courses. She acknowledged her attitude while reflecting individually and interacting with her peer, BS, within the forum. Similarly, DS also revealed her positive attitude via self-reflection, but within her post to the journal (Activity 3) and responses to the interview questions. In her journal post (Activity 3), DS revealed her positive attitude and preference for teaching and interacting with her students in the face-to-face environment as opposed to in the online environment. During the interview, she added that she missed interacting with her students when instructing online courses.

While responding to the interview questions, DS and JC discussed their positive attitudes regarding the opportunity to interact with their faculty peers via the module activities. During the interview, JC revealed a positive attitude while responding to the questions regarding his ability to interact and discuss teaching and learning with his peers within the module. Likewise, DS expressed a positive attitude regarding the opportunity

to engage with peers, especially with those who instructed online courses. Within her post to the introduction discussion forum (Activity 1), DS expressed an appreciation for the opportunity to both learn from and interact with her peers.

JA and AC revealed two distinct attitudes regarding student engagement through participation in the self-reflection (concept map - Activity 2, Journal – Activity 3 and interview), and peer interaction (community discussion - Activity 3) exercises. Through her post to the concept map exercise (Activity 2), JA shared that she liked the prospect that students taking her online course would be actively engaged in discussions. However, through her completion of the journal exercise (Activity 3), JA shared that she feared the responsibility of having to promote student engagement within her online course. JA credited her completion of the module reflective activities with revealing a weakness in her approach to student engagement. During the interview, she discussed her negative attitude regarding the instructional methods she implemented to support student engagement. While JA responses focused on herself, AC discussed the experiences of online students. During the interview, AC shared that the experiences of participating as a student in the concept map (Activity 2) and community discussion (Activity 3) exercises solidified her attitude of empathy for the anxiety experienced by online students when participating in the discussion forum activities.

***Teaching philosophy.*** DS, JC, AC, and MF expressed their attitudes regarding their teaching philosophies through their completion of the self-reflection exercises. The exercises included the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), and the interview. DS and JC identified their positive attitudes regarding teaching while reflecting individually on their instructional

practices and introducing themselves to their peers via the introduction discussion exercise (Activity 1). DS and JC both credited their desire to pursue careers as faculty in higher education on their experiences teaching while earning their college degree. DS was earning her doctoral degree, while JC was earning his undergraduate degree.

DS and JA also revealed positive attitudes regarding their teaching philosophy within their reflective post to the journal exercise (Activity 3). DS's post to the journal revealed her love for the teaching profession. Within her post, JA shared that her focus was on creating a lively, interconnected classroom environment for her students. When responding to the interview questions, JA also credited the module exercises with affording her an opportunity to reflect on why she liked teaching, something she had not considered before completing the activities.

JA and MF both revealed their positive attitude after visually depicting their teaching philosophy through development of the concept maps (Activity 2 and Activity 4). MF also credited the second opportunity to complete the concept map exercises (Activity 2) with providing her time to reflect on terms not originally included within the pilot version of the exercise. She added that though these terms resonated with her, she did not include them within the design of her pilot concept maps. Likewise, JA also credited the process of creating the concept maps (Activity 2 and Activity 4) with affording her an opportunity to reflect structurally on the strengths and weaknesses of her teaching practices.

***Skill and knowledge development.*** JC and DS revealed their attitudes regarding either faculty or student skill and knowledge development through self-reflection. The self-reflection exercises included the introduction discussion forum (Activity 1), the

journal (Activity 3) and the interview. The peer interaction activities included the introduction discussion forum (Activity 1) and the community discussion (Activity 3) exercises. Through his completion of the introduction discussion exercise (Activity 1), JC expressed his positive attitude regarding his student's development of both knowledge and skills over the course of single or multiple semesters. According to JC, the fundamental course he instructed afforded his students a terrific opportunity to explore unique solutions to address problems.

Through her participation in both the self-reflection and peer interaction exercises, DS shared her positive attitude regarding online faculty development of skills and knowledge. While participating in the introduction discussion forum (Activity 1), DS reflected individually and informed her peers that she was eager to enhance her online teaching skills. In her journal post (Activity 3), DS shared that she wanted to learn how to foster student engagement and their mastery of content. Additionally, while interacting with her peers via the community discussion forum (Activity 3), DS expressed excitement about what she would have learned as a result of completing not only the module, but also the workshop that would follow.

MF revealed her attitude regarding the use of visuals in either face-to-face or online courses, however, because other participants did not mention the topic it is not considered a theme, but it warranted mention. MF revealed her negative attitude regarding her incapacity to incorporate visuals into either her face-to-face or online courses after interacting with her peers via the community discussion exercise (Activity 3). Then, after reviewing her peers' concept maps and interacting with them via the discussion forum, MF repeated her revelation about her negative attitude towards her

inability to incorporate visuals within her courses. MF shared that she was unable to interpret her ideas into graphics and visual tools she could provide to her students in the online environment.

**Summary.** Through self-reflection and peer interaction, the case participants' (AC, MF, JC, JA, and DS) statements revealed their attitudes regarding the themes teaching philosophy and community engagement. MF, DS, AC, JA, and JC expressed their attitudes regarding community engagement that occurred between students and faculty, faculty and faculty, as well as, students and course content. They shared their attitudes within their responses to the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the community discussion forum (Activity 3), the journal (Activity 3), the best practice literature (Activity 4) and the interview exercises. DS, JC, AC, and MF credited their participation in the self-reflection exercises for the opportunity to express both their positive and negative attitudes regarding their adopted teaching philosophies. Since MF was the only participant to reveal her attitude regarding use of visuals, it is not considered a theme, but it warranted mention and appeared at the conclusion of this section.

Table 13

*Case Participants' Assumptions and Module Activities*

Case	Community Engagement	Time Management	Course Design
MF	Self-Reflection	Self-Reflection	
AC	Self-Reflection		Self-Reflection
DS	Self-Reflection & Peer-interaction		
JA	Self-Reflection	Peer Interaction	Self-Reflection
JC	Self-Reflection		Self-Reflection

**Assumptions.** Through self-reflection and peer interaction, AC, MF, JC, JA, and DS revealed their assumptions (Table 13) regarding teaching and learning within the online environment. Assumptions are “ideas and thoughts that evolve over time and become things that we then take for granted. They become so ingrained in our daily thoughts and actions that we no longer question their validity or even think about them” (Bassot, 2016, p. 79). Assumptions are “accepted as true or certain to happen without proof or experience” (Assumption, 2017). The themes regarding assumptions were apparent within the participants’ responses to the self-reflection and peer interaction exercises. The three major assumptions made by the participants regarded community engagement, time management, and course design. AC, MF, JC, JA, and DS revealed their assumptions through their participation in the self-reflection (introduction discussion forum- Activity 1, concept maps - Activity 2 and Activity 4, journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (introduction discussion forum - Activity 1 and community discussion - Activity 3) exercises. Since AC was the only participant to use of visuals and teaching philosophy as a concern, they are not considered themes, but it warranted mention and appear at the conclusion of this section.

**Community engagement.** Through their participation in the self-reflection and peer interaction exercises, AC, MF, JC, JA, and DS revealed their assumptions regarding community engagement. Though community engagement was the overarching theme, participants' responses revealed their specific assumptions regarding student engagement and student and faculty interaction. The self-reflection activities included the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the best practice literature

(Activity 4), and the interview exercises. The peer interaction activity included the community discussion exercise (Activity 3). Though community engagement was the overarching theme, participants' responses revealed their specific assumptions about student engagement as well as student and faculty interaction.

Through their participation in the self-reflection and peer interaction exercises, AC, MF, JC, and DS shared their assumptions regarding student engagement within online courses. Specifically, they shared their assumptions regarding the influences they assumed they had on their students' engagement within their online courses. The self-reflection activities included the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. The peer interaction exercises included the community discussion forum (Activity 3).

JC and AC shared their assumptions after completing the module self-reflection exercises. During the interview, JC revealed his assumption that the lack of synchronous interaction and physical separation would affect his students' ability to collaborate with each other. Within her responses to the self-reflection activities (Activity 4 - concept map and interview), AC shared multiple assumptions regarding the factors that she believed would influence online students' engagement within her courses. While reflecting on her revised concept map (Activity 4), AC also shared her assumption that students dropped her online course due to their lack of engagement within the online course. AC also assumed that the lack of engagement by her online students occurred because they were not accustomed to the academic rigor she required of them. Additionally, during the interview AC also discussed assumptions based on her personal experience as a student within the module. Because she experienced a sense of anxiety when posting her work to

the module discussion forums, AC assumed that her students would also encounter similar feelings of anxiousness when required to interact with their peers through this medium.

Both AC and DS revealed their distinct assumptions regarding their students' possible experience in their online courses in their post to the journal (Activity 3) exercise. AC shared her assumption that her students dropped her online course because she assigned group projects. While in her post, DS revealed her assumption that online students who actively engaged in her online course were more likely to have a positive and successful experience. MF and DS revealed their assumptions regarding how the design of their online courses could affect their students' engagement in their courses. MF expressed her assumptions through her completion of the self-reflection exercises. After reviewing the best practice literature (Activity 4), MF shared her assumption via her post that the inclusion of collaborative activities in her online courses could improve student engagement. While reflecting on her original concept map (Activity 2), MF also shared her assumption that designing an engaging, objective driven and purposeful online course would ensure that her students gained more out of their enrollment in her course. Unlike MF, DS shared her assumptions through peer interaction in the community discussion forum (Activity 3). DS assumed that students would engage and have a more meaningful experience if she created a welcoming and accessible learning environment.

Through their participation in the self-reflection and peer interaction exercises, AC, DS, and JA shared their assumptions regarding the interaction that occurred between students and faculty within the online community. The peer interaction occurred via the community discussion exercise (Activity 3) and the self-reflection occurred as the result

of participating in the concept map (Activity 2), the journal post (Activity 3), and the interview exercises.

Within her post to the journal (Activity 3), JA shared her assumption that faculty instructing prefabricated online courses experienced limited interaction with students in that they merely assigned grades to their students. While responding to the interview questions, JA also shared her assumption that interaction between faculty and students within prefabricated online courses was limited to responding to questions and that communication via email limited her rapport with online students.

Through their participation in self-reflection and peer interaction exercises, AC and DS made assumptions about the influence that they could have on their students' interaction with them. The self-reflection exercises included the concept map (Activity 2), the journal (Activity 3) and the interview. The peer interaction occurred as a result of participating in the community discussion forum (Activity 3). While reflecting on the concept map (Activity 2) that she had designed, AC shared her assumption that her ability to encourage students to participate within the online course would result in them becoming self-motivated, thus increasing their engagement. During the interview, AC restated this assumption. While AC's assumption focused on her ability to encourage interaction, DS expressed her assumption regarding student unwillingness to interact with her. In her journal post (Activity 3), DS shared her assumption that the online students who were the most reluctant to contact her for assistance were those who required it the most. While interacting with her peers via the community discussion forum (Activity 3), DS also stated that students did not interact with her because they assumed that she was unapproachable.

*Course design.* Through their participation in the self-reflection and peer-interaction exercises, JA, AC, and JC revealed several assumptions that they had regarding the design of online courses or the perceptions that either their peers or students held about the design of online courses. The self-reflection activities included the introduction discussion (Activity 1), the journal (Activity 3), and the interview exercises. The peer-interaction occurred via participation in the community discussion exercise (Activity 3).

Through their participation in the self-reflection exercises (introduction discussion - Activity 1 and interview), JC and AC shared their assumptions regarding the perceptions held by others regarding the design of online courses. While responding to the introduction discussion forum (Activity 1) prompting questions, JC revealed his assumptions that students had several misconceptions regarding online courses. He shared that students assumed that online courses were easier and would not cover the same "depth of material and knowledge" as face-to-face courses. While JC discussed the presumed assumptions held by students, AC discussed those of faculty. During the interview, AC revealed her assumption that her faculty peers shied away from group projects because they were concerned about the potential for indolent students who elected not to engage when required to participate in group projects.

Unlike her peers, JA assumptions focused on courses designed by someone other than the instructor. During the interview, JA shared her assumption that the design of cookie-cutter and prefabricated online courses were a lazy manner of course design. She considered this method as consisting of copying and pasting content from face-to-face courses into online courses. Through self-reflection via the journal exercise (Activity 3)

and interaction with her peers via the community discussion forum (Activity 3), JA revealed her assumption that faculty of cookie-cutter or prefabricated courses were not involved in the design of the online course.

***Time management.*** MF and JA shared their assumptions regarding both faculty and students' time management practices within their responses to the self-reflection and peer interaction exercises. The self-reflection exercises included the concept map (Activity 4) and the interview. The peer interaction activity included the community discussion (Activity 3) exercise. MF and JA shared their assumptions regarding time management from the perspective of their students through their completion of the peer-interaction (community discussion - Activity 3) and self-reflection (concept map - Activity 4 and interview) exercises. The opportunity for JA to review her peers' statements regarding time management while completing the community discussion exercise (Activity 3), resulted in her stating the assumption that like herself, her peers underestimated the time required to grade assignments in face-to-face courses. While responding to the interview questions, MF revealed her assumption that her own time management skills correlated with her online students' ability to manage their time.

MF and JA also revealed their assumptions about time management from the perspective of faculty. MF expressed her assumption after developing her concept map (Activity 4). She assumed that her students' level of engagement, as well as what they obtained from the online course, were influenced by their ability to manage their time and timely participation within the online course activities. JA revealed her assumptions while interacting with her peers via the community discussion exercise (Activity 3). She

assumed that the assignment of soft deadlines for online course activities could result in students not properly managing their time.

AC revealed her assumptions regarding the use of visuals in the online environment and teaching philosophy, however, because other participants did not mention the topics they were not considered themes, but warranted mention. AC was the only module participant to reveal her assumption regarding the use of visuals in the online environment. Through her participation in the self-reflection (interview) and peer interaction (introduction discussion forum - Activity 1) exercises, AC shared her assumption regarding her peers' experience with instructing online courses. During the interview, AC reflected on her participation in the introduction discussion exercise (Activity 1) and realized that a number of her peers did not have Blackboard profile pictures. She assumed that her peers' lack of profile pictures meant that they were inexperienced or new to instructing online courses.

AC revealed her assumption regarding her peers' adopted teaching philosophies, which she credited to her participation in the self-reflection (interview) and peer interaction (community discussion - Activity 3) activities. During the interview, AC reflected on her review of the concept maps (Activity 2) submitted by her peers. After reviewing the maps while completing the community discussion (Activity 3), she assumed that her peers, along with the entire online teaching community, adopted the concept *learning outcomes* as the focal point of the learning environment, regardless of the modality of instruction. She also made the assumption that what her peers referred to as *learning outcomes* was equivalent to the term *skill set*.

*Summary.* Through self-reflection and peer interaction, AC, MF, JC, JA, and DS revealed their assumptions regarding teaching and learning within the online environment. The themes regarding assumptions were apparent within the participants' responses to the self-reflection and peer interaction exercises. The three major assumptions made by the participants were regarding community engagement, course design, and time management. While participating in the self-reflection and peer interaction exercises, AC, MF, JC, JA, and DS communicated their assumptions regarding the theme community engagement between varying members of academia. The self-reflection activities included the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. The peer interaction activity included the community discussion exercise (Activity 3). JA, AC, and JC revealed assumptions regarding the design of online courses or the perceptions that either their peers or students held about the design of online courses, while completing the self-reflection and peer-interaction exercises. The self-reflection activities included the introduction discussion (Activity 1), the journal (Activity 3), and the interview exercises. The peer-interaction occurred via participation in the community discussion exercise (Activity 3). Participants MF and JA shared their assumptions regarding time management from the perspective of both the student and faculty via their completion of the self-reflection (concept map - Activity 4) and peer-interaction (community discussion - Activity 3 and interview) exercises.

Though not considered themes because AC was the only participant to discuss them, the categories use of visuals and teaching philosophy appeared at the conclusion of the theme section. AC revealed her assumptions regarding the use of visuals in the online

environment within her responses to the peer interaction (introduction discussion forum - Activity 1) exercises. She expressed her assumptions concerning her peers' adopted teaching philosophies via the self-reflection (interview) and peer interaction (community discussion - Activity 3) exercises.

**Beliefs.** Through self-reflection and peer interaction, AC, MF, JC, JA, and DS either defined or identified their beliefs (Table 14) regarding teaching and learning within the online environment. Beliefs are convictions or acceptance that certain things are true or real (Belief, 2017). Gamble and Gamble (2013) added that “beliefs are the building blocks of attitudes; they provide the basis or foundation for our attitudes ... [they are] one's assessment of what [was] true or false, probable or improbable” (p. 272). The module activities included the introduction discussion (Activity 1), the concept maps (Activity 2 and 4), the community discussion (Activity 3), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. The participants identified six major themes: teaching philosophy, community engagement, course design use of visuals, time management, and skill and knowledge development.

**Teaching philosophy.** MF, JA, JC, AC and DS credited the module with providing an opportunity for them to actively reflect on their teaching philosophies, specifically their participation in the self-reflection (introduction discussion - Activity 1, concept map - Activity 2 and Activity 4, best practice literature - Activity 4, and interview) and peer interaction (community discussion exercise - Activity 3) exercises.

Table 14

## Case Participants' Beliefs and Module Activities

Case	Teaching Philosophy	Community Engagement	Course Design	Use of Visuals	Time Management	Skill and Knowledge Development
MF	Self-Reflection & Peer Interaction	Self-Reflection	Self-reflection Self-Reflection & Peer	Self-Reflection & Peer Interaction	Self-Reflection	
AC	Self-Reflection	Self-Reflection	Interaction	Self-Reflection		Self-Reflection
DS	Self-Reflection & Peer Interaction	Self-Reflection & Peer Interaction		Self-Reflection		Self-Reflection
JA	Self-Reflection	Self-Reflection & Peer Interaction	Self-Reflection	Self-Reflection	Peer Interaction	
JC	Self-Reflection	Self-Reflection & Peer Interaction	Self-Reflection & Peer Interaction	Self-Reflection & Peer Interaction		

DS and MF discussed their beliefs after visually illustrating the online learning and teaching environment within their concept map (Activity 2 and Activity 4). Within her post to the concept map (Activity 2) discussion forum, DS shared that she was able to illustrate the entire learning process within the design of her map. After reflecting on the best practice literature (Activity 4), DS stated that the module activities reinforced her teaching philosophy regarding peer review and feedback within writing courses. Like DS, during the interview, MF also credited her creation of the concept maps (Activity 2 and Activity 4) with affording her an opportunity to illustrate her teaching philosophy and practices. MF expressed that the concept maps (Activity 2 and Activity 4) gave her hope that she could incorporate her philosophies and practices into her online courses. While reflecting on the concept map (Activity 2) prompting questions, MF confirmed her belief that her adopted instructional practices would contribute to successful instruction in her online courses.

MF and DS also shared their beliefs regarding learning and teaching occurring within online courses. During the interview, MF credited the concept maps (Activity 2 and Activity 4) with confirming her belief that learning within the online environment was achievable. While interacting with her peers in the introduction discussion forum (Activity 1), DS commented that she believed teaching was a rewarding experience in her face-to-face courses, but it became ambiguous when instructing online courses.

JC and MF credited their review of the best practice literature (Activity 4) with providing an opportunity to reflect on their face-to-face and online courses. They both revealed that, as a result of reviewing the literature, they were able to more fully consider the similarities and differences between the two modalities of courses. They both

concluded that the foundation for face-to-face and online courses were learning goals or objectives. During the interview, JC added some distinction between their beliefs by adding that though similarities existed between face-to-face and online courses, the tools used to achieve the course objectives may be different. MF also credited her participation in the concept map exercises (Activity 2 and Activity 4) with providing a visual that bridged the connections between face-to-face and online learning.

The modules' self-reflection (introduction discussion - Activity 1, concept map exercise - Activity 2, best practice literature - Activity 4, and interview) and peer interaction (community discussion exercise - Activity 3) activities also afforded JC, AC, MF, and DS the opportunity to confirm their beliefs regarding the instructional methods required to support learning within either the face-to-face or online learning environment. Through his responses to the interview and introduction discussion (Activity 1) questions, JC revealed his belief that his students benefited from the opportunity to participate in constructive criticism learning activities. Within her responses to the concept map exercise (Activity 2), AC also discussed her belief that collaborative and independent instructional activities supported student learning. During the interview, she added that collaborative learning was a required skill set for her students. Through interaction with her peers via the community discussion exercise (Activity 3), MF revealed her belief that the progression of teaching and learning within her courses started with the objectives, moved its focus to the scaffolding of concepts, and culminated with assessment, which solidified her students' mastery of the content. While interacting with her peers via the community discussion forum (Activity 3), DS credited her early review of the best practice literature (Activity 4) for her identification of the essential components of an

online course. DS also declared her belief that the goal of her course was to support student mastery of content.

Through their responses to the self-reflection exercises (concept map - Activity 2 and interview), DS and JA revealed their shared belief that there are advantages students could gain from participating in online courses as compared to face-to-face courses. Both DS' and JA's positive endorsements of online courses highlighted their beliefs that this modality of teaching and learning had its benefits. Within her response to the interview questions, DS stated that the virtual nature of online instruction offers an advantage over face-to-face courses because instruction could continue during episodes inclement weather. She added that students enrolled in her face-to-face courses also benefited from the practices she had come to implement in her online courses. While reflecting on her concept map (Activity 2), JA revealed her belief that online courses offered her students an opportunity to learn in a diverse, flexible, and collaborative environment.

Through their completion of the concept map (Activity 2 and Activity 4) exercises, DS and AC discussed their beliefs regarding the role of faculty and students within the online learning environment. Within her concept map (Activity 2) reflective statement, DS identified both the student and instructor as key players in the learning process. DS discussed the roles of both students and faculty, while AC's comments focused on the role of the instructor. Through her participation in the concept map (Activity 2 and Activity 4) and interview exercises, AC confirmed her belief that an engaged instructor was essential to student success. Within her concept map post (Activity 4), she added that engagement by the instructor would require hard work and effort in order to encourage active learning within the online environment.

*Community engagement.* Through self-reflection and peer interaction, MF, DS, AC, JA, and JC revealed their beliefs regarding community engagement between varying members of academia within the online environment. They defined their beliefs via the completion of the self-reflection (introduction discussion forum - Activity 1, concept maps - Activity 2 and Activity 4, journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (community discussion - Activity 3) exercises. Though community engagement was the overarching theme, the participants' responses revealed separate beliefs regarding student engagement and interaction between students or students and faculty. It is important to note that when referring to the term engagement, some module participants were referring to the interaction between themselves and students, while others were referring to the interaction between students.

Through their participation in the self-reflection and peer interaction exercises, MF, AC, DS, and JC discussed their beliefs regarding the requirements for students to engage actively in online courses. Specifically, they discussed their beliefs regarding how the design of courses and the roles of students and faculty affected student engagement. The self-reflection exercises included the introduction discussion (Activity 1), the concept map (Activity 2), the best practice literature (Activity 4), and the interview. The peer interaction activity included the community discussion forum (Activity 3) exercise.

Through their participation in the self-reflection exercises, AC, DS, and MF discussed their beliefs regarding the role that students and faculty played in encouraging student engagement within an online course. Through her responses to the interview questions, AC expressed her belief that in order for student engagement to occur, a collaboration between her students and herself was necessary. Similarly, within her post

to the journal exercise (Activity 3), DS declared her belief that interaction between her students and herself was essential to their level of engagement within the online environment. Counter to AC's and DS's focus on the interaction between students and faculty, MF discussed the learning environment she was to create. MF added, via her responses to the interview questions, that she believed engagement within her online course relied more on the learning environment she created and available delivery options or technologies than her instructional practices.

After participating in the self-reflection and peer interaction exercises, DS, JC, and JA discussed their beliefs regarding how the actions of students could affect their engagement within online courses. Within her post to the journal (Activity 3), JC shared that she believed that both face-to-face and online students could face distractions within her courses. After reviewing the best practice literature (Activity 4), DS reflected on her belief regarding the cause behind online students' lack of engagement. During the interview, she shared her belief that online students were not aware that they were responsible for completing assigned learning activities similar to those found in face-to-face courses. DS also expressed her belief that students could overcome the lack of physical presence within an online course by fully engaging with the course content and actively taking notes.

Like DS, JC also discussed his beliefs regarding online student's role in initiating engagement. While interacting with his peers via the community discussion forum (Activity 3), JC shared his belief that face-to-face interaction tended to favor his students who were either extroverts or gregarious introverts. Though he believed that distractions could affect student engagement, JC also believed student engagement could inspire

some students and afford them opportunities to learn from each other. After visually reflecting via the concept map (Activity 2), JA shared her belief that online courses allowed more opportunities for students to engage actively in discussions.

Through their participation in the self-reflection and peer interaction exercises, MF, JA, JC, and DS shared their belief that the design of the course could influence online students' ability to engage within the online learning environment. While reflecting on her concept map (Activity 2), MF revealed her belief that student engagement occurred as a result of the instructor's implementation of instructional strategies and activities, as well as the instructor's focus on content. After reviewing the best practice literature (Activity 4), she added that student engagement would also require that she incorporate opportunities for them to engage with the course and course materials and complete authentic assignments. After interacting with her peers via the community discussion forum (Activity 3), JA confirmed her belief that she currently incorporated excellent engagement opportunities within her face-to-face courses. While interacting with her peers, she also stated that she no longer believed that engagement within online courses was limited. DS also credited her development of the concept map exercise (Activity 4) with affording her an opportunity to reflect on the best way to implement authentic learning experiences in order to engage her students within the online learning environment.

During the interview, JC shared his belief that the in-person art studio courses provided opportunities for students to work with each other in a collaborative nature. He added that the level of engagement in this particular course would be dependent upon the group of students enrolled in the course. Within his introduction discussion post (Activity

1), JC shared his beliefs that students within his face-to-face course participated in cohorts. He added that while working within these cohorts, students work in a collaborative fashion rather than in a competitive nature.

MF, AC, DS, JA, and JC discussed their beliefs regarding student and faculty interaction within the community via the participation in self- reflection and peer interaction activities. Those activities included the interview, the introduction discussion forum (Activity 1), the concept map activities (Activity 2 and Activity 4), the community discussion (Activity 3), the journal (Activity 3), and the best practice literature (Activity 4).

AC, JA, and JC defined their belief that the lack of physical contact within the online learning environment could affect their ability to interact with their students. They revealed their beliefs by responding to the interview questions or completing the concept map (Activity 2) exercise. During the interview, AC shared her belief that the lack of physical presence within the online learning environment affected her ability to interact with her students and credited it for the lack of rapport between them. JA also discussed the lack of face-to-face interaction within the online learning environment while reflecting on her concept map (Activity 2). She articulated her belief that in order for student and faculty interaction to occur within the online learning environment the establishment of a virtual connection was required. During the interview, JA added that it would require both trust and honesty between students and faculty. Like his peers, JC also illustrated the interactive relationship he believed existed between faculty and students as a result of creating the concept map (Activity 2). He concluded that feedback

between the students and faculty was necessary in order to establish the relationship between the two.

Through their completion of the self-reflection and peer interaction exercises, MF, DS, and JA revealed their belief that both students and faculty were responsible for ensuring that interaction between them occurred in the online learning environment. The self-reflection activities included the completion of the concept map (Activity 2), the journal (Activity 3), and the best practice literature (Activity 4) exercises. The peer interaction among participants occurred via the community discussion exercise (Activity 3).

MF and DS credited their creation of the concept map (Activity 2) with revealing their beliefs regarding the role that students and faculty play in the incorporation of interaction within courses. While reflecting on her concept map (Activity 2), MF shared her belief that in order for the interaction to occur between faculty and students, they both must take on an active role in face-to-face and online courses. DS also shared a similar belief within her post to the concept map forum (Activity 2). After visually reflecting on the responsibilities of both students and faculty via the concept map (Activity 2), she shared her belief that both the instructor and students must take responsibility and accountability for the learning process. Additionally, DS shared via her post to the journal (Activity 3) that the relationship she developed with her students was essential to their level of engagement within the online course.

JA and DS also discussed the role that faculty play in supporting interaction within online courses. JA credited her review of the best practice literature (Activity 4) with reshaping her beliefs regarding the instructor's role and interaction with students

regardless of the modality of instruction. While JA experienced a shift in her belief, DS defined her belief regarding the availability of online faculty. After interacting with her peers via the community discussion forum (Activity 3), DS shared her belief that online faculty must be both available and accessible in order for online students to complete the course successfully.

Through their participation in the peer interaction and self-reflection exercises, DS and MF discussed their beliefs regarding the influence that the design of the course could have on the interaction between students and faculty. While interacting with peers via the community discussion forum (Activity 3), DS declared her belief that the use of technology to support student and faculty interaction could influence their experiences in the online course. With a slightly different focus than DS, after reviewing the best practice literature (Activity 4), MF shared her belief that in order for the interaction to occur, she must create an active online learning environment. She also credited her revising of the concept map (Activity 4), with affording her an opportunity to visualize the central components of teaching, which included the creation of an active online learning environment where faculty interacted with the students.

*Course design.* Through their completion of the self-reflection and peer interaction exercises, MF, AC, JA, and JC defined their beliefs regarding the design of online courses. The self-reflection exercises included the introduction discussion - Activity 1, the concept maps - Activity 2 and Activity 4, the journal - Activity 3, the best practice literature - Activity 4, and the interview. The peer interaction occurred through participation in the community discussion forum - Activity 3 exercise.

MF was the only participant through her responses to the self-reflection exercises to reveal her belief regarding the value of online courses and the requirements for converting a face-to-face course into an online course. During the interview, MF shared her belief that online courses were as valuable and rigorous as face-to-face courses. She added that it was possible for faculty to facilitate learning within online courses. MF through her participation in the concept map exercises (Activity 2 and Activity 4) and interview exercises declared her belief that she could successfully convert and incorporate her adopted face-to-face instructional practices, as well as, instructional and assessment activities into the design of an online course. Within her concept map (Activity 2) reflective statement, MF declared that together the active learning strategies and objectives guided all of the components of her course. During the interview, MF shared her belief when incorporating her face-to-face practices into the online environment the role of the instructor and student remain the same.

MF, AC, and JC revealed their beliefs regarding the instructional activities required of online courses. They shared their beliefs within their responses to the self-reflection (concept map - Activity 2, journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (community discussion - Activity 3) exercises. Through her participation in the concept map exercise (Activity 2), MF was able to confirm her beliefs regarding the effectiveness of the instructional activities she incorporated into the design of her courses. While reflecting on her concept map (Activity 2), MF shared her belief that the instructional practices and activities she incorporated into her courses resulted in students having a meaningful learning experience. She also declared that online students' retention of the material after their

completion of the daily quizzes included within her course exceeded those of their face-to-face counterparts.

AC and JC revealed their beliefs regarding the instructional use of online discussion forums within the online environment. During the interview, AC shared her belief that active discussion forums support student learning and application of concepts taught within the online course. After reviewing the best practice literature (Activity 4), she added that the discussion forum exercises would result in higher retention and applications of the concepts included in her courses and professional field by students. While interacting with her peers via the community discussion forum (Activity 3), AC concluded that the use of discussion forums within online courses would provide opportunities for students to engage in interesting and rewarding dialogue.

JC also shared his belief regarding the instructional use of discussion forums within the online environment. After interacting with his peers via the community discussion forum (Activity 3), JC shared his belief that the Blackboard discussion forum afforded both students and faculty the opportunity to track student participation through their post to the online forums. He also shared his belief that the asynchronous nature of online discussion forums benefited both students and faculty because it afforded students more time to contribute to the discussions and faculty to assess students' post.

In addition to discussion forums, AC also shared her beliefs regarding the usefulness of group projects within the online environment. Within her reflective post to the journal (Activity 3), AC shared her belief that the inclusion of group projects would increase student engagement and collaboration within the online learning environment. During the interview, while reflecting on her participation within the module, she

concluded that she engaged in a group project while completing the community discussion exercise (Activity 3). Participation in this activity required her to interact with peers and the researcher through the discussion forums. AC concluded that she considered collaboration within courses as occurring between the instructor and student a group activity as well.

JA, JC, and MF defined their beliefs regarding the requirements necessary to design online courses. Through their participation in the self-reflection (introduction discussion - Activity 1 and interview) and peer interaction (community discussion forum - Activity 3) exercises. During the interview, JA revealed her belief regarding the instructional resources she could use within her online courses. She shared her belief that the use of readings such as electronic journals or articles over textbooks was best for online courses. JA added that exposure to module resources resulted in a shift in her belief regarding prefabricated and cookie-cutter courses. She now believed that there were resources she could use to incorporate opportunities of engagement within prefabricated and cookie-cutter courses.

JC beliefs explicitly focused on the use of technologies. While interacting with his peers via the community discussion forum (Activity 3), JC shared his belief that the interaction that occurs between the instructor and students via the use of technology could strongly influence their experience of the instructional design strategies incorporated within the course. Within his post to the introduction discussion forum (Activity 1), JC shared that his participation in the module solidified his belief that his face-to-face students preferred that he distribute course content, additional resources, and grades through a Blackboard course site. Through peer interaction and self-reflection, JC

shared his belief that he could use technologies to support interaction and distribution of information to students.

During the interview, MF declared her belief that when converting her face-to-face course into an online course, the only strategy that required adjustments revolved around content delivery. She added that knowledge of the content delivery strategies for online courses as well as preparing to make the necessary adjustments to them was required of faculty converting a face-to-face course into an online course. MF shared her belief through self-reflection that faculty teaching online courses should be aware of how to implement and modify adopted instructional strategies when designing online courses.

*Use of visuals.* Through the completion of the self-reflection and peer interaction exercises, MF, DS, AC, JA, and JC identified their beliefs regarding the use of visuals within courses. The self-reflection activities included the introduction discussion - Activity 1, the community discussion - Activity 3, the journal - Activity 3, the best practice literature - Activity 4, and the interview exercises. The peer interaction activities included the introduction discussion - Activity 1 and the community discussion - Activity 3 exercises.

MF and DS through self-reflection (introduction discussion - Activity 1 and interview) and peer interaction (community discussion - Activity 3) shared their beliefs regarding their ability to incorporate visuals into their courses. MF's participation in the community discussion forum (Activity 3) and interview exercises resulted in the declaration of her belief that her personal learning preferences affected her ability to incorporate visual content into her courses, either face-to-face or online. Unlike MF, DS shared her belief that she was capable of incorporating visual content into her course. DS

revealed within her post to the introduction discussion (Activity 1) exercise, her belief that the ability to record and quickly disseminate video presentations to her students improved as a result of the enhancements to the available technologies.

Through peer interaction (introduction discussion - Activity 1) and self-reflection (journal - Activity 3 and interview), AC, JA, and JC discussed their beliefs regarding the lack of student images (video and pictures) within the online environment. During the interview, AC shared her belief that the use of visuals (pictures or videos) could affect the interaction between students and faculty within online courses. She also believed that the lack of her peers' use of Blackboard profile pictures affected her ability to interact with them while completing the module discussion forums. As a result of her interaction with the researcher during the module synchronous WebEx meetings, AC shared her belief that the use of webcams could enhance online synchronous meetings. Through her completion of the journal (Activity 3) exercise, JA confirmed her belief that the lack of visuals within online courses affected her ability to dynamically adjust her instructional practices, due to her inability to see her student's reactions and facial expressions to the course material. Similarly, JC discussed his beliefs regarding the lack of visuals of students, while engaging with his peers via the introduction discussion forum (Activity 1). JC shared his belief that the inclusion of student pictures within the online learning environment could affect faculty ability to communicate with students as well as their ability to build rapport with them.

MF, AC, and DS shared their beliefs regarding the impact of incorporating videos into online courses through their participation in the self-reflection (best practice literature - Activity 4 and interview) exercises. During the interview, MF credited her

participation in the module with her affirmation that it was possible to use video as a communication tool, which could also contribute to student engagement within the course. AC credited her review of the best practice literature (Activity 4) for the declaration that faculty could use video to communicate enthusiasm within the online environment. She also revealed her belief that the use of instructional videos could improve the experience of online students. While MF and AC discussed their beliefs regarding a specific type of visual, DS discussed her beliefs about the effect of visuals on the learning experiences of students. During the interview, DS shared her belief that her students benefited from the ability to watch the video presentations repeatedly, which afforded students the opportunity to select a pace of learning that was appropriate for them.

***Time management.*** Through their completion of the self-reflection (concept maps -Activity 2 and Activity 4) and peer interaction (community discussion - Activity 3) exercises, MF and JA shared their belief that a correlation existed between the time management skills of students and faculty. JA identified her beliefs regarding time management while interacting with and reviewing the concept maps (Activity 2) of her peers via the community discussion (Activity 3) exercise. While discussing the commonalities between their posts, JA shared her belief that time management was a critical factor for faculty and students as well as a responsibility of both. Similarly, through her reflective statement posted to the concept map for (Activity 2), MF also discussed the importance of time management. She shared that her instructional and learning experience within online courses confirmed her belief that time management was an essential factor in online courses. After revising her concept map (Activity 4), she

also shared her belief that a relationship existed between the time management skills of both students and faculty.

***Skill and knowledge development.*** Through their responses to the self-reflection exercises, DS and AC shared their beliefs regarding the development of knowledge and skills for faculty or students. The self-reflection activities included the concept map - Activity 2, the best literature - Activity 3, and the interview exercises. DS's responses to the exercises revealed her beliefs regarding the development of faculty skills and knowledge. While reflecting on her concept map (Activity 2), DS revealed her belief that in order to address the possible stagnation of her online teaching skill set; she must actively expand upon her instructional skills and knowledge. These skills were necessary in order to meet her obligation to create a learning environment that encouraged student engagement and interaction. During the interview, DS shared her belief that she also needed to enhance her technical skill sets in order to address the student expectations caused by technological advancements. Within her responses to the interview prompting questions, DS shared her belief that the best practice literature review (Activity 4) exercise would assist her in gaining additional knowledge regarding teaching and learning within the online environment.

On the other hand, while responding to the interview questions, AC declared her beliefs regarding the development of students' skill sets. AC discussed her belief regarding the need for students studying public relations to develop several required skill sets within her responses to the interview question. She shared her belief that students within the discipline needed to develop skills in the areas of collaboration and dialogue, as well as the critical assessment and participation in arguments.

*Summary.* The case participants' (MF, AC, DS, JA, and JC) responses to the module activities' posed questions revealed their beliefs regarding teaching and learning within the online environment. Completing a comparison of the individual cases resulted in the identification of six major themes: teaching philosophy, community engagement, course design, use of visuals, time management, and skill and knowledge development. MF, AC, DS, JA, and JC shared their thoughts while participating in the self-reflection activities: introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. The peer interaction exercises occurred via the introduction discussion (Activity 1) and the community discussion (Activity 3) exercises.

MF, DS, AC, JA, and JC revealed their beliefs regarding community engagement between varying members of academia within the online environment via the completion of the self-reflection (introduction discussion forum - Activity 1, concept maps - Activity 2 and Activity 4, journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (community discussion - Activity 3) exercises. Though community engagement was the overarching theme, the participants' responses revealed separate attitudes regarding engagement and interaction between students or students and faculty.

MF, AC, JA, and JC also discussed their beliefs regarding the design of online courses as a result of completing the self-reflection and peer interaction activities. The self-reflection exercises included the introduction discussion - Activity 1, the concept map - Activity 2 and Activity 4, the journal - Activity 3, the best practice literature - Activity 4, and the interview exercises. The peer interaction occurred through their participation in the community discussion forum - Activity 3 exercise. Through the

completion of the self-reflection and peer interaction exercises, MF, DS, AC, JA, and JC identified their beliefs regarding the use of visuals within courses. The self-reflection activities included the introduction discussion - Activity 1, the community discussion - Activity 3, the journal - Activity 3, the best practice literature - Activity 4, and the interview exercises. The peer interaction activities included the introduction discussion - Activity 1 and the community discussion - Activity 3 exercises.

MF and JA shared their beliefs regarding the correlation between the time management skills of students and faculty. They declared their beliefs within their post to the concept maps (Activity 2 and Activity 4) and community discussion (Activity 3) exercises. DS and AC shared their beliefs regarding the development of knowledge and skills for faculty or students. They discussed their beliefs as a result of their participation in the self-reflection activities, which included the concept map - Activity 2, the best practice literature - Activity 3, and the interview exercises.

### **Research Question 2 Cross-Case Analysis Findings**

MF, AC, JC, JA, and DS through their responses to the self-reflection and peer interaction exercises identified seven significant areas of dissatisfaction (Table 15). They identified the themes as a result of completing the self-reflection (introduction discussion – Activity 1, concept map – Activity 2 and Activity 4, journal – Activity 3, best practice literature – Activity 4, and interview exercises) and peer-interaction (introduction discussion – Activity 1 and community discussion – Activity 3) exercises. These themes included community engagement, course design, use of visuals, communication, technology and resources, time management, and skill and knowledge development. Deemed a category even though only case participant JC identified it as a concern, roles

and responsibilities appear at the end of the cross-case analysis due to its relevance to the research question. Within each section, a table lists the participant pseudonyms and the type of module activities that resulted in the identification of their concerns.

**Community engagement.** Community engagement was a prevalent concern for all five of the faculty that arose through the statements captured from their participation in the self-reflection and peer interaction exercises. Though they all completed the same activities individually, their statements revealed that either one or a combination of the module exercises confirmed or informed their concern about community engagement. The self-reflection activities included the introduction discussion (Activity 1), the concept map (Activity 2), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. Case participants MF, DS, and JA through their ability to interact with their peers while completing the community discussion (Activity 3) exercise discussed their concerns. The participants through their responses to the prompting interview questions, activity questions, or direct interaction with their peers identified specific concerns about student engagement or student and faculty interaction within the online learning community.

Table 15

*Question 2 Cross-Case Analysis Table*

Case	Community Engagement	Course Design	Use of Visuals	Communication	Technology & Resources	Time Management	Skill and Knowledge Development
MF	Self-Reflection & Peer Interaction	Peer Interaction	Self-Reflection & Peer Interaction	Peer Interaction		Self-Reflection & Peer Interaction	
AC	Self-Reflection	Self-Reflection & Peer Interaction	Self-Reflection & Peer Interaction				
DS	Self-Reflection & Peer Interaction	Self-Reflection	Self-Reflection		Self-Reflection		Self-Reflection
JA	Self-Reflection	Self-Reflection & Peer Interaction	Self-Reflection	Self-Reflection	Self-Reflection	Self-Reflection & Peer Interaction	
JC	Self-Reflection	Self-Reflection & Peer Interaction	Peer Interaction	Self-Reflection	Self-Reflection & Peer Interaction		Self-Reflection

All of the case participants identified student engagement within the learning community as an area of concern. Through their responses to either the prompting questions or peer-interaction, shared their concerns about the level of student engagement and their ability to integrate activities that support engagement within their courses, both face-to-face and online. DS, MF, AC, and JC identified their concerns about the level of student engagement within their online courses through their completion of the self-reflection (introduction discussion – Activity 1, journal – Activity 3, best practice literature – Activity 4, and interview) exercises. DS and MF both expressed concern regarding their students’ experiencing continuous engagement throughout the semester. DS discussed her students dwindling participation over the course of the semester within her journal (Activity 3) and responses to the interview questions. Through the review of best practice literature (Activity 4) and responding to the interview questions, MF discussed her concern regarding her ability to support her students’ engagement within the online learning environment. AC through her responses to the interview questions identified her concern regarding her online students’ ability to engage with the course assignments. She was also concerned that her students would react negatively to the requirement that they complete these assignments. JC through his journal post (Activity 3) identified student distraction due to their use of technology as a concern. He also expressed his concern regarding his partial success with engaging students via discussion forums. While interacting with peers within the community discussion forum (Activity 3), MF shared that her personal experience as a student while taking an online course amounted to self-managed solitary work. She was concerned about her ability to ensure that her students did not have a similar experience while enrolled in her course.

DS, MF, and JA identified their ability to design opportunities for engagement within online courses for their students as an area of dissatisfaction. Through self-reflection (concept map – Activity 2, best practice literature – Activity 4, and interview), DS within her interview responses identified her ability to design instructional activities that would create opportunities for consistent student engagement and increase engagement within her online course as concerns. Though MF did not use the exact terms as her peer, DS, through her interview response, she too raised her concern about her ability to support consistent engagement within her course. MF's review of the best practice literature (Activity 4) resulted in her identifying her ability to translate her current teaching and learning philosophies into an online course as a concern. She was also concerned about her ability to identify tools she would use to support her efforts to engage her online students. Both MF (interview) and JA (concept map – Activity 2) expressed concerns regarding their ability to design opportunities through the use of discussion forums to engage their students. JA was the only case participant who credited her interaction with peers via the community discussion exercise (Activity 3) for her identification of student engagement as a concern. After reviewing JC's concept map responses (Activity 2), JA shared that she was worried about her ability to incorporate active learning within the design of her online courses. In his journal post (Activity 3), JC shared his concern regarding how the lack of face-to-face contact could affect his ability to foster an active and collaborative learning environment among his students within the online learning environment. He shared that the physical space within the face-to-face learning environment provided an immediacy that supported collaboration due to the physical and verbal cues provided by students.

JA, DS, JC, MF, and AC shared their concerns regarding student and faculty interaction within the online learning community through their completion of the self-reflection and peer-

interaction exercises. The self-reflection activities included the introduction discussion (Activity 1), the concept map (Activity 2), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. DS was the only case participant who identified her concern while interacting with her peers via the community discussion (Activity 3) exercise.

JA, JC, and AC expressed concerns regarding their ability to support scheduled office hours for online courses. Though they shared a similar concern, the revealing of this concern for each occurred through a different module activity. Both JA and JC revealed their concerns while reflecting on the design of their concept maps (Activity 2). In her reflection statement, JA discussed her concern regarding the impact that the lack of in-person interaction would have on the online office hour sessions. JC shared that his students did not participate in the scheduled office hours within his face-to-face courses. During the interview, JC shared that he was concerned about the tools he should select to engage his online students. While introducing himself via the introduction discussion forum (Activity 1), JC shared that he was specifically concerned about the tools he could use to support interaction when hosting online office hours. Like her peers JA and JC, AC also shared her concern regarding office hours. She, however, revealed her concern while responding to the interview questions. According to her responses, AC was concerned about the impact that her student's schedules would have on her ability to schedule synchronous online office hours.

DS, JA, MF, and AC through self-reflection identified the lack of connection with their students as a concern. DS through her journal post (Activity 3) shared that when instructing online courses, she missed the face-to-face interactions that occurred with her students. She also shared that in an attempt to support at-risk students in her course she offered some flexibility on assignment submissions. According to DS, offering the flexibility meant that her workload

would increase and affected her ability to provide timely feedback. DS was the only participant who revealed her concern regarding student and faculty interaction while interacting with her peers via the community discussion exercise (Activity 3). While interacting with MF, DS discussed her concern regarding her ability to foster a sense of community within the online environment, which included both the student and instructor.

JA shared her concern regarding her ability to develop a rapport with her online students in her post to the introduction discussion (Activity 1) forum. According to JA, the lack of cues she would normally obtain via interaction with her face-to-face students could affect her ability to make the necessary adjustments to her instructional practices. Within her post to the journal (Activity 3), JA also discussed her concern regarding her ability to create a lively and interconnected online classroom environment. While reflecting on her review of the best practice literature (Activity 4), JA declared that the lack of her online student's visual presence would affect her ability to provide dynamic instruction. MF through her responses to the interview questions, also discussed her concern regarding her inability to replicate the dynamic interaction that occurs in the face-to-face environment. According to MF, her ability to move around the room afforded her an opportunity to manage discussions and provide feedback to her students. Unlike her peers, AC responses focused on her students' role in the interaction that occurred between them. Through her reflective responses to the interview questions, AC identified her students' fear as being a catalyst for why they would not contact her. She was especially concerned that students who required assistance with their assignments would allow their fear to hinder them from contacting her.

DS revealed her concern regarding peer interaction amongst faculty who instruct online courses, however, because other participants did not mention the topic it is not considered a

theme, but it warranted mention. DS revealed her concern through self-reflection (interview questions). While responding to the interview questions, DS spoke on the effect that the lack of face-to-face interaction with peers experienced by faculty instructing online courses. DS noted that even as an experienced online instructor she benefited from her ability to interact with her colleagues who taught online courses.

**Course design.** DS, MF, JC, AC, and JA through their statements captured via the self-reflection exercises identified their concerns regarding their ability to design online courses that would incorporate the components of their face-to-face course into their online course. The theme course design was a concern raised by all the participants through statements captured via the self-reflection (introduction discussion – Activity 1, concept maps – Activity 2 and Activity 4, journal – Activity 3, best practice literature – Activity 4, and interview) or peer-interaction (introduction discussion – Activity 1 and community discussion – Activity 3) exercises. They discussed their concerns regarding converting face-to-face courses, groups, and course alignment.

DS through her responses to the interview questions shared that she was concerned about her ability to convert her face-to-face course into an online course. She was concerned about her ability to incorporate the components she valued from her face-to-face course into her online course. She was also concerned about her ability to design a course that would afford her an opportunity to accomplish her course goals and interact with her students.

While DS's focus on the overall design of her course, MF and AC focused on group projects, a specific instructional strategy incorporated within their face-to-face courses. Within their self-reflection statements, MF and AC shared their concerns regarding the implementation of groups in their online courses. After reading the best practice literature (Activity 4) and

responding to the interview questions, MF shared her concerns regarding her ability to incorporate the engaging and hands-on component of face-to-face group work into her online course. AC through her journal post (Activity 3) and responses to the interview questions declared that she lacked confidence in her ability to organize and implement group projects within her online course. When reflecting on her implementation of groups, AC also expressed some concern regarding the number of students she would assign to each group.

Like their peers, JC and JA also expressed concerns regarding the incorporation of instructional strategies within their courses. Through participation in the self-reflection and peer interaction exercises, JC and JA identified their concerns regarding the ability to incorporate assignments from their face-to-face courses into their online courses. When introducing himself to his peers via the introduction discussion (Activity 1), JC identified his ability to incorporate course assignments such as critiques, discussions, and groups into his online course as a concern. JC also identified his students' inability to accomplish the assignment requirements as a concern. He was concerned that their inability to complete the assignment was due to the clarity of the course instructions. During the interview, JC expressed his concern regarding his online students' ability to participate fully in the critique process like their face-to-face counterparts.

JA also expressed her concern regarding her implementation of assignments with her online courses. After reflecting on her concept map (Activity 2) and journal (Activity 3) post, JA identified her use of traditional assignments (i.e., papers, essays, and multiple-choice quizzes) within the online environment as a weakness. In her journal post, JA stated that she was concerned about identifying the best methods to assess her students. During the interview, JA also shared that to design her desired course she would need to develop more interactive and creative assignments.

Self-reflection via the concept maps (Activity 2 and Activity 4) and interview resulted in AC identifying her ability to align the components of her course as a concern. Her responses to the interview questions revealed that reflection via the concept map exercises resulted in her reflecting on the design of her courses. AC shared that she was concerned that her inability to align her course and module objectives, assessments, learning activities, and instructional strategies would affect her students' ability to develop the intended skills.

JA through her revision of her concept map (Activity 4), journal post (Activity 3) and responses to the interview questions identified instructing prefabricated courses as a concern. Within her responses, JA described prefabricated and cookie-cutter courses as being limited. During the interview, she stated that teaching these types of courses would affect her ability to incorporate key features and ideas into the design of her course. In her journal post (Activity 3), JA expressed that she was also concerned that prefabricated courses would affect her ability to interact with her students.

MF, JC, and AC through peer-interaction (introduction discussion – Activity 1 and community discussion – Activity 3) shared their concerns regarding their ability to design their desired online course. MF revealed her concern regarding the longevity of the course content included in her courses while interacting with her peer, BS, via the introduction discussion (Activity 1) exercise. According to MF before interacting with her peers, she had not considered the idea of identifying a strategy to address the lifecycle of the course content she created.

JC credited his review of his peer's concept maps while completing the community discussion (Activity 3) exercise with being the catalyst for his reflection on the issues his students' experienced when completing the critique assignments. While interacting with BS, he also discussed his concern regarding addressing the misperceptions made by students that online

courses were easier and did not cover the same depth of materials as face-to-face courses. AC also credited her participation in the community discussion (Activity 3) with her identification of course design as a concern. AC shared with her peer, MF, that she unsuccessfully attempted to implement group projects. She was concerned that her use of groups was the catalyst for some students dropping her course. AC also informed her peer, MF, that she was interested in identifying plausible solutions that would support her implementation of group projects within her course.

**Use of visuals.** MF, AC, DS and JC shared their concerns regarding the use or inclusion of visuals in the online learning environment via their participation in the self-reflection (concept map – Activity 2, journal – Activity 3, best practice literature – Activity 4, and interview) or peer-interaction (group meeting, introduction discussion – Activity 1 and community discussion – Activity 3) exercises. MF, AC, and DS shared their concerns regarding the use of visuals within online courses while completing the self-reflection exercises. The concerns raised by their responses included the ability to create visual content, the lack of visual presence, and the lack of physical cues. During the interview, MF discussed her inability to integrate visual content into her course. She was concerned that the fact that she was not a visual learner could affect her ability to present content visually. MF also expressed concern regarding her ability to provide visual content to her students while interacting with her peer, JC, via the community discussion exercise (Activity 3). She informed him that her lack of visual ability and not the tools affected her capacity to develop graphics for the visual learners in her courses.

AC was also concerned about visuals; however, her statements focused on the lack of visual imagery of the participants. Within her responses to the interview questions, AC identified the absence of visuals (pictures and videos) within the online environment as a concern. While

interacting and reviewing her peers' post to the introduction discussion forum (Activity 1), AC noticed that many of her peers did not have profile pictures. While reflecting on her participation in the WebEx group and interview meetings, AC recognized that she did not use the available tools to include a visual of her self during the meetings. During the interview she shared that her decision not to use a webcam during the meeting negatively affected her experience during the WebEx meetings. After both experiences, she recognized that the lack of visuals affected her experiences when interacting with both the researcher and her peers.

Like AC, JC was also concerned about the lack of visual imagery of his students. JC also identified the lack of visuals as a concern while interacting with his peer, KC, during the introduction discussion (Activity 1) exercise. JC shared that he was concerned about his students' lack of profile pictures when reviewing the course roster. He was concerned that the lack of pictures would affect his ability to become familiar with his students as well as learn their names. While MF, AC and JC discussed the lack of visual images, DS through her reflective journal post (Activity 3), discussed her concern regarding the lack of physical presence of her students. According to DS, she used the facial and body cues presented by her face-to-face students as cues for when adjustments to her instructional practices were necessary. Without the ability to see these cues, she was concerned about her ability to gauge her students understanding and engagement within her online courses.

**Communication.** MF, JA, and JC identified communication within the online learning environment as a concern. They revealed their concerns within their responses to the self-reflection (concept map - Activity 2, best practice literature - Activity 4, and interview) and peer-interaction (introduction discussion - Activity 1) exercises. Both JA and JC shared that communicating with their students via email was a concern. During the interview, JA shared that

she was concerned about her ability to incorporate opportunities for her online students and herself to communicate with each other. Within her post to the concept map exercise (Activity 2), JA shared that she was concerned about her use of email to communicate with her students. After reviewing the best practice literature (Activity 4), JA stated that she would need to identify alternative methods to communicate with her students, because email was an outdated form of communication.

While completing the introduction discussion exercise (Activity 1), JC also discussed his concern regarding communicating with his students via email. The exercise of interacting with his peer, KC, resulted in JC identifying his inability to call upon his students by their name when communicating with them asynchronously as a concern. JC shared that when communicating with his students via email or instant messenger he was unable to identify students by their names. He stated that often the names students used within their messages did not match the names provided within the university course roster.

MF's concern was slightly different than her peers JC and JA. She was concerned about the clarity of her message and not the tool used to communicate. MF shared that her peer, TE's post to the introduction discussion (Activity 1) regarding his communication practices resonated with her. She stated that as a junior faculty member she was concerned about her ability to present concise and efficient messages to her students, especially within the online environment. MF was concerned that she tended to be verbose and asked TE to share any strategies she could use to pare down the information she presented to her students.

**Technology & resources.** DS, JA, and JC shared their concerns regarding the use of either technologies or resources within their online courses through their participation in the self-reflection (introduction discussion –Activity 1, concept maps – Activity 2 and Activity 4, journal

– Activity 3, best practice literature – Activity 4, and interview) exercises. JC through his responses identified incorporating analog technologies and student access to the technologies as concerns. The process of reflecting on the online learning environment while developing his concept map (Activity 2), resulted in JC identifying the ability to incorporate analog technologies into an all-digital environment as a concern. In addition to integrating technology into his course, JC shared that he was concerned about the accessibility of the required technologies for his course. While introducing himself to his peers via the introduction discussion forum (Activity 1), JC mentioned that he was also concerned about his students' ability to access the technologies such as the tablets used in the face-to-face courses and specialty fonts required for his assignments was a concern.

Through self-reflection, both DS and JA discussed their concerns about their ability to evaluate new technologies. The opportunity to revise her concept map (Activity 4) resulted in DS identifying the evaluation of technologies as a concern. DS shared that she was concerned about the time required to both evaluate and develop the skills necessary to adopt the selected technologies. Like DS, JA raised concerns about the evaluation of new technologies. In her journal post (Activity 3), JA stated that when considering the prospect of instructing an online course she feared the possibility of having to explore new technologies. After reviewing the best practice literature (Activity 4), JA revealed that she was also concerned about her ability to incorporate new technologies into the design of her online courses. She was particularly concerned about her ability to incorporate videos into the appropriate segments of her course. Within her responses to the interview questions, JA revealed that she was also concerned about her ability to integrate different types of instructional resources into her online course. She was

particularly concerned about incorporating textbooks into her online course and added that she intended to explore alternatives to the textbook.

**Time management.** MF and JA were the only participants who expressed concern regarding time management. They discussed their concerns regarding the topic through their participation in the self-reflection (introduction discussion – Activity 1, concept map – Activity 2, and interview) and peer-interaction (community discussion – Activity 3) exercises. The remaining participants (DS, JC, and AC) all included some reference to time or time management within their concept maps; however, they did not raise the topic as a concern within their responses. While reflecting on time management MF and JA, both credited their experience as students completing the module with revealing their concerns regarding time management. They also discussed their concerns regarding the effect that time management played in their roles as faculty.

MF reflected on time management from the perspective of both a student and instructor. Within her post to the introduction discussion forum (Activity 1), MF shared that as a student completing the module she experienced some issues (late submissions and excuses) with time management. When completing the activity, she did not post her first response on time. When designing her concept map (Activity 2), MF credited her previous experience with completing and teaching online courses for her inclusion of time management. While reflecting individually during the interview, MF discussed her concern regarding the impact that the lack of time management skills could have on her use of active learning within her online course.

Both JA and MF identified time management as a concern while interacting with their peers via the community discussion (Activity 3) exercise. MF declared her concern regarding time management while interacting with her peer, JA. She informed JA that in previous online

courses she completed as a student that she experienced some issues with her ability to manage her time. While interacting with her peer, BS, JA informed her that the concept map (Activity 2) exercise was the catalyst for her reflection on the topic of time management. JA also informed BS that because of her completion of the module she recalled that as a student she had issues with time management. JA shared that she considered time management to be a critical topic that she was concerned about for both her students and herself. JA also shared that she was concerned that her mismanagement of time as an instructor would affect her ability to provide timely and thorough feedback to her students.

**Skill and knowledge development.** The ability for faculty instructing online courses to develop the required skills and knowledge was a concern raised by both DS and JC within their responses to the self-reflection (introduction discussion – Activity 1, Journal – Activity 3 and interview) and peer-interaction (introduction discussion - Activity 1) exercises. DS and JC through their initial post to the introduction discussion forum (Activity 1) shared their concerns regarding the development of their skills. DS was concerned about the development of her teaching skills within the online environment. JC also expressed some concern regarding his lack of skills and the level of creativity required to develop his online course. In addition to the skill set, he also shared that he was concerned about the support he would require to develop not only the skills but knowledge as well.

Participation in the interview and journal (Activity 3) exercises provided DS opportunities to share further her concerns. While responding to the interview questions, DS recognized that despite her previous experiences with implementing solutions to address her concerns she needed to enhance her knowledge and skill sets. DS's interaction with her peer, BS, via the introduction discussion (Activity 1) exercise resulted in her further identifying skill

development as a concern. Because of BS questioning DS regarding the accessibility of the videos in her course, she identified her ability to ensure the accessibility of her video presentations as a concern. While interacting with BS, DS shared that she had no experience with captioning her video presentations. While reflecting on their encounter within her post to the journal (Activity 3), DS stated that she needed to bolster her skills to ensure that her course was accessible and that the learning environment was engaging.

**Roles and responsibilities.** Roles and responsibilities, though not a theme, was a category that arose only within JC's reflective statement. The researcher included this section because she recognized the validity of the concern to the research question. The best practice literature (Activity 4) exercise was the catalyst for JC's identification of the roles and responsibilities of faculty as a concern. After reading the articles and reflecting on the use of gamification, JC shared that he was concerned that incorporating gamification into his course would increase his workload. He realized that the instructional changes required would produce additional student submissions and impact the time required for him to grade submissions.

**Summary of cross-case analysis findings for question 2.** The opportunity to reflect individually and interact with peers resulted in MF, AC, DS, JA, and JC identifying their concerns regarding teaching and learning within the online environment. The cross-case analysis conducted by the researcher revealed that the case participants identified concerns that resulted in seven major themes: community engagement, course design, use of visuals, communication, technology and resources, time management, and skill and knowledge development. Due to its relevance to the research question, though not considered a theme, the category roles and responsibilities was included. MF, AC, DS, JA, and JC were afforded an opportunity to self-reflection activities through their participation in the introduction discussion (Activity 1), the

concept maps (Activity 2 and 4), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. The peer interaction exercises included the introduction discussion (Activity 1) and the community discussion (Activity 3) exercises.

When discussing their concerns regarding community engagement the participants' responses focused on their concerns regarding student engagement, student and faculty interaction, or peer interaction. The participants also shared their concern regarding their ability to design an online course that would allow them to support student engagement, group projects, nontraditional assignments, and appropriate course content. Peer interaction and self-reflection also provided an opportunity for MF, AC, DS, and JC to express their concerns regarding the use of visuals in the online environment. They were specifically concerned about the creation of visual content, the lack of visual presence, and the lack of physical cues within the virtual environment.

Communication was another concern raised by MF, JA, and JC. They discussed their concerns regarding having the opportunity to communicate with their students, the technology used to communicate, as well as the presentation of information they were communicating. Another concern raised by DS, JA, and JC was the incorporation of technologies and resources into their online courses. Through peer interaction and self-reflection, they discussed specific concerns regarding antiquated technologies, student access to technologies, evaluation of technologies, and integration of instructional resources into the online courses.

Participants JA and MF, within their responses to the self-reflection and peer interaction exercises, raised the concern of time management. They discussed their concerns regarding the ability of both students and faculty to manage their time while either completing or teaching an online course. Reflecting through their completion of the self-reflection and peer interaction

exercises resulted in DS and JC identifying their development of the skills and knowledge necessary to develop and instruct the course as a concern. Lastly, though not a theme, JC's concern regarding roles and responsibilities was also included within this section. Through self-reflection, JC raised his concern regarding the impact that incorporating instructional strategies to address this concern would have on his role as an instructor. He was also concerned about his responsibility to provide timely feedback to the students.

### **Research Question 3 Cross-Case Analysis Findings**

The module activities supported participants in experiencing the phases of conceptual change by identifying plausible alternatives (Table 16) to address their areas of conflict. The case participants' (MF, AC, JC, JA, and DS) responses to the self-reflection and peer interaction exercises' prompting questions, revealed solutions that addressed their concerns regarding teaching and learning within the online environment. Completing a comparison of the individual cases resulted in the researcher identifying six major themes, which included community engagement, course design, technology & resources, communication, lack of visuals, and time management. The participants' identified the themes as a result of completing the self-reflection (introduction discussion – Activity 1, concept map – Activity 2 and Activity 4, journal – Activity 3, best practice literature – Activity 4, and interview) and peer interaction (introduction discussion – Activity 1, community discussion - Activity 4, and WebEx meeting) exercises. Since DS was the only participant to identify solutions to address concerns regarding skill and knowledge development as well as teaching philosophy, these topics are not themes, but categories and appear at the conclusion of this section.

Through their responses to the prompting interview questions, activity questions, or direct interaction with their peers, case participants identified solutions to enhance student

engagement, student and faculty interaction, and peer interaction amongst themselves. The Cross-Case Analysis Table of Solutions (Table 16) illustrates the themes in which the five cases identified solutions.

**Community engagement.** MF, AC, DS, JA, and JC were able to identify solutions to address their concern regarding community engagement within the online environment through student engagement, student and faculty interactions, and peer interaction amongst faculty. The participants were able to identify the plausible solutions via their completion of the self-reflection and peer interaction exercises. The self-reflection activities included the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. The peer interaction activities included the introduction discussion (Activity 1) and the community discussion (Activity 3) activities. Though they all completed the same activities individually, their statements revealed that either one or a combination of several of the module exercises supported their identification of solutions to support enhanced community engagement.

Table 16

*Question 3 Cross-Case Analysis Table of Solutions*

Case	Community Engagement	Course Design	Technology & Resources	Communication	Use of Visuals	Time Management
MF	Plausible alternatives	Plausible alternatives		Plausible alternatives	Plausible alternatives	Plausible alternatives
AC	Plausible alternatives	Plausible alternatives				Plausible alternatives
DS	Plausible alternatives	Plausible alternatives	Plausible alternatives			
JA	Plausible alternatives	Plausible alternatives	Plausible alternatives	Plausible Solution		
JC	Plausible alternatives	Plausible alternatives	Plausible alternatives		Plausible alternatives	

Through self-reflection and peer interaction, MF, JA, and JC identified solutions to resolve their concerns regarding the ability for students to engage actively within online course activities and content. The self-reflection activities included the introduction discussion (Activity 1), the concept map (Activity 2 and Activity 4), the journal (Activity 3), the best practice literature (Activity 4), and the interview exercises. The peer interaction activities included the introduction discussion (Activity 1) and the community discussion (Activity 3) forums. JA, JC, and MF credited their participation in the module's Blackboard discussion forum exercises with inspiring them to use the discussion forum as a solution to support student engagement. Additionally, JC and MF also identified additional solutions they could implement in order to support student engagement. Specifically, JC identified the use of video technologies, whereas MF identified peer review exercises.

JA identified the use of the Blackboard discussion forum and journal features as solutions to address her concern regarding the ability to engage students in online courses. She credited her participation in the journal (Activity 3) and discussion forums (introduction discussion - Activity 1, concept maps - Activity 2 and Activity 4, and community discussion - Activity 3) activities with her identification of the Blackboard tools to support student reflection and peer interaction activities. According to JA, her completion of the self-reflection (interview and journal - Activity 3) activities and her experience as a student within the module was the catalyst for the identification of her solutions. She added that the questions incorporated into the discussion forum and the journal reflective activity proved that it was possible to create active discussion amongst her students in the online environment.

Through self-reflection and peer interaction, JC identified the use of gamification, Panopto, Blackboard Collaborate, and Blackboard discussion forums as solutions he could use to support student engagement. The self-reflection exercises included the introduction discussion (Activity 1), the best practices literature (Activity 4), the concept map (Activity 4) and the interview exercises. The peer interaction activities included the introduction discussion (Activity 1) and the community discussion (Activity 3) activities. JC credited his participation in the peer interaction exercises with illustrating that the use of the discussion board within the online course would allow more time for student reflection and composition. His participation in the introduction discussion (Activity 1) exercise illustrated how he could use video technologies (Panopto and Blackboard Collaborate) to support his students' completion of assignments. During the interview, JC added that he intended to use Blackboard Collaborate to improve student engagement. While reflecting on the best practice literature (Activity 4), JC identified the use of Panopto (lecture capture software) by students to record their case studies and final project presentations as a solution. He also credited the best practice literature (Activity 4) with providing useful information he could use to improve engagement. As a result of reviewing the literature, he identified the use of gamification as a solution to support student engagement through active learning. While reflecting on gamification during the interview, JC shared that he intended to use it to diversify the learning experience of his students.

MF identified solutions through her completion of the self-reflection (concept map - Activity 2 and journal - Activity 3) activities to address her concern regarding her ability to provide consistent engagement and elicit students' participation. While

reflecting via the journal (Activity 3) activity, MF discussed incorporating the peer editing and reviewing activities from her face-to-face public relations (PR) writing course into her online course. While reflecting on the concept map (Activity 2), MF revealed her intention to explore the use of Blackboard discussion forums within her courses.

Through self-reflection (introduction discussion - Activity 1, best practices literature - Activity 4, concept map - Activity 4) and peer interaction (introduction discussion - Activity 1), AC, MF, DS, and JA identified solutions that would encourage community engagement by addressing their concerns regarding student and faculty interaction. They discussed the feasibility of resolving their concern via the use of lecture capture technologies and the scheduling of online office hours as solutions.

JA and MF credited their participation in the module with confirming the possibility to build-in opportunities for student and faculty interaction within online courses. Through her participation in the self-reflection (concept map - Activity 2 and best practice literature -Activity 4) and the peer interaction (community discussion - Activity 3) activities, JA was able to identify ways in which she could support student and faculty interaction. According to JA, as a result of reviewing the best practice literature (Activity 4), she was able to identify non-conflicting and new instructional practices and ideas that she intended to explore and implement within her online course. JA also credited the literature with reshaping her interpretation of how she could interact with her students.

During the interview, MF shared that through her participation in the module, she determined that she could replicate the dynamic, synchronous interaction that her face-to-face students experienced within her online course. To further assist her, during the

interview MF also shared that she intended to incorporate opportunities for her students to interact with her. She decided to require her student groups to share their work, provide an update on their group activities, maintain and submit a running list of their corrected errors and track any changes made to their work. MF also intended to instruct her students to submit a summary of accomplishments, which the researcher suggested.

AC and DS identified the creation of video presentations via the use of lecture capture solutions, such as Panopto or Knovio as a plausible solution to address their concerns. While responding to the interview questions, AC shared that she intended to incorporate visuals of herself into her course in order to reduce any anxiety students may have about contacting her. As a participant in the module, she saw the researcher's use of video as a visual tool and thought it was an effective way to support interaction. AC identified the use of Panopto to record similar video presentations as a plausible solution. She intended to incorporate weekly visual introductory videos in her online courses. Through her participation in the peer interaction (introduction discussion forum - Activity 1) and self-reflection (interview) activities, DS also identified the incorporation of lecture capture tools, such as Panopto and Knovio, within her online course as a plausible solution.

AC, MF, JA, and DS shared that they intended to use synchronous tools in order to interact with their students. They credited their decision to their participation in the self-reflection (concept map - Activity 2, best practice literature -Activity 4, and interview) and peer interaction (introduction discussion forum - Activity 1 and community discussion forum - Activity 3) exercises. Through her participation in the peer interaction (introduction discussion forum - Activity 1) and self-reflection

(interview) exercises, DS discussed the inclusion of online synchronous meeting tools such as Blackboard Collaborate and WebEx, within her online course. While interacting with her peers via the introduction discussion forum (Activity 1), DS was able to determine that both Blackboard Collaborate and WebEx were available at the studied institution. While reflecting during the interview, AC also shared her intention to use communication tools, such as WebEx, Skype, telephone, and email, to encourage interaction within her online course, as well as to interact with and support student groups.

JA and MF identified the incorporation of online office hours as a solution to support student and faculty interaction. JA shared that she learned about the use of WebEx to facilitate office hours while interacting with the researcher via the community discussion forum (Activity 3). She credited this experience as aiding in her decision to explore the use of WebEx to interact with her online students via online office hours. MF credited her interaction with her peer, SR, via the community discussion forum (Activity 3) for her decision to incorporate office hours into her online courses. After reading her peers' post, MF inquired about her use of incentives to encourage students to participate in the online office hour sessions. She saw incentivizing students' participation in the online office hours as a plausible solution to increase students' interaction with her.

Through their participation in the peer interaction (introduction discussion – Activity 1 and community discussion – Activity 3) exercises, DS and JC addressed their concerns regarding the lack of peer interaction within the online environment. DS and JC both credited their participation in the introduction discussion (Activity 1), and the community discussion (Activity 3) exercises with providing opportunities to interact with

their peers, especially those experienced with or exploring instruction of either a hybrid or online course. DS and JC also shared that, as a result of interacting with their peers, they both learned about technologies and adopted best practices that their peers used within their courses. JC added that he found the process of reviewing his peers' posts to be helpful because they came from different disciplines, had different experiences, and adopted different approaches to resolving their concerns. During the interview, DS shared that not only reading their post, but also receiving feedback from her peers, was helpful. Additionally, DS engaged with her peers by asking them questions regarding their use of technologies, such as Blackboard Collaborate. While interacting in the community discussion forum (Activity 3) with his peer, TE, JC inquired about the strategies he used to overcome technical hurdles that arose because of his decision to use technologies not supported by the studied institution.

**Course design.** MF, DS, AC, JC, and JA credited their participation in the modules' self-reflection and peer interaction exercises with their identification of solutions to address some of their concerns regarding the design of their online courses. These concerns included course design, group projects, lack of variety in assignments, clarity of instructions, misconceptions about online courses, and student evaluations. These concerns also included the process of incorporating components of their face-to-face course into their online course. The self-reflection exercises included the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), the best practice literature (Activity 4), and the interview. The peer

interaction occurred through their participation in both the introduction discussion (Activity 1) and the community discussion (Activity 3) activities.

Through their participation in the self-reflection exercises (concept maps exercise - Activity 2 and Activity 4, and best practice literature - Activity 4), JA, MF, JC and AC identified solutions to resolve their concerns regarding the design of an online course. JA, MF and JC credited the opportunity to reflect graphically, via the concept maps exercises (Activity 2 and Activity 4), with their identification of solutions to address their concern regarding their ability to design an online course equivalent to their face-to-face courses. MF stated that her participation confirmed the plausibility of incorporating discussions and collaboration within her online course. She realized that the activities within the online course did not have to be monotonous and that when designing a course, faculty needed to diversify their course activities. JC credited both of the concept map exercises (Activity 2 and Activity 4) with his identification of instructional strategies that he could adopt to address his concern regarding the design of his online courses. He intended to continue to use the concept map exercises to reflect on the design of assignments for his courses that supported student-to-student interaction and engagement.

AC and JC discussed their intention to continue to develop concept maps (Activity 2 and Activity 4) to reflect on the design of their courses. AC credited the opportunity to reflect via the creation of the concept maps (Activity 2 and Activity 4) with inspiring her to continue to reflect on the alignment within her courses. According to AC, she intended to reflect on the design of both her face-to-face and online courses in August, when her schedule was less hectic. JA shared that she also intended to continue

to reflect, via the concept map exercise, in order to address her concern regarding the limitations of her input into the design of prefabricated or cookie-cutter courses.

Through their participation in the module discussion forums and journal exercises, AC and MF discussed solutions to address their concerns regarding the incorporation of group projects into their online courses. AC and MF were able to identify technologies such as Blackboard discussion forums and Blackboard Collaborate, as well as, and instructional strategies to support their implementation of group projects within her online courses. While AC had previous experience implementing online group projects into her courses, MF had no such experience. AC identified the use of the Blackboard discussion forums subscription feature, assigning small groups, and utilizing jigsaw discussions as solutions to support her implementation of group projects. MF identified the use of WebEx meetings, team-based learning, fostering a friendly yet competitive environment, utilizing synchronous online group meetings, Blackboard Collaborate, and including student evaluations as solutions to support her implementation of group projects.

Through her participation in the self-reflection (journal-Activity 3, introduction discussion - Activity 1 and interview) and the peer interaction (community discussion forum - Activity 3) exercises, AC determined that she would, once again, implement group projects within her upcoming fall semester course. During the interview, she perceived the activity of reading and commenting on her peers' concept maps to be similar to a group activity. AC added within her journal post (Activity 3) that because of her interaction with her peers through the community discussion forum (Activity 3), she decided to reconsider the inclusion of group projects. As a result of her interaction with

her peer, NW, AC decided to use the Blackboard discussion subscription feature in order to remain aware of the student discussions taking place within her online course. As a participant in the introduction discussion (Activity 1) and the community discussion (Activity 3) exercises, AC recognized the value of establishing small groups for discussion forum exercise. Through her review of the best practice literature (Activity 4), AC decided to assign four students to each group. Additionally, in order to foster cohesiveness within small groups, she decided to incorporate jigsaw discussions into her online courses. During an interview, AC shared that she intended to implement these small groups at the beginning of the Fall 2016 semester in order to support the development of student relationships.

Through her participation in the self-reflection (journal - Activity 3, best practice literature - Activity 4, and interview) and peer interaction (community discussion - Activity 3) exercises, MF was able to identify solutions that she could implement to support group projects within her online course. MF credited her review of the best practice literature (Activity 4) for her decision to utilize team-based learning, friendly competition through the awarding of extra credit, and student evaluations in order to support her implementation of group projects. According to MF, the review of the literature confirmed that her current use of team-based learning exercises was appropriate for the online environment. Additionally, she found the authors' discussion on their experiences with converting face-to-face courses into online courses to be helpful. After reviewing the literature on team-based learning, MF decided that she would not only implement the instructional strategy, but also incorporate a friendly competition between teams of students by awarding quiz points for participating in the assigned activity. In

order to support synchronous group interaction, MF shared that she intended to explore the use of WebEx and Blackboard Collaborate. During the interview, MF discussed the use of Blackboard Collaborate to encourage group work, feedback, student sharing, and faculty engagement. She credited her participation in the module with her decision to explore this solution. While engaging within the community discussion forum (Activity 3), MF shared with her peer, SR, that she intended to use WebEx in order to meet with groups. She continued to reflect on her use of WebEx through her journal post (Activity 3), adding that she would have to establish rules and guidelines for the synchronous meetings and develop strategies for grouping her students.

AC and JA credited their participation in the self-reflection and peer interaction exercises with their identification of solutions to address their concerns regarding the lack of assignment variety within their online courses. The self-reflection activities included the concept maps (Activity 2 and Activity 4), the best practice literature (Activity 4), and the interview exercises. The peer interaction occurred as a result of JA's participation in the community discussion forum (Activity 3). Both AC and JA credited their participation in the module for their reflection on how to incorporate a variety of assignments into their courses. Specifically, AC credited the revising of her concept map (Activity 4) for revealing that it was possible to incorporate diverse assignments into her online course. JA credited her creation of the concept map (Activity 2) with her eagerness to explore methods of instruction that would enhance her online course. While responding to the interview questions, JA shared that the completion of the modules' structured reflective activities resulted in her transitioning away from traditional assessment and reconsidering her expectations for the assignments in her course.

The review and reflection on the best practice literature also resulted in both AC and JA identifying solutions to address their concerns regarding the lack of variety of assignments. AC revealed that after reviewing the literature (Activity 3) about the assignments, she identified the use of jigsaw discussion forums and role-play as instructional methods that could diversify the variety of assignments within her online course. While interacting with the researcher via the community discussion forum (Activity 3), JA shared that she was looking for both inspiration and guidance from the literature in order to make the necessary changes to her online courses. During the interview, JA shared that she had obtained insight from the literature (Activity 4) on how to make interesting and creative assignments. According to JA's post to the best practice literature forum (Activity 4), as a result of reviewing the best practice literature, she learned how to increase adoption of student-oriented assignments, vary her assignments, incorporate engaging activities, and facilitate discussions via the use of videos into her online course. JA shared that she also intended to maintain copies of the readings provided via the best practice literature exercises (Activity 4) in a binder to reference in the future.

Through their completion of the self-reflection and peer interaction exercises, AC and JC revealed their identification of solutions to address concerns regarding the clarity of their assignment instructions. The self-reflection activities included the introduction discussion (Activity 1), the concept maps (Activity 2 and Activity 4), the journal (Activity 3), and the interview exercises. The peer interaction activity included the introduction discussion forum (Activity 1) exercise. Though their intentions for their solutions were different, they both identified the use of visuals, via video and

synchronous online meeting tools, to address their concerns. During the interview, AC credited her participation as a student in the module with her identification of video and synchronous meetings, hosted via WebEx, as a solution to ensure that she could clearly communicate the requirements for her online course. She intended to create short, two-minute videos to explain her discussion forum assignments. While reflecting on his review of the best practice literature (Activity 4), JC shared that he also identified the use of video tutorials in order to provide clear guidelines for assignments. While interacting with his peer, BS, via the introduction discussion forum (Activity 1), JC shared that, he wanted to move the demonstration content from the face-to-face studio course into the online environment. JC added that he intended to create tutorial videos in order to accomplish this task. JC also credited his interaction with his peers via the introduction discussion (Activity 1) exercise, with his identification of useful resources he could use to ensure the clarity of his instructions.

JA and JC both identified solutions to address their concerns regarding the misconceptions about online courses. JA credited her completion of the self-reflection (concept maps – Activity 2 and Activity 4, best practice literature - Activity 4, and interview) exercises with changing her philosophical opinion about the teaching of prefabricated or cookie-cutter courses. JC's completion of the self-reflection (concept map - Activity 2, best practice literature - Activity 4, and interview) and peer interaction (introduction discussion - Activity 1) exercises afforded him the opportunity to identify strategies he could use to address the misconceptions his students had regarding online courses.

JA resolved her misconceptions regarding prefabricated or cookie cutter courses. JC identified solutions to address his misconceptions regarding students' perceptions of online courses. Though the misconceptions they were attempting to address were different, they credited their participation in the modules' self-reflection and peer interaction exercises for their identification of possible solutions. Though their solutions were identified through their diverse experience within the module, there was a commonality as a result of their review of the best practice literature (Activity 4). They both shared that the review of the literature resulted in them determining that it was possible to resolve the misconceptions through the design of the course.

After reviewing the literature, JA declared that, as a result of interacting with her peers, she determined that it was possible to make enhancements to prefabricated or cookie-cutter courses and that they were not fundamentally different from the face-to-face courses she developed. JC's review of the best practice literature (Activity 4) also afforded him the opportunity to reflect on the requirements of online instruction. JC shared that he intended to incorporate gamification and online presentations into his face-to-face courses. While interacting with his peers via the introduction discussion (Activity 1), he stated that in order to address his concern, he needed to develop a rich online course. During the interview, JC also revealed that his participation in the module provided a good foundation of ideas, which included online elements that he could incorporate into his online course. While completing the concept map exercise (Activity 2), JC declared that addressing his concern would require that he determine how to provide a learning experience equivalent to that within his face-to-face courses to his online students.

DS was the only module participant to discuss the use of student evaluations to assist with the designing of an online course. She credited her participation in the self-reflection (journal post - Activity 3, best practice literature - Activity 4, and interview) and the peer interaction (introduction discussion forum - Activity 1) exercises for the solution. DS utilized her participation in the module to identify solutions she could implement in order to capture student feedback. She also attempted to capture feedback from her peer, SR, who revealed that she completed an online course as a student, while participating in the introduction discussion forum (Activity 1) exercise. Through her participation in the best practice literature (Activity 4) exercise, DS was able to identify the incorporation of anonymous student feedback as a solution to monitor progress, comprehension and overall responses to her online courses. During the interview, she added that she intended to use the feedback to ensure that her online courses provided clarity and transparency. In her journal post (Activity 3), she identified Survey Monkey as the surveying tool she intended to use to capture her students feedback.

**Technology and resources.** DS, JA, and JC attributed their identification of solutions to address their concerns regarding technology and resources through their participation in the self-reflection and peer interaction exercises. DS was concerned about the time required to evaluate technologies that she may incorporate into her online course. JA was concerned about her ability to integrate different media, such as video and alternatives to textbooks, into the design of her online courses. JC expressed concern about his students' ability to access the required technologies (smartphones, tablets, applications, and fonts) for his course. The self-reflection exercises included the concept maps (Activity 2 and Activity 4), the best practice literature (Activity 4), and the

interview exercises. The peer interaction exercises included the introduction discussion (Activity 1) and community discussion (Activity 3) forums.

JA and DS credited their participation in the module with affording them with opportunities to reflect on possible solutions to address their concerns. During the interview, JA decided that she would use non-textbook readings to address her concern regarding the use of textbooks in online courses. While reflecting on her use of instructional videos, JA also shared that her exposure to the researcher's use of videos had inspired her decision to include similar videos in the design of her online course. According to DS, her participation afforded her an opportunity to evaluate technologies to address her concern. The technologies she wanted to evaluate included Sway (presentation software), Adobe Captivate (demonstration authoring tool), Panopto (lecture capturing software), OneNote (digital note-taking application), Screencast-O-Matic (screen recorder and editing tool), and PowToon (video and presentation software). DS learned about PowToon while participating in the best practice literature exercise (Activity 4). She also used her participation in the concept map exercises (Activity 2 and Activity 4) as an opportunity to evaluate Sway. DS used the software to create presentations for both exercises. After creating the presentations, she decided to use OneNote to assist with the recording of the instructional resources for her online course.

According to DS and JA, their review and reflection of the best-practice literature (Activity 4) resulted in the identification of solutions to address their concerns. While reflecting on the best practice literature (Activity 4), DS shared that during the summer of 2016 she intended to create instructional resources for her students using a technical solution discussed within her post, which included Sway, Adobe Captivate, Panopto, and

OneNote to record her presentations. According to JA, her participation in the best practice literature exercise (Activity 4) resulted in the gaining confidence in her ability to incorporate videos successfully into her online courses. She also credited the best practice literature exercise (Activity 4) with providing ideas on how she could instructionally incorporate the videos into her online course.

JC and DS through peer interaction via the introduction discussion (Activity 1) and the community discussion (Activity 3) exercises attempted to identify the resources required to address their concerns regarding the design of their online course. Through their interaction with peers, which included the researcher, JC and DS discussed the availability of technologies (iPads), software (Adobe Captivate), and technical support at the studied institution. In order to identify the availability of resources, DS raised a question regarding the availability of the technologies within her post to the introduction discussion forum (Activity 1). Through her interaction with her peer, BS, and the researcher via the introduction discussion forum (Activity 1), DS learned that she could obtain a license for the Adobe Captivate software at the studied institution. While interacting with the researcher within the introduction discussion forum (Activity 1), JC learned that the campus library services might have mobile technologies his students could borrow. According to JC, he was unaware of this option before the researcher informed him of possible solutions. JC also shared that he was going to contact a representative from the library to inquire about technologies available to his students. While responding to the interview questions, JC shared that in addition to inquiring about the mobile technologies available via the library, he also intended to inquire about resources students could access to record assigned presentations. During the interview, he

added that he also intended to contact the college lab manager regarding his students' ability to check out iPads. JC shared that he was not concerned about the students' ability to load the applications because, with advanced notice, they could request that someone with administrator privileges on the iPads assist them.

**Communication.** Through the self-reflection (concept map - Activity 2 and best practice literature - Activity 4) exercises, MF and JA were able to identify solutions they could implement in order to address their concerns regarding communication within the online learning environment. The commonalities between their solutions rested in their decision to use visuals in order to support communication within their online courses. MF credited her review of the best practice literature (Activity 4) with her decision to illustrate through graphics the requirements of her assignments. In order to ensure that she clearly communicated the assignment requirements, she intended to distribute to her students a flowchart and a weekly calendar. The flowchart will allow her to illustrate the relationships between the assignments, and the weekly calendar will illustrate the due dates for the assignments.

JA identified two methods in which she would incorporate visuals to support communication within her online courses. She credited her review of the best practice literature (Activity 4) for her decision to utilize synchronous meeting tools, such as Skype, Google hangout, or WebEx, to communicate with her students. During the interview, JA also shared that she intended to emulate the researcher's use of videos to communicate with the module participants, which provided participants with an overview of the activities, into her online course. Lastly, she credited her creation of the concept

map (Activity 2) with her realization that she could incorporate these solutions not only within her online course, but also within her face-to-face course.

**Lack of visuals.** MF and JC were able to identify solutions to address their concerns regarding the lack of visuals in the online environment. However, their solutions to the concern differed. During the interview, MF stated that she would use videos in order to incorporate visual elements within her online course. She declared that the catalyst for her decision was exposure to the researcher's use of videos throughout the module. MF also credited her review of her peer, JC's concept map, while participating in the community discussion forum (Activity 3) with assisting in defining the use of visuals as an instructional strategy. While interacting with his peer, SR, JC reflected on a plausible solution he implemented within his face-to-face courses, which was to have his students upload to their Blackboard profile a photo or image. MF's solution focused on creating instructional video content in order to alleviate her concern regarding the lack of visuals in online courses, while JC focused on creating a visual presence with student photos.

**Time management.** MF and AC were both able to identify solutions to address their concerns regarding time management. Though they each developed solutions to address different concerns, they both recognized themselves as being responsible for assisting students with time management. While engaging with her peers via the community discussion forum (Activity 3), MF reflected on her struggles with time management as a student. Through reflecting on her own experiences, MF recognized her responsibility to create course requirements that would make appropriate use of her

students' time. She also declared, while interacting with her peer, AC, that through their role, faculty can assist students with managing their time.

Similar to her peer, MF, AC also considered herself responsible for supporting students with time management. While responding to the interview questions, AC was also able to determine the requirements necessary for students to manage their time while participating in discussions via the Blackboard course site. According to AC, her participation in the discussion forum exercises confirmed her proposed solutions. She determined that in order for students to have an adequate amount of time to complete the assignment, they were to engage daily in the discussion forums. She believed that her students should log in every day and reserve at least 10 to 15 minutes to read the posts of their peers.

DS identified solutions to address her concerns regarding skill and knowledge development, as well as teaching philosophy however, because other participants did not mention the topics they were not considered themes, but it warranted mention. DS was concerned about her own ability to develop the skill set required to employ her selected solutions into her online course. After reviewing the best practice literature (Activity 4), DS shared that she intended to incorporate into her course technologically advanced and engaging modes of instruction. She shared within both her journal (Activity 3) and best-practice literature (Activity 4) posts that in order to gain the necessary skill sets, to implement these changes she would begin seeking out training opportunities during the summer of 2016.

DS also credited her participation in the self-reflection exercises (concept map - Activity 2 and Activity 4, best practice literature - Activity 4, and interview) with

addressing her concern regarding the plausibility of her current, face-to-face teaching philosophies working within the online environment. According to DS, the concept maps provided her with a “bird's-eye” view of her course goals, as well as how to accomplish them. The exercise of visually reflecting on the online environment also reinforced her adopted teaching philosophy, as well as prompted her to consider how to implement it in the online learning environment. During the interview, DS shared that participation in the reflection activities provided support, affirmed her ideas, and helped her to generate new ideas that she could implement in her courses. Lastly, DS credited her participation in the best practice literature exercise (Activity 4) with providing access to a broad range of resources and informational literature that she could use within her online course.

**Summary to cross-case analysis findings for question 3.** MF, JA JC, AC, and DS identified solutions to address their concerns regarding community engagement, course design, technology and resources, communication, lack of visuals, and time management. They credit their identification of these solutions to their participation in the modules’ self-reflection (introduction discussion – Activity 1, concept map – Activity 2 and Activity 4, journal – Activity 3, best practice literature – Activity 4, and interview) and peer interaction (introduction discussion – Activity 1 and community discussion – Activity 3) exercises. In addition to completion of these activities, participation as a student within the module also influenced their selected solutions. MF was able to identify solutions to address her concerns regarding communication, student engagement, student and faculty interaction, group work, course content, visual content, and time management.

JA was able to identify solutions to address her concerns regarding limitations of prefabricated and cookie-cutter courses, instructional resources, lack of variety in traditional assignments, student engagement, student and faculty interaction, and communication. JA did not identify solutions to address her concerns regarding her exploration of new technologies and time management. JC was able to identify solutions to address his concerns regarding student misperceptions about online courses, course assignments, student access to technologies, student engagement, lack of visuals, clarity of course instructions, and faculty support. JC did not identify solutions to address his concerns regarding face-to-face collaboration, instructional use of technology, communication, and faculty responsibilities.

DS was able to identify solutions to address her concerns regarding peer interaction, student and faculty interaction, supporting at-risk students, development of technical skills, and evaluating technologies. DS did not identify solutions to address her concerns regarding converting a face-to-face course into an online course and the lack of visuals cues within online courses. AC was able to identify solutions to address her concerns regarding group projects, student and instructor interaction, and clarity of course instructions. AC did not identify solutions to address her concerns regarding student engagement and the lack of visuals within the online environment.

## Chapter V: Discussion

The purpose of this qualitative multi-case study was to assess the impact of a professional development module designed to support faculty with experiencing the conceptual change process as a result of completing conceptual conflict instructional activities. The *What's on Your Mind?* module activities were designed to support faculty with navigating the conceptual change process through defining their beliefs, attitudes, assumptions, concerns, and plausible solutions. The study intended to address the following research questions:

1. How did the conceptual conflict module assist participants in identifying/defining their attitudes, beliefs, and assumptions regarding teaching and learning within the online environment?
2. How did the conceptual conflict module help participants identify areas of dissatisfaction within their existing conceptions when assessing the transferability of their current instructional practices within an online environment?
3. How did the conceptual conflict module assist participants with identifying a plausible alternative concept to address their area of conflict?

Data for this study were collected from the *What's On Your Mind?* conceptual change module and participant interviews. Datasets included the concept map(s), discussion forums, journals, and transcriptions from the recorded individual interviews. Analysis of the five individual cases and cross-case analysis revealed several themes regarding participants' attitudes, beliefs, assumptions, concerns, and plausible solutions to concerns regarding the online learning environment.

The following sections discuss the findings and implications of those findings on professional development exercises designed to support faculty instructing online courses. Additionally, the researcher proposes the direction of future research efforts.

**Research Question 1: How did the conceptual conflict module assist participants in identifying/defining their attitudes, beliefs, and assumptions regarding teaching and learning within the online environment?**

According to Hutchins and Friedrichsen (2012), for professional development to effectively impact faculty instructional practices, "it must focus on their beliefs about teaching and learning" (p. 868). The study was unique in its focus on not only the beliefs of the participants but their attitudes and assumptions as well, which are factors that could influence faculty's adoption of new practices and technologies. The defining of faculty beliefs was critical to the conceptual change process because changes in their beliefs would result in improvements to their instructional practices (Kember, 1997). The opportunities offered to the participants to reflect on their assumptions are vital because assumptions are a part of their system of beliefs (Elder & Paul, 2002). The assessment of their attitudes is also crucial because faculty' attitudes can influence their preference for or against the attitude object (Stangor, 2014), which for this study was teaching and learning within the online environment. The findings of the research suggested that continuous reflection through strategic professional development activities in an authentic learning environment could result in adult learners defining their attitudes, assumptions, and beliefs regarding teaching and learning within the online environment.

The conceptual change process started with the learner recognizing themselves through their beliefs, assumptions, and attitudes. The professional development module

illustrated the successful application of Nussbaum and Novick's (1982) strategy in professional development activities to provide a space and time for university faculty to address their beliefs, assumptions, and attitudes that could impact their successful adoption of online courses.

The module participants are an essential factor that distinguishes the study from previous studies focused on the conceptual change process. The previous studies frequently focused on K-12 students, college students, preservice teachers, or conceptions regarding science (Amir & Tamir, 1995; McHenry et al., 2009; Posner et al., 1982; Sadera, 2001; Trent, Pernell, Mungai, & Chimedza, 1998). The participants were often inexperienced learners whose attention on the instructional topic occurred within short scattered instructional sessions (Nussbaum and Novick, 1982).

Conversely, participants in this study were experienced faculty from different disciplines and fully invested in their teaching careers. They were adult learners who had preexisting perceptions regarding what constitutes teaching and learning. The participants were unique because of the power and autonomy held within their roles as higher education faculty, which also distinguished them from the audiences mentioned in many studies. Additionally, their experiences as both an instructor and a student, as well as a member in conceptual ecologies influenced the preconceptions they had regarding the requirements for both teaching and learning within any instructional environment.

Recognition that the faculty are adult learners is an essential factor that professional developers should consider when developing the resources and programming needed to support the conceptual change process. When designing the *What's on Your Mind?* module, the researcher incorporated activities that supported the

targeted audience, which in this case were adult learners. As suggested by Knowles, Holton, and Swanson (1998), the module supported the diverse abilities, experiences, and pre-existing knowledge of the participants through the inclusion of multiple opportunities to self-reflect and dialogue with their peers. The module allowed for learner autonomy and did not require the participants to restrict their reflection on predefined topics. In alignment with pivotal research on adult learners (Knowles, Holton, & Swanson, 1998), the participants were able to determine which topics to focus on while completing the professional development activities.

Additionally, the faculty determined the pace at which they would navigate through the phases of the conceptual change process within both the public and private spaces. The researcher realized she could not control for the extent of the conceptual change process faculty would experience, but she could instead focus on providing multiple opportunities for them to reflect. As a result of completing the journal, interview, and discussion forums exercises, the participants acknowledged their own beliefs, attitudes, and assumptions regarding teaching and learning within the online environment. This metacognitive process was necessary because according to Nussbaum and Novick (1982) the first critical step for supporting the conceptual change process requires the learners to become aware of their preconceptions.

The series of questions developed by the researcher and incorporated into the activities acted as a catalyst for the participants' declaration of their preconceptions. While completing the structured exercises, the participants were offered multiple opportunities to reflect. Garrison et al. (2001) described this process as the learner being cognitively present and consisted of them being able to "construct and confirm meaning

through sustained reflection" (p. 11). This sustained reflection occurred through the completion of structured discussion forums, peer interaction, and interview exercises.

The inclusion of the Blackboard discussion forums provided a public space for participants to externalize their thoughts through their reflective statements within the online environment, which both their peers and the researcher could review. The public discussion forums adhered to the recommendation by the Group for Human Development in Higher Education, which stated that faculty should have opportunities to reflect publicly on the topic of teaching and learning (Lewis, 1996). The ability to observe the participants experience the different stages of the conceptual change process occurred as a result of affording them an opportunity to publicly reflect through their writings on their "own reactions and thought processes" and responding thoughtfully to the statements of their peers (Luebeck & Brice, 2005). As declared by Hake (1998) these activities promoted students "conceptual understanding through interactive engagement ... which yield[ed] immediate feedback through discussion with peers and/or instructors" (p. 2).

With the appropriate activities, professional development programming can successfully support faculty with navigating through the conceptual change process. The activities must be well suited for adult learners and provide them with autonomy to determine the focus of their efforts. The study illustrated that multiple opportunities to reflect individually and dialogue with peers would result in participants declaring their attitudes, beliefs, and assumptions regarding teaching and learning within the online environment.

**Research Question 2: How did the conceptual conflict module help participants identify areas of dissatisfaction within their existing conceptions when assessing the transferability of their current instructional practices within an online environment?**

Providing the participants an opportunity to self-reflect and interact with peers resulted in them declaring concerns that could influence their ability to succeed in the online learning environment. The declaration of their concerns is a necessary component of the conceptual change process, which according to Posner et al. (1982) reveals the learner's dissatisfaction with his or her existing conceptions. areas All participants experienced feelings of dissatisfaction with their existing conceptions through self-reflection (verbal and visual), review and evaluation of best practice literature, interaction with peers, authentic experiences within the learning environment, as well as authentic experiences with tools like WebEx. The reflective statements provided by the participants revealed seven significant concerns which included community engagement, course design, use of visuals, communication, technology and resources, time management, and skill and knowledge development. These concerns align with the literature which identifies many of these topics as essential factors required to ensure the success of teaching and learning within the online environment (Al-Salman, 2011; Aragon & Johnson, 2002; Baran, Correia, & Thompson, 2011; Goodyear, Salmon, Spector, Steeples, & Tickner, 2001; Yang & Cornelius, 2005).

Many factors such as the participants' perceptions regarding teaching and learning, skillsets, knowledge of peers' experiences, and questions raised by peers influenced their concerns. After reviewing the participants' statements and responses to

the pre-module self-report survey, the researcher recognized the influence that their previous experiences had on their concerns. In fact, several of the concerns raised by the participants stemmed from “personal experience, experience with schooling and instruction, [as well as] experience with formal knowledge” regarding teaching (Richardson, 1996, p. 105). The study findings aligned with research, which stated that it was possible for previous learning experiences to influence the instructional practices adopted by faculty (Lawler & King, 2000; McQuiggan, 2012).

The process of identifying the exact moment at which the conceptual conflict occurred can be a complex task to accomplish. Statements made by the participants do not definitively provide evidence of when the participant became cognitively aware of their concerns. For this reason, the researcher recognized the activity in which the participant verbally acknowledged their concerns as the discrepant event or catalyst for their declaration. For the majority of this study the researcher identified the activity as the discrepant event; however, there were occurrences where participants’ reflective statements explicitly identified when cognitively a conflict occurred between the current practices in the introduced phenomenon in several instances. In these cases, the phenomenon occurred as a result of direct dialogue with peers who questioned their instructional practices or shared an idea or phenomenon that the participants had not considered before completing the module. Though important, determining the origination of the conflicts should not distract from the fact that the module activities and the interview acted as exposing events and invoked participants’ awareness and declaration of their concerns. The ability to determine and categorize the concerns required the researcher to review all of the individual reflective statements made by the participants.

The researcher found that some of the posts by participants appearing within the first few activities did not explicitly declare their concerns. The real root cause of some of the raised concerns became apparent as within reflective statements of the participants as they continued to progress through the module.

For example, initially within her reflective statement, participant JA described the lack of visuals within the online environment as a concern. She eventually revealed that her real concern was the inability to see the physical body cues of her students, which she used as markers for the adjustment of her instructional practices. The catalyst for the concern was the perception that it was difficult or impossible to obtain visual and physical cues from students while instructing online courses. JA shared that she used these cues to adjust her instructional practices. In essence, she was concerned that her inability to assess her students learning experience through their physical cues within an online course would stifle her instructional practices.

This process solidified the importance of capturing multiple sources of data via the use of the pre-module survey, multiple reflection exercises, and the use of well-structured prompting questions. The study survey assisted with capturing information regarding the participants' perceptions about teaching and learning within the online environment and general information about the participants experience as a student and instructor within the online environment.

When reviewing the participants' statements, the researcher was able to identify several of the root causes or trouble points that were the catalysts for concerns raised by the participants. The module activities afforded the participants opportunities to provide reflective statements that allowed the researcher to "discover the features of a student's

conceptual ecology [and] find the trouble point" in order to further understand the premise of their concern (p. 159). Professional developers can use the study results as a reference when producing programming that will support participants in addressing their specific concerns.

Strategic and purposeful professional development programming through multiple self-reflection and peer interaction exercises will provide the necessary opportunities to capture the information needed for program development. Faculty participation in the continuous reflection exercises, via the completion of the pre-module self-report survey and activities will afford them an opportunity to ponder cognitively and verbally over their concerns. The multiple sources of data captured the participants' thoughts, which the researcher then used to decipher the concerns of the faculty and in some cases the root cause of those concerns.

**Research Question 3: How did the conceptual conflict module assist participants with identifying a plausible alternative concept to address their area of conflict?**

The study results confirmed that participation in the module self-reflection, peer interaction, as well as instruction within an authentic learning environment, resulted in faculty identifying plausible solutions to address their concerns. The module activities supported the participants in identifying plausible new conceptions that would produce fruitful results (Posner et al., 1982). Based on their reflective statements several of the participants began the module exercise with preconceived solutions to address concerns. The identified solutions addressed six significant concerns, which included community engagement, course design, technology and resources, communication, lack of visuals, and time management. Within the limited time allotted for the module, the participants

were able to move from the abstract process of defining their beliefs through the identification of the concerns and into the more concrete process of identifying plausible solutions that would address those concerns. The study demonstrated the importance of professional developers recognizing the interconnectedness between the learners' defined attitudes, assumptions, beliefs, declared concerns, and selected plausible solutions.

The module activities successfully provided evidence that Nussbaum and Novick's (1982) conceptual conflict instructional strategy was helpful in facilitating participants in identifying plausible solutions. The participants' statements shared in the module self-reflection and peer interaction activities illustrated they were experiencing episodes of meaningful learning, which resulted in the integration of a new concept or meaning into the faculty's cognitive structure (Novak, 2002). Self-reflection occurred as a result of completing activities such as the review of the best practice literature. The review of the best practice literature and resources supported the participants with identifying plausible solutions to address their concerns. The inclusion of such resources was important because it provided guidance on how to address many of their concerns and provided examples of how the authors implemented solutions to address these concerns.

When designing the module, the researcher organized the resources into categorized folders with titles such as student engagement and active learning, distance learning theory, review of writing objectives, and adopting technologies. These categories were necessary because they allowed participants to identify quickly the resources that addressed the roles assigned to faculty, competencies required of online faculty, and areas of concern that often appear within the literature regarding teaching

and learning within the online environment. Professional developers intending to support the conceptual change process need to ensure they include resources that will address known concerns regarding the subject matter, which in this case was online courses.

The module also demonstrated the importance of including opportunities for participants to engage in dialogue with their peers. Professional development should include opportunities for peer engagement to occur through mentoring, modeling by colleagues, or collegial interaction (Caffarella & Zinn, 1999). The inclusion of the peer interaction exercises within the module supported and enhanced the faculty development experience of the participants. Because of the dialogue that occurred within the module exercises, participants were able to identify plausible solutions to address some of their concerns.

An additional factor that influenced the participants' identification of plausible solutions was their direct engagement with the researcher, who was facilitating the module exercise. The researcher acted as a resource and assisted the participants in making connections between their desired outcomes and plausible solutions. As an engaged facilitator within the module activities, the researcher was able to assist participants with identifying plausible solutions by responding to questions posed by the participants. It is essential that facilitators actively engage with participants and interject when necessary in order to provide clarifying information or plausible solutions to address the concerns raised by the faculty (Nussbaum & Novick, 1982). The researcher ensured that the participants successfully engaged in the learning process by being a present and engaged instructor (Umbach & Wawrzynski, 2005, Darling-Hammond, Hyler, & Gardner, 2017). Professional developers who intend to implement the module

must be engaged at critical points while avoiding being overly engaged in the discussions.

In addition to the engaged facilitator, peer interaction, and self-reflection exercises included within the module, the incorporation of these activities within an authentic learning environment also influenced the participants' identification of plausible solutions. The study revealed that incorporating the module activities within the Blackboard learning management system supported all of the participants with identifying plausible solutions to address their concerns. The inclusion of the student-centered learning activities and incorporation of the instructional technologies within the learning management system afforded the participants an opportunity to "take part in [authentic teaching] activities directly relevant to the application of learning ... within a culture similar to the applied setting" (Iucu & Marin, 2014, p. 414). For this reason, when implementing the module, professional developers should integrate it within their institutions learning management system.

The design of the module was important because incorporating "curricular and instructional models and modeling of instruction help teachers to have a vision of practice on which to anchor their own learning and growth" (Darling-Hammond, Hyler, & Gardner, 2017, p. 11). The researcher was able to demonstrate to the participants how to engage learners and support the conceptual change process within the online environment through the incorporation of student-centered learning activities as well as the use of communication tools (video, pictures, and synchronous meeting tools) within the learning management system. Participating as a learner within the module afforded

the participants an opportunity to witness how they could use strategic instructional design methods and technologies to address some of their identified concerns.

Though the participants were able to identify several solutions, they did not declare plausible solutions to address all of their concerns. The researcher did not determine if the catalyst for the participants' decisions to focus on a specific concern was due to its perceived importance or the availability of resources or research to address the concern. As a result, the researcher suggests that professional developers provide programming to their participants that will support continuous reflection and result in their identification of solutions to address all of their outlined concerns. They can accomplish this goal by adopting the module design, which includes several opportunities for both self-reflection and reflection as a result of interacting with peers.

### **Implications for Professional Development Practice**

The findings from this study indicate that the *What's on Your Mind?* module can be used by professional developers to support learners with navigating through the conceptual change process. Integrating opportunities to participate in the conceptual change process through structured professional development opportunities is important because for many faculty, completing the module may be the first time they participated in a structured opportunity to reflect on their conceptions and concerns regarding teaching and learning within either face-to-face or online environments.

When implementing the module, professional developers should execute the activities within their institutions' learning management system. The inclusion of the module within the learning management system will allow the participants to engage in an authentic learning experience as a student while completing the self-reflection and

peer interaction activities incorporated into the online module. Completion of the self-reflection activities such as the creation and revision of concept maps as well as interaction with peers within the public discussion forums are strategies that can support the learners with declaring their beliefs, assumptions, attitudes, identifying their areas of concern, and plausible solutions to address those concerns.

For many, the creation and revision of a concept map may be their first experience with reflecting on their interpretation of the relationships among the concepts that make up the online teaching and learning environment. Some of the concepts they may reflect on include the roles of the participants, instructional strategies, and instructional resources required to support the teaching and learning process within either the face-to-face or online environment. Professional developers should pay attention to the terms included within the concept maps. To further assist participants with exploring the concepts within their concept maps, professional developers can upload additional literature and resources regarding the concepts to the module *What does the literature say?* exercise.

Another essential feature of the module is the prompting questions that accompany the self-reflection and peer interaction activities, which supports participants with navigating through the conceptual change process. These questions appeared throughout the module in order to provide multiple opportunities for participants to reflect on their attitudes, assumptions, and beliefs regarding teaching and learning within the structured reflection exercises. Professional developers should be prepared to engage in dialogue when necessary with participants by responding to their questions and inquiries regarding available tools at the institution. The prompting questions are an

essential component of the module and support faculty with not only reflecting on their preconceptions but also extracting the inconsistencies within their current conceptions (Hand & Treagust, 1988).

The study also demonstrated that within a short frame of time, the module's peer interaction and self-reflection activities could support faculty with identifying plausible solutions that they believed would resolve their concerns. For this reason, professional developers should consider including the module as a primer activity to be completed by faculty before their participation in a more in-depth workshop on the design or facilitation of online courses. Since both the process of reflection and experiencing conceptual change require time (Ketamo & Kiili, 2010), combining the module and workshop will allow for additional time for participants to explore their concerns and plausible solutions. Professional developers may also adopt the module as an independent learning exercise for the sole purpose of supporting faculty with articulating their attitudes, beliefs, assumptions, declaring concerns, and identifying plausible solutions to address their concerns.

### **Suggestions for Future Research**

Professional developers are in a position to support faculty, students and institutions in adopting innovative instructional technologies and instructional practices. Ensuring the success of their efforts will require addressing the areas of dissatisfactions that often plague innovation within the higher education environment. This study focused on supporting faculty with navigating the conceptual change process in order to ensure their success within the online instructional environment. The following sections propose

directions for future research in the areas of longitudinal study of the conceptual change experience of faculty and supporting the adoption of innovations.

**Longitudinal Study of Conceptual Change.** The successful implementation of professional development activities designed to support the conceptual change process required that participants be afforded the time to reflect on their existing beliefs, attitudes, and assumptions; to articulate the dissatisfactions within their conceptions; and to identify plausible solutions. Within this study, faculty completed this process over the course of five days. Though the study was able to demonstrate that participants experienced the conceptual change process, it did not assess what transpired after the module concluded. Due to time limitations, the study did not focus on the participants' further evaluation of plausible solutions or their actual implementation of the plausible solutions within the design of their courses. Participants within the study acknowledged that the time allotted for them to complete the reflection required for the conceptual change process was limited. This limitation was due to their assigned responsibilities as faculty, which included the teaching of multiple courses, conducting and publishing research studies, as well as completing committee obligations.

The conceptual change process is both demanding and time-consuming (Trundle, Atwood, & Christopher, 2007). For this reason, Georghiades (2000) added that the process “should not be considered completed the moment the learner presents evidence of adopting the new conception(s), but should be further investigated to see if the newly acquired conception(s) can successfully be transferred to new settings” (p.123). The continuation of this study would benefit both the professional developers and the participants of their programs. Continuing the research after the conclusion of the module

would afford the participants additional time to reflect and engage in the process, which is an essential component of facilitating the conceptual change process (Ketamo & Kiili, 2010). Continuing to assess the conceptual change process would afford researchers an opportunity to assess the impact that additional professional development programming or additional time for reflection would have on the conceptual change process experienced by the participants. This information could provide professional developers with additional guidance on the programming requirements of faculty instructing online courses and further solidify the inclusion of the *What's on Your Mind?* module within their programming.

To study thoroughly the conceptual change process experienced by participants completing the module, the researcher would propose a longitudinal study. A longitudinal study would allow the researcher to expand upon the analysis of the module activities by focusing on the experiences of participants after the completion of the module activities. For example, the study did not assess the influence of the module on the experiences of participants who completed the design workshop, which followed the module. Evaluating the experiences of those participants would have allowed the researcher to assess further if participants fully adopted the plausible solutions they discussed during the study. Additionally, participants continued engagement within a workshop intended to assist in the design of their course, would allow the researcher to determine if the participants incorporated the plausible solution into the design of their course or continued to assess further the plausible solution while engaging the workshop activities. A longitudinal study would also support the researcher in determining if the participants reverted to previous misconceptions.

Due to the limited time allotted for the study, the researcher was unable to evaluate further the experiences of those participants who did not complete the workshop but identified plausible solutions within their responses. Had the study been a longitudinal study, the researcher could have further evaluated their experiences by forwarding a survey or conducting additional interviews to determine if the inclusion of their plausible solutions into the design of their courses resulted in their desired outcomes. Lastly, statements made by the participants of this study regarding their intention to continue to research their identified plausible solutions or to continue to assess the design of their courses after the module concluded further supports the need for a longitudinal study. Conducting a longitudinal study, which includes the module, workshop targeting the design of online courses, or a lapse of time after the conclusion of the module could produce useful data that can enhance the design of the professional development program.

**Supporting the Adoption of Innovation.** While the study findings demonstrated that module activities supported the conceptual change process regarding teaching, other research can look at faculty adoption of new technologies and instructional practices. To support faculty adoption of innovative instructional practices and technologies researchers can explore the effects of incorporating the *What's On Your Mind Module?* into professional development programs designed to support faculty exploration and successful adoption of innovations. This research is necessary because it is not unusual for “faculty to be the first line of resistance against technological innovations in teaching” (Fonseca, Martí, Redondo, Navarro, & Sánchez, 2014, p. 435). Fonseca et al. (2014) added that “without a motivated teacher and environment, the success of implementation

[of the innovative technology] will be decreased” (p. 435). As previously mentioned, in order to support faculty with successfully adopting innovations, professional development activities cannot focus solely on the technology. In order for professional development programming to effectively impact faculty instructional practices, "it must focus on their beliefs about teaching and learning" (Hutchins & Friedrichsen, 2012, p. 868).

In addition to focusing on faculty beliefs and motivating them to adopt innovations, professional developers must address their concerns regarding the innovation as well. Similar to faculty concerns regarding online courses, faculty also have concerns regarding interventions such as augmented reality and virtual reality, 3-D printing, open educational resources, or massive open online courses (MOOC). Faculty successful adoption of these innovations will require them to address misconceptions they may have regarding the innovations. Professional developers can use future study results to assist with the identification of faculty attitudes, assumptions, and beliefs, concerns, and plausible solutions to address these concerns. They can use the information as a framework for the development of programming and resources needed to support faculty with successfully adopting the innovative technologies or instructional practices. For example, researchers could use a revised version of the module to address concerns regarding teaching and learning within massively online open courses (MOOC). According to Allen and Seaman (2016), the belief that MOOCs are not sustainable has influenced institutions' decision against offering them. Their data revealed that institutions beliefs that MOOCs were "sustainable fell from 28.3% in 2012 to only 16.3% in 2014" (Allen and Seaman, 2016, p. 38). Researchers can use the study results to

identify the attitudes, assumptions, and beliefs faculty have regarding instruction within MOOCs. Additionally, they can use the study results to identify the concerns faculty have as well as plausible solutions to address their concerns regarding teaching and learning within the MOOC environment. This information will contribute additional research to the field regarding the adoption of this innovative instructional model, as well as provide professional developers with guidance on how to support their institution's exploration of MOOCs.

**Community of inquiry influence on the conceptual change process.** The study revealed that interaction among the participants contributed to their progression through the conceptual change process. This interaction is considered an important aspect in a community of inquiry (Garrison et al., 2001). The module activities and prompting questions supported the process by allowing participants to "construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry" (Garrison et al., 2001, p. 11). A community of inquiry focuses on the elements of an educational experience that facilitate the creation of communities of learners actively and collaboratively engaged in exploring, creating meaning, and confirming understanding" through reflection and discourse (Garrison, 2009, p. 352).

The module provides an authentic learning environment where learning occurs via social presence, cognitive presence, and teaching presence amongst the community of faculty as learners and the researcher as the facilitator. The module's learning environment supports social presence through its establishment of a trusting environment in which the participants are able to begin the development of "inter-personal relationships by way of projecting their individual personalities" (Garrison, 2009, p. 352).

The module activities created the “conditions for inquiry and quality interaction (reflective and threaded discussions) to achieve worthwhile educational goals” (Garrison & Arbaugh, 2007, p. 161). Additionally, the module encapsulated the cognitive presence four-phase process, which Garrison and Arbaugh (2007) described as a triggering event, where participants identify and explore their concerns, explore their concern through individual critical reflection and discourse, and construct meaning from the process. Lastly, the module by design captures the ideals of teaching presence through the researcher’s interaction with the participants through the review of reflective statements and post, raising of questions, and responding to participant’s inquiries.

Though the module encapsulates the important elements of the community of inquiry, the study did not focus on the exploration of this framework. Researchers can use the module to explore two different studies regarding establishing a community of inquiry and supporting conceptual change. The first study could focus on how the participants' completion of the module activities could support the establishment of a community of inquiry. The information captured from this study will inform researchers and professional developers how the conceptual conflict inspired activities could address concerns regarding the ability to establish communities of inquiry within the online environment. Within the second study, researchers could use the *What’s on Your Mind?* module as a professional development exercise intended to support learners with navigating the conceptual change process regarding supporting a community of inquiry within the online environment. The researcher can update the prompting questions, concept map exercises, and best practice literature in order to support the participants with exploring their attitudes, beliefs, assumptions, and concerns regarding social

presence, cognitive presence, and teaching presence within the online environment.

Professional developers may use the information obtained as a framework for developing programming to support the adoption community of inquiry within the online environment.

### **Conclusion**

The continuous adoption of distance education within higher education will require that faculty receive the necessary guidance to navigate the conceptual change process through professional development activities. The study findings indicate that the module professional development exercises, inspired by Nussbaum and Novick's (1982) conceptual conflict instructional strategies, supported faculty with experiencing the conceptual change process. The study demonstrated that self-reflection and peer interaction within an authentic learning environment supports faculty with experiencing the different phases of conceptual change. The structured self-reflection and peer interaction exercises incorporated within the studied module resulted in faculty identifying or defining their attitudes, beliefs, and assumptions regarding their teaching philosophy, use of visuals, skill and knowledge development, time management, course design, and community engagement within the online environment. The exercises, which supported this process, included the discussion forums, journals, concept maps, and interview exercises as well as interaction with their peers. The module also supported participants with declaring their areas of dissatisfaction, concerns, and misconceptions through self-reflection, peer interaction, and authentic learning. The participants were able to reveal their concerns regarding community engagement, course design, use of visuals, communication, technology and resources, time management, as well as skill and

knowledge. The participants' completion of the module discussion forums, journal, concept maps exercises, as well as interacting with both the novice and experienced peers resulted in their identification of plausible new conceptions that would produce fruitful results (Posner et al., 1982). They were able to identify solutions that would address their concerns regarding community engagement, course design, technology and resources, communication, lack of visuals, and time management.

Supporting the conceptual change process requires that professional development activities provide faculty with opportunities to reflect on their attitudes, beliefs, and assumptions, define concerns within their conceptions, and identify plausible solutions. The study also solidified the need for professional development activities to support the phases of the conceptual change process. These phases included that

- a) the learner is dissatisfied with existing conceptions;
- b) the new concept being considered is intelligible;
- c) the new concept appears to be plausible; and
- d) the new concept suggests the possibility of fruitful results (Posner et al., 1982).

The study further solidified that professional development activities should avoid focusing only on solutions, but strategically design multiple opportunities for faculty to make the necessary declarations needed for them to transition from misconceptions within their beliefs, assumptions, and attitudes to plausible solutions they intend to explore within the design of their online courses.

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**Appendix A**

Module Syllabus



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# WHAT'S ON YOUR MIND? MODULE

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Facilitator: La Tonya Dyer



SUMMER 2016 SYLLABUS  
TOWSON UNIVERSITY

## I. Description:

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The “What’s on Your Mind?” module is intended to assist faculty with identifying individual areas of concern that may impact the success of their online courses. The module will provide opportunities for faculty to reflect on their individual conceptual beliefs and those influenced by their participation within a conceptual ecology. The module will also provide activities that will assist faculty with beginning the process of identifying solutions for any acknowledged conceptual conflicts. This module is the first in a series of activities that make up the **Online Edge Course Design workshop**.

## II. Learning Outcomes:

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During the module you can expect to:

1. Define the terms relevant to your personal instructional practices and conceptual beliefs (e.g. content, instructional strategies, instructional activities, assessment activities, learning, student role, instructor role, and learning environment)
2. Analyze your current conceptions regarding learning and instruction regardless of modality
3. Visually illustrate your instructional processes and beliefs depicting the interactions between students, faculty, content, and instructional activities within the learning environment
4. Identify your current conceptions or instructional practices that may impact the success of your online courses
5. Compose possible solutions to address your areas of concern or to strengthen your existing beliefs or instructional practices

## III. Overview of Activities & Instructions

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1. Using the provided instructions, you will complete an introductory activity and complete the 4 reflective activities.
2. In the **Activity 1 - Overview & Introduction** section of the module you will introduce yourselves to your colleagues and receive an overview of the module.
3. During **Activity 2 - Concept Map & Ideas**, you will reflect on how your existing instructional practices are influenced by your interactions with students, instructional content and learning environment. Prior to creating your concept map you will be asked to define several terms to assist you with

visually reconstructing your conceptions regarding the learning and instruction process within the online environment. You will also post your concept map to the Blackboard discussion forum and respond to the provided questions.

4. During **Activity 3 - Community Discussion**, you will continue to dialogue with your colleagues reflecting on your concept maps, responses to questions, and shared experiences. At the conclusion of this activity, you will summarize your experiences by identifying conceptions and instructional practices that could impact the outcomes of your online course and student learning.
5. During **Activity 4 – What Does the Literature Say?** you will reflect on your identified concerns and instructional practices through the support of research articles and online resources. During this activity you will be asked to further define your beliefs and the concerns you may face when teaching an online course. After reviewing your selected articles you are to document your findings and possible solutions to address your identified concerns. You will further reflect by reviewing and revising your concept map and then responding to several questions.
6. During **Activity 5 – Wrap-up Meeting**, you will be asked to join your colleagues and module facilitator in a wrap-up meeting hosted via Webex, an online synchronous meeting tool. The module will concluded with an open discussion regarding your experiences, concept maps, lessons learned and future plans.

#### IV. Schedule

Assignment Date	Due Date	Activity	Estimated Completion Time
June 6 <sup>th</sup>	June 6 <sup>th</sup>	Activity 1 - Overview & Introduction	½ hour
June 6 <sup>th</sup>	June 7 <sup>th</sup>	Activity 2 - Concept Map & Ideas	2 – 3 hours
June 7	June 8 <sup>th</sup>	Activity 3 - Community Discussion	1 – 1.5 hours
June 7	June 9 <sup>th</sup>	Activity 4 – Individual Reflection Activity 4 - Updated Concept Map	2 – 5 hours
June 10 <sup>th</sup>	June 10 <sup>th</sup>	Activity 5 - Wrap-up Meeting (Via Webex)	1 hour

**Total: 6.5 - 11 hours**

# Module Activities

## V. Activity 1 - Overview & Introductions

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What's the purpose of this module? The “**What's on Your Mind?**” online module provides an opportunity for you to reflect on your current instructional practices and beliefs regarding what constitutes learning and teaching within both the face-to-face and online environments. In this activity you will begin this process by introducing yourself to your colleagues. **Please post your statement to the Activity 1 - Overview & Introductions discussion forum by 11:59 PM on the June 6<sup>th</sup>.**

### To Do List

1. View the What's On Your Mind overview video
2. Complete the Overview & Introductions activity

**Due Date: June 6<sup>th</sup> by 11:59 PM**

### Overview & Introductions Activity

Introduce yourself to your colleagues by posting a brief statement to the **Activity 1 – Overview & Introductions discussion forum**. Be sure to share information about your area of expertise and teaching experience (face to face and online courses). Also share with your colleagues why you pursued a career in education.

## I. Activity 2 - Concept Maps & Ideas

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Activity 2 is intended to assist you with beginning the reflective process embedded throughout this module. Through the reflective activities and the creation of your conceptual map, you will explore how your beliefs' regarding the instructional process within the online environment impact your adopted instructional practices. **Please post your completed concept map and responses to the Activity 2 – Concept Maps & Ideas discussion forum by 11:59 PM on the June 7<sup>th</sup>.**

### To Do List:

1. Review the Overview Video
2. Complete the Define Concepts activity

3. Complete the Creating a Concept Map activity

**Due Date: June 7<sup>th</sup> by 11:59 PM**

### Part 1: Defining Concepts Activity

Identifying the times he would like to include within your concept map is an important first step to completing this activity. Starting with the list below identify the terms you intend to include within your concept map. When selecting your terms be sure to consider your beliefs regarding teaching and learning within the online environment. Rewrite your selected words on a blank piece of paper and then add your definition. You are not restricted to just the terms provided in the below list. Feel free to add any terms that you believe are missing and in your opinion necessary to support instruction within online courses.

1. content
2. instructional strategies
3. instructional activities
4. assessment
5. learning
6. instructing
7. learning outcomes
8. objectives
9. student role
10. instructor role
11. learning environment
12. facilitator
13. discussion
14. engagement
15. time management
16. active learning
17. instructional design
18. technology
19. collaboration
20. asynchronous
21. synchronous

### Part 2: Creating a Concept Map Activity

The act of developing a Concept Map is intended to provide you with an opportunity to pictorially illustrate your beliefs regarding the relationships amongst your selected terms with the online instructional environment. Before creating your concept map consider how your beliefs about teaching and learning can impact your interactions with the defined terms (e.g. student role, content, learning environment). Think about how these concepts help or impeded your ability to produce your ideal learning experience for your

students and instructional experience for yourself. When drawing or creating your concept map remember the below guidelines:

1. Use a hierarchical structure to distinguish the relationships between the concepts
2. Identify the most important or central concept from your list and make this term the focal point of the concept map
3. Add the terms from your list that have a direct relationship to the central concept
4. Continue to build your concept map by adding the remaining concepts
5. Show the relationships between the terms by connecting the shapes with lines
6. Label the lines with linking words (e.g. has, provides, may drive, needed to, and necessary for), which are sets of terms used to indicate how the concepts are related
7. Use cross-links (or lines) to illustrate relationships that exist between concepts in different segments or areas of the map. Be sure to use linking words
8. Post your conceptual map and responses to the below questions to the **Activity 2 – Concept Maps & Ideas discussion forum**.

1. How can the concepts included within your concept map help produce the desired learning experience for your students and your ideal instructional experiences?
2. Did the experience of creating your concept map assist you with identifying opportunities to enhance your instructional practices?
3. Do you believe that your adopted instructional practices will result in your successful instruction of an online course? Why or Why not?

**For additional guidance please feel free to view the below resources:**

1. [Concept Mapping Tutorial](#)
2. [Constructing Your First Concept Map](#)
3. [The Theory Underlying Concept Maps and How to Construct and Use Them](#)

II. [Activity 3 - Community Discussion](#)

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During this activity you will once again be asked to reflect on your personal thoughts and previous activities with your colleagues. Take this time to discuss their concept maps and responses to the provided questions. At the conclusion of this activity you will summarize your experiences and identify the areas of concern you believe could impact the learning and teaching outcomes for your online course. **Please post your responses by 11:59 PM on June 8<sup>th</sup>.**

**To Do List:**

1. Review the Overview Video
2. Participate in the **community discussion** by responding to at least one colleague's post in the **Activity 2 – Concept Map & Ideas discussion forum**
3. Post a brief summary statement to the **Activity 3 - Summary and Conflict journal**

**Due Date: June 8<sup>th</sup> by 11:59 PM****Part 1: Community Discussion**

Participate in the community discussion by responding to at least one colleague's discussion forum post. You are encouraged to discuss the similarities and/or differences within your responses and concept maps. Please post your responses to the **Activity 2 – Concept Map & Ideas discussion forum**.

**Part 2: Summary & Conflict**

For this activity you will post a brief summary, including at least one identified concern, to the **Activity 3 - Summary and Conflict Journal**. Summarize the concerns you believe can impact your desired teaching and learning outcomes for your online course. If possible at this time, also discuss solutions you believe could address your concern(s). Please note that the post is private and only visible to the module facilitator.

### III. Activity 4 - What Does the Literature Say?

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The intention of this activity is to provide additional opportunities for you to reflect on your identified concerns regarding teaching and learning within the online environment via the support of peer review research, video testimonials, and relevant journal articles. During this activity you will be asked to explore your concerns and possible solutions by reviewing relevant research and information. Use this time to consider your responses to the previous activities in order to identify solutions that you believe will ensure the success of your course, your students, and your instructional efforts. **Please post your responses to the below questions and updated concept map by 11:59 PM on the June 9<sup>th</sup>.**

## To Do List

1. View the Overview Video
2. Read the relevant journal articles located in the **Journal Articles & Resources** folder. The articles are organized based on topics (e.g. transactional distance, facilitator and student roles, distance learning theory, communication)
3. If necessary identify additional resources/articles to address the concerns you identified during the previous reflective activities via the TU research portal (<http://researchport.umd.edu/V>)
4. After reviewing the articles take some time to write a reflective statement summarizing your findings and responses to the provide questions to the **Activity 4 – Individual Reflection discussion forum**.
5. Update and upload your Concept Map to the **Activity 4 - Updated Concept Map discussion forum**.

**Due Date: June 9<sup>th</sup> by 11:59 PM**

### Part 1: Individual Reflection

For this activity you are to continue reflect on your beliefs and concerns regarding teaching and learning within an online environment by responding to the below questions. Before responding take some time to reflect on how you can use the knowledge and information gained via the previous activities (e.g. reviewing articles, group discussions, designing a conceptual map) to ensure the success of your online courses. After reflecting on your experiences consider the below questions and post your individual responses to the **Activity 4 – Individual Reflection discussion forum**.

1. While completing the reflection activities were you able to visually or textually define or identify your beliefs regarding the process of instructing and learning within the online environment? Describe how these exercises assist you with reflecting on your beliefs regarding teaching and learning within the online environment.
2. While completing the reflection activities were you able to identify new instructional practices or ideas that you intend to further explore? If so, what are the new instructional practices or ideas? Do these ideas conflict with your current instructional practices or beliefs? If so, please explain.

3. Do you plan to implement any of these ideas to resolve your identified areas of concern within your online course(s)? If so, please explain.
4. What preparations must you make in order to implement your ideas?

## Part 2: Updated Concept Map

For this activity you are to update and submit your concept map to the **Activity 4 - Updated Concept Map discussion forum**. Before revising your concept map once again consider your responses to the previous activities. Reflect back on your discussions, concerns you identified, and resources you reviewed. Think about your instructional practices impact your interactions with the terms included within your concept map (e.g. student role, content, learning environment). After completing the reflection exercises review your original concept map to determine if you should.

1. Add a new concept
2. Create a new relationship
3. Reposition concepts in order to enhance the clarity of the relationships

After reflecting on if or how you can enhance your concept map make the changes and save your updated file. Regardless of whether or not you update your concept map you are to write a brief summary. The summary should explain why you did or did not make modifications to your concept map. Please upload your concept map (original or updated map) and your statement to the **Activity 4 – Updated Concept Map discussion forum**.

## IV. Activity 5 - Wrap-up Meeting

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Our recorded wrap-up meeting will take place on **June 10, 2016** via Webex. The time of the meeting will be determined by the availability of participants. In order to participate in the meeting you will need access to a computer or mobile device, as well as, a microphone or telephone. You may use your webcam as well, however it is not necessary. Lastly, when entering our Webex meeting you may use a pseudonym in place of your name if you would like to maintain your anonymity. During our 1 hour wrapup session we will conclude the module by having an open discussion regarding your experiences, conceptual maps, lessons learned and future plans. Please bring your questions and concerns to the meeting.

Use the information provided below to join our meeting. To ensure that you are able to participate in the Webex session please review the [Webex Help for Meeting Attendees](#) web page for instructions. If you experience any issues accessing the meeting please call the Webex 24/7 helpline a 1-866-229-3239. **Join WebEx meeting**  
<https://towson.webex.com/join/ldyer> | 681 952 091

Join by phone

1-408-792-6300 Call-in toll number (US/Canada)

1-877-668-4490 Call-in toll-free number (US/Canada)

Access code: 681 952 091

## V. Technology Use & Requirements

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During this module you will have an opportunity to interact with 3 technologies currently supported on Towson's campus. The technologies we will use are Blackboard, Panopto and Webex. You will find listed below brief descriptions of each tool, support information, and how-to-do documents.

### Blackboard

- Blackboard is Towson's online course delivery system. You can log in here: <http://blackboard.towson.edu>.
- Complete the browser check found at the following link to ensure your computer will be compatible with all Blackboard tools: [https://en-us.help.blackboard.com/Learn/9.1\\_2014\\_04/Administrator/020\\_Browser\\_Support/Browser\\_Ch ecker](https://en-us.help.blackboard.com/Learn/9.1_2014_04/Administrator/020_Browser_Support/Browser_Ch ecker).
- For Blackboard help resources (e.g., tutorials), visit <http://www.towson.edu/technology/training/blackboard/students.html>.
- If you attempt to access Blackboard and it is unavailable beyond a scheduled maintenance, please view the OTS Alerts to find out further information about the system outage: <http://alerts.towson.edu>.

### Panopto

- Panopto is the instructional recording capture tool offered by Towson University. Video capture allows anyone to record a presentation, lecture, audio clip, or screen recording and make it available for future playback.

- For Panopto help resources (e.g. tutorials), visit <http://www.towson.edu/technology/training/resources/panopto.html>.
- Panopto Support  
Log your own [support ticket](#) with Panopto  
([https://helpdesk.panopto.com/anonymous\\_requests/new](https://helpdesk.panopto.com/anonymous_requests/new))  
Email Panopto at [support@panopto.com](mailto:support@panopto.com)  
View the [Panopto Knowledge Base](#)  
Submit a [TechHelp](#) service request  
Call Panopto Support at 855-765-2341 FREE, 24 hours a day

### Webex

- WebEx is a web-based, collaborative technology that allows users to share resources (documents, desktops, web-browsers, etc.) remotely and communicate with each other using voice, video and chat.
- For Webex help resources (e.g. tutorials), visit <http://www.towson.edu/technology/training/resources/webex>

## Appendix B

## IRB Approval

**EXEMPTION NUMBER: 15-X085**

To: La Tonya Dyer  
 From: Institutional Review Board for the Protection of Human  
 Subjects, Debi Gartland, Chair (15)  
 Date: Tuesday, June 09, 2015  
 RE: Application for Approval of Research Involving the Use of  
 Human Participants

Sponsored Programs  
 & Research

Towson University  
 8000 York Road  
 Towson, MD 21252-0001

t. 410 704-2236  
 f. 410 704-4494  
[www.towson.edu/cspr](http://www.towson.edu/cspr)

Thank you for submitting an application for approval of the research  
*Professional Development for Online Faculty: Supporting Conceptual  
 Change through Conceptual Conflict Activities*

to the Institutional Review Board for the Protection of Human Participants  
 (IRB) at Towson University.

Your research is exempt from general Human Participants requirements  
 according to 45 CFR 46.101(b)(1). No further review of this project is  
 required from year to year provided it does not deviate from the submitted  
 research design.

If you substantially change your research project or your survey  
 instrument, please notify the Board immediately.

We wish you every success in your research project.

CC: Lyian Song  
 File

## Appendix C

## Pre-Module Self-Report Survey

Q1. Please provide the following information

Name

Email

Q2. What is your present academic rank?

- Professor
- Associate Professor
- Assistant Professor
- Lecturer
- Adjunct

Q3. Which of the below terms best describes your professional identity? (Select all that apply)

- Practitioner
- Instructor/Teacher
- Researcher

Q4. Have you ever taken an online course for credit?

- Yes
- No

Q5. Have you ever taught a blended or hybrid course?

- Yes
- No

Q6. Have you taught an online course before?

- Yes
- No

Q7. Did you complete any professional development activities for online instructors prior to teaching your online course?

- Yes
- No

Q8. Will you begin to instruct an online course before the completion of the workshop?

- Yes
- No

Q9. Which of the below influences your instructional practices? (Select all that apply)

- Previous learning experiences (k-12 through University courses and training)
- Adopted practices within my discipline
- Adopted the practices within my department
- Administrative policies
- Other (please specify)

Q10. Prior to beginning your academic career had you received any formal teaching preparation training?

- Yes
- No

Q11. Since starting your academic career have you pursued any formal training to enhance your instructional practices?

- Yes
- No

Q12. Please indicate your level of agreement with the following statements: - Online courses can achieve student learning outcomes that are at least equivalent to those of in person courses within your discipline.

- Strongly agree
- Moderately agree
- Neither agree nor disagree
- Moderately disagree
- Strongly disagree

Q13. Please indicate your level of agreement with the following statements: - Online courses can achieve student learning outcomes that are at least equivalent to those of in person courses within the courses I teach.

- Strongly agree
- Moderately agree
- Neither agree nor disagree
- Moderately disagree
- Strongly disagree

Q14. Please indicate whether you think the QUALITY of online courses for credit are generally better than, the same as, or are generally of lower quality than most in-person courses in the following ways: - Ability to deliver the necessary content to meet learning objectives.

- Better quality than in-person course
- Same quality as in-person course
- Lower quality than in-person course

Q15. Please indicate whether you think the QUALITY of online courses for credit are generally better than, the same as, or are generally of lower quality than most in-person courses in the following ways: - Ability to answer student questions.

- Better quality than in-person course
- Same quality as in-person course
- Lower quality than in-person course

Q16. Please indicate whether you think the QUALITY of online courses for credit are generally better than, the same as, or are generally of lower quality than most in-person courses in the following ways: - Interaction with students during class

- Better quality than in-person course
- Same quality as in-person course

- Lower quality than in-person course

Q17. Please indicate whether you think the QUALITY of online courses for credit are generally better than, the same as, or are generally of lower quality than most in-person courses in the following ways: - Interaction with students outside of class.

- Better quality than in-person course
- Same quality as in-person course
- Lower quality than in-person course

Q18. Please indicate whether you think the QUALITY of online courses for credit are generally better than, the same as, or are generally of lower quality than most in-person courses in the following ways: - Grading and communicating about grading.

- Better quality than in-person course
- Same quality as in-person course
- Lower quality than in-person course

Q19. Please indicate whether you think the QUALITY of online courses for credit are generally better than, the same as, or are generally of lower quality than most in-person courses in the following ways: - Communication with the college about logistical and other issues

- Better quality than in-person course
- Same quality as in-person course
- Lower quality than in-person course

Q20. Please indicate whether you think the QUALITY of online courses for credit are generally better than, the same as, or are generally of lower quality than most in-person courses in the following ways: - Ability to reach "at risk" students.

- Better quality than in-person course
- Same quality as in-person course
- Lower quality than in-person course

Q21. Please indicate whether you think the QUALITY of online courses for credit are generally better than, the same as, or are generally of lower quality than most in-person courses in the following ways: - Ability to reach "exceptional" students

- Better quality than in-person course
- Same quality as in-person course
- Lower quality than in-person course

## Appendix D

## Interview Instrument

1. In your opinion what you have learned from completing the *What's on Your Mind?* module?
2. Upon completion of the module, what inconsistencies did you identify between your current face to face practices and those needed for online instruction? Please explain.
3. Which activities do you think were most helpful in identifying these inconsistencies?
4. Upon completion of the module, what concerns did you identify that you may face when transitioning to online teaching due to your current beliefs or instructional practices? (please explain which of the module activities helped you come to this realization)
5. After completing the module, were you able to you identify solutions to address the areas of concern you mentioned previously? If so, what solutions did you identify and what solutions did you identify?
6. Throughout the module you were asked to reflect on and discuss your ideas, beliefs and concerns regarding the process of teaching and instructing within an online environment. How helpful were these reflection exercises? Please explain.
7. Faculty who are new to online instruction have thoughts and feelings about how effective, or easy it is to create and facilitate online courses. The module activities were designed to help you identify yours. What activities helped you the most with identifying or defining your attitudes, beliefs, and assumptions regarding teaching and learning within the online environment?"
8. Throughout the module you were asked to reflect on areas of dissatisfaction within your instructional practices and beliefs when considering teaching and learning within an online course. These areas of concern should be considered anything that could impact the success of your students and yourself. Which activities help you with identifying your areas of dissatisfaction?
9. The *What's on Your Mind?* module provides an opportunity for you to reflect on your current instructional practices and beliefs regarding what constitutes learning and teaching within both the face-to-face and online environments. After completing the module activities please share are your general thoughts about the module and its activities?
10. Why did you make the changes to the map?

## Appendix E

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**Title:** How a qualitative approach to concept map analysis can be used to aid learning by illustrating patterns of conceptual development

**Author:** Ian M. Kinchin, David B. Hay, Alan Adams

**Publication:** Educational Research

**Publisher:** Taylor & Francis

**Date:** Jan 1, 2000

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## Appendix F

## Exempt Research Cover Letter

My name is La Tonya Dyer and I am a doctoral student in Towson University Department of Educational Technology & Literacy. You are receiving this email because you enrolled in the [name redacted] Preparing Your Course for Online Delivery workshop. I would like to extend an invitation to participate in a dissertation research study. Through my research I intend to study the impact of conceptual conflict modules on the modification of conceptual beliefs of faculty regarding instructing within an online course. Your decision whether or not to participate in the project or to withdraw from the project at any time will in no way affect your participation in the [name redacted] Preparing Your Course for Online Delivery workshop. Participation in the study includes artifacts that you would have created when completing the *What's on Your Mind?* module and participating in a recorded online interview lasting approximately 30 Minutes.

It is hoped that the results of this study will provide useful information regarding how to best support faculty with identifying and addressing conceptual beliefs that may affect positively or negatively their ability to design and facilitate a successful learning experience for their students.

Your discussions, deliverables and answers to all questions will remain private and confidential. At no time will your name be revealed. The information gathered will be used to further refine and inform the study proposed by La Tonya Dyer.

If you have any questions about this project, please contact me at 443-604-9341, my faculty advisor, Dr. Liyan Song at (410) 704-5751, or the Chairperson of Towson University's Institutional Review Board for the Protection of Human Participants, Dr. Debi Gartland, at (410) 704-2236.

## Appendix G

## Informed Consent Form

You are being invited to participate in a research study, conducted by La Tonya Dyer, which seeks to study the impact of conceptual conflict modules on the modification of conceptual beliefs regarding instructing within an online course. Your decision whether or not to participate in the project or to withdraw from the project at any time will in no way affect your participation in the [name redacted] Preparing Your Course for Online Delivery workshop.

Participation in the study includes completing the *What's on Your Mind?* online module and participating in an online interview lasting approximately 30 Minutes. This interview will be recorded, unless otherwise requested by the participant. The *What's on Your Mind?* online module is intended to capture the current beliefs of faculty regarding what constitutes learning and teaching within both the face-to-face and online environments. During the online interview participants will be asked to discuss their conceptual beliefs regarding instructing within the environment and their experiences with the *What's on Your Mind?* online module. Questions asked include information about your experiences with the module and its impact on how you assimilated the information shared throughout the [name redacted] **Preparing Your Course for Online Delivery** workshop. Your participation is voluntary. There are no risks involved in participating in this project. Please be reminded that when completing the module or interview you can decline to respond to questions asked of you. At any point you also have the freedom to halt your participation at any time.

It is hoped that the results of this study will provide useful information regarding how to best support faculty with identifying and addressing conceptual beliefs that may hinder their ability to design and facilitate a successful learning experience for their students. Your discussions, deliverables and answers to all questions will remain private and confidential. At no time will your name be revealed. The information gathered will be used to further refine and inform the study proposed by La Tonya Dyer.

If you have any questions about this project, please contact me at 443-604-9341, my faculty advisor, Dr. Liyan Song at (410) 704-5751, or the Chairperson of Towson University's Institutional Review Board for the Protection of Human Participants, Dr. Debi Gartland, at (410) 704-2236.

I, \_\_\_\_\_, affirm that I have read and understood the above statement and have had all of my questions answered. I also affirm that I am 18 years or older and am participating in this research voluntarily.

(Date)

(Signature of Participant)

(Date)

(Investigator)

THIS PROJECT HAS BEEN REVIEWED BY THE INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN PARTICIPANTS AT TOWSON UNIVERSITY.



### Web Content Developer/Instructional Technologist

Developed websites and databases for departments and campus organizations;  
Coordinated and managed student E-Portfolio and web hosting services initiative;  
Developed training tutorials, user manuals and policies for website projects

### Teaching Experience

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Jan. 2011 – May 2011

University of Maryland University College,  
Adelphi, MD

Adjunct Assistant Professor, Computer  
Studies

Instructed online introductory computer science; Developed course activities and assessments

Aug. 2005 – Dec. 2009

Coppin State University, Baltimore, MD  
Adjunct Faculty, Management Science &  
Economics

Instructed online and face-to-face Management Science Technology Fluency course;  
Developed course lesson plans and assessments

### Presentations and Scholarship

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- Gold Reviews at Towson University: Keys to a Successful and Sustainable Launch; Quality Matters National Conference (2016)
- Gold Reviews at Towson University; Quality Matters Regional Conference (2016)
- Designing Customizable Orientation Activities for Online Learners SITE Conference (2016)
- Applying Conceptual Change Model in the Professional Development for Online Faculty; SITE Conference (2016)
- Dyer, L.T., Song, L. (2016). Applying Conceptual Change Model in the Professional Development for Online Faculty. In G. Chamblee & L. Langub (Eds.), Proceedings of Society for Information Technology & Teacher Education International Conference (pp. 668-671). Savannah, GA, United States Association for the Advancement of Computing in Education (AACE)
- Dyer, L. T., & Wang, Z. (2016, March). Orienting Students to the Online Learning Environment: Guidelines for Instructional Designers. In Society for Information Technology & Teacher Education International Conference (pp. 1995-2001). Association for the Advancement of Computing in Education
- Macaulay, L. Dyer, L. (November 2011) Interactive Web Conferencing Brings Big Benefits to the Online Classroom

