The Multifaceted Endeavor of Online Teaching: The Need for a New Lens

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Abstract With the consistent demand and increase in online courses offered in higher education, more faculty are teaching online. In order to design and develop faculty development, research has employed several common frameworks: the technological, pedagogical, and content knowledge (TPACK) framework (The Teachers College Record, 108(6), 1017–1054, 2006), the community of inquiry (CoI) (Journal of Asynchronous Learning Networks, 5(2), 1–17, 2001), and Chickering and Gamson's (American Association for Higher Education Bulletin, 8, 1987) seven principles for good practice in undergraduate education. The needs for technology training and changes in pedagogy/andragogy have been highlighted using these three frameworks. This chapter recommends the use of flow theory, from positive psychology, as a framework to guide future research in online teaching, especially with a focus on the experience of the online instructor. Flow theory encompasses both the cognitive and affective domains and can provide a more complete picture of the faculty experience. The broader, integrated picture of online teaching provided by flow theory will inform the design of more effective and focused professional development to support faculty as they transition from a novice to an expert online instructor.

Keywords Online teaching • Flow theory • CoI • TPACK • Faculty development

Rebecca is an instructional designer at a 4-year university tasked with designing new professional development for faculty who are teaching online. Her institution is at the end of a major initiative to create at least one online program in each college and offer at least one section of the general education courses online. More faculty than ever are using the learning management system (LMS), participating in the more advanced workshops, and other professional development opportunities. In fact, the numbers in the introductory workshops are dwindling. It was time to take to the next step.

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Throughout the initiative, data was collected in the form of LMS usage of both students and faculty; faculty workshop attendance; workshop feedback from the faculty; standard course evaluations from students; student achievement; and the online course evaluation from students. It was clear to Rebecca, looking at the various reports in front of her, that some of the faculty members were consistently successful while others struggled. One question came to mind, "What are the successful faculty doing differently?"
She knew each of the faculty who were successful. These were the ones that had jumped in early and had been teaching online for longer than most. But was it just time? Perhaps they had more skills in the areas outlined by the technological, pedagogical, and content knowledge (TPACK) framework (Mishra & Koehler, 2006). Perhaps they were better at creating the various presences described in the community of inquiry (CoI) model (Anderson, Rourke, Garrison, & Archer, 2001). Or maybe it was related to the training done in previous years based on Chickering and Gamson's seven principles for good practice in undergraduate education (1987). Most likely it was all of the above, but there was something more in these faculty who had taken "the next step;" who had, according to the data become experts. Now all she had to do was figure out what was unique for these instructors and how to help all faculty become like these experts.

Introduction

Online learning has experienced a fairly consistent growth over the last decade, with 66 % of higher education institutions recently reporting that online education remains critical to their long-term strategy (Allen & Seaman, 2014). In addition, 74 % of chief academic officers consider the learning outcomes for online courses to be "as good as or better" than traditional face-to-face courses (Allen & Seaman, 2014). Despite this apparent confidence in online education, researchers continue to report "compromised quality in online courses" as one of the top concerns of faculty, administration, and the general public (Hopewell, 2012; Verene, 2013; Windes & Lesht, 2014).

In higher education, faculty bring with them a variety of teaching experience and training (LoBasso, 2013), resulting in teaching practices generally based on how they were taught (Lane, 2013). In teaching their first online course, faculty report a need to change some of their practices (Crawley, Fewell, & Sugar, 2009; Kukulska-Hulme, 2012; McQuiggan, 2007). With online education relying so heavily on technology, the most commonly requested topic for faculty development is technology skills (Arinto, 2013; Barczyk, Buckenmeyer, & Feldman, 2010; Betts, 2014; Lane, 2013; Windes & Lesht, 2014). Faculty development can be designed to improve technology skills; however, if it only disseminates information or focuses on specific skills, it will not challenge prior "attitudes, beliefs, and assumptions" (McQuiggan, 2007). In order to design professional development that encourages a transformational change, it "must focus on how technology

applications, new pedagogies, and content knowledge are interwoven" (Benson & Ward, 2013, p. 488).

Online teaching is a complex endeavor at the intersection of technology, content, and pedagogy/andragogy (Ward & Benson, 2010). In addition to the complex integration of these various areas, there is a constant change in technology, and an inherent iterative process that should be considered, not just an ill-structured problem, but a "wicked problem." As with other "wicked problems," there is no exact right or wrong answer or solution; and the process of exploring the problem is likely to significantly transform the problem through the iterative design stages and processes (Seitamaa-Hakkarainen, 2011).

In designing faculty development, both the perceived needs and the actual needs of the faculty ought to be considered (Betts, 2014). In addition to the request for technology training (Davis, 2009; Lazarevic, Bentz, & Scepanovic, 2010; Lee & Tsai, 2010), faculty consistently report concerns about the time required to teach online (Betts, 2014; Mandernach, Hudson, & Wise, 2013; Windes & Lesht, 2014). With research indicating the need to transition from a teacher-centered classroom to a student-centered one (Palloff & Pratt, 2011), there is a need for greater transformational change in knowledge, skills, attitude, and beliefs about teaching online (Conceição, 2006; Lane, 2013; McQuiggan, 2007).

Theoretical Frameworks

Theoretical frameworks provide a way to "systematically study the phenomena under question" and "allows us to make predictions" (Punya, 2014). A number of theoretical frameworks are used to guide the research in online teaching. In terms of online teaching, three frameworks stand out; they are the technological, pedagogical, and content knowledge (TPACK) framework (Mishra & Koehler, 2006) for its multidimensional view of the overlapping skills required to teach online; the community of inquiry (CoI) (Anderson et al., 2001) for its focus on overcoming the lack of physical presence in the online environment; and Chickering and Gamson's (1987) seven principles for good practice in undergraduate education for its continued longevity and focus on teacher interactions.

Technological, Pedagogical, and Content Knowledge Framework

The technological, pedagogical, and content knowledge (TPACK) framework attempts to address the complex relationships evident in educational technology across all learning environments (Mishra & Koehler, 2006). "The TPACK framework…suggests that content, pedagogy, and technology play unique and interactive roles in the teaching and learning process" (Ward & Benson, 2010, p. 484). TPACK is a model that focuses developing expertise in six specific areas: technological knowledge, technological content knowledge, content knowledge, pedagogical content knowledge, pedagogical knowledge, and technological pedagogical knowledge (Fig. 1).

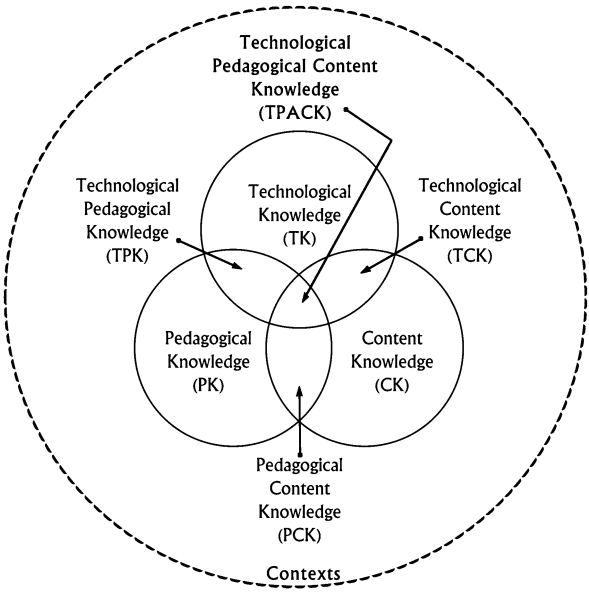

Fig. 1 TPACK Model illustrating the intersection of the three areas of knowledge needed to teach online. Reproduced by permission of the publisher, © 2012 by tpack.org

The focus of the TPACK model is in the cognitive domain, specifically building knowledge in the six areas. This focus on knowledge does not include attitudes, beliefs, motivation, or other aspects of the affective domain. Kinchin (2013) states that there is a depth in the model, which is often missed when the focus is on the individual areas. This depth is one of the strengths of the TPACK model, encouraging critical thinking about the intersection of these three domains and how they can work together in an online course (Ward & Benson, 2010). As stated by Ward and Benson (2010) "changes in learning online are not just *about the technology* but about a much more complex and 'wicked problem'" (p. 483). The TPACK framework integrates technological skills with pedagogical and content knowledge to reframe traditional thinking about teaching and learning.

Community of Inquiry

According to Rubin, Fernandes, and Avgerinou (2013), "Successful online courses create a community of inquiry (CoI) where students interact with one another, the instructor, and the learning materials to develop new knowledge and skills" (p. 49). The CoI framework was developed to guide research in online courses and suggests that a community of inquiry occurs at the intersection of three types of presences—social, teaching, and cognitive (Anderson et al., 2001). Eskey and Schulte (2012) state that "the perception of faculty presence has been cited by many research studies as one of the most important determinants of student satisfaction with online learning" (p. 4), supporting the use of the CoI framework. In alignment with the

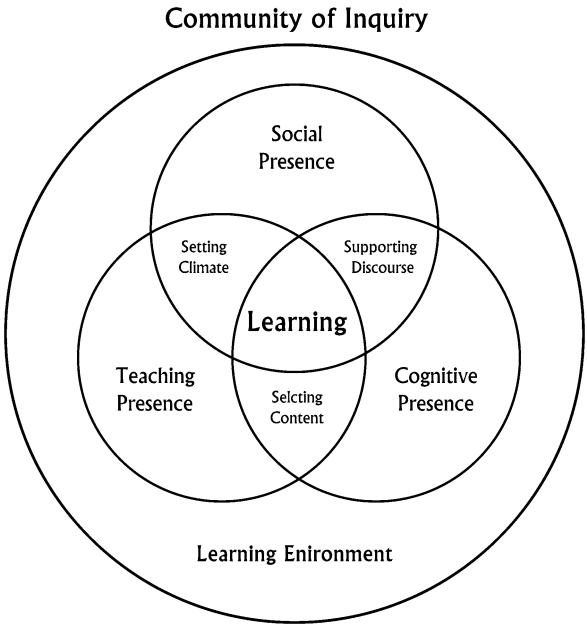

Fig. 2 The Community of Inquiry Model illustrating the intersection of the three presences within a learning environment described by the model. Adapted from Garrison, Anderson, and Archer (2010)

recommendation that online courses have a student-centered, constructivist approach to learning (Palloff & Pratt, 2011), the three areas of presence can be found in either the instructor or student (Fig. 2).

Social presence. A large amount of the initial research using the CoI framework focused on social presence (Garrison & Arbaugh, 2007). In the early years of online education, the limitations of technology emphasized the distance created when faculty and students are not located in the same place at the same time (Hoskins, 2013). As Vygotsky (1978) observed, learning is a social activity, with interaction between faculty and students vital to the learning process. Concerns about student interaction in online learning continue to be reported (Shachar & Neumann, 2010).

Teaching presence. Teaching presence has historically been divided into the following three components: (1) instructional design and organization, (2) facilitating discourse, and (3) direct instruction (Anderson et al., 2001).

Instructional design and organization. A number of institutions have created a team-based course development process based on adopted standards or guidelines in order to support faculty and ensure the quality design of online courses (Hawkes & Coldeway, 2002). As such, faculty may or may not have control or influence on the design of their course (Hawkes & Coldeway, 2002).

Facilitating discourse. The majority of research on teaching presence has thus focused on the discussion board (Shea, Hayes, & Vickers, 2010). The discussion board was a key technological tool that made student–student interaction possible and moved distance courses based on CD-ROMs and television to an asyn-

chronous online setting (Hoskins, 2013). Using two undergraduate courses based on the same instructional design template, with different instructor approaches to direct instruction, facilitation and social presence, Shea et al. (2010) looked for evidence of teaching presence of two sections of an upper-level online business management course taught by two different instructors in all areas of the courses, such as email, instructional materials, discussion forums, and private feedback. The authors reported that 80–90 % of their subjects' teaching presence occurred outside the discussion boards, indicating that previous research may underrepresent teaching presence.

Direct instruction. While obvious in a traditional classroom setting, online "direct instruction" is when an instructor guides, focuses, and redirects students in the subject matter of the course (Anderson et al., 2001). Shea, Pickett, and Pelz (2003) found that there was no real distinction between facilitating discourse and direct instruction. The authors surmised that students may not perceive a difference and recommended the two components be combined into *facilitated instruction*. Garrison (2007) indicated that the difficulty may be due to the high correlation between the factors or reflective of the design and individual instructor's approach to the course (Garrison et al., 2010).

Cognitive presence. According to Garrison (2007) the process of inquiry that exemplifies the cognitive presence is the student moving from exploration, to integration, and concluding with application. Spiro (2012) reports that very seldom does the student move past the exploration stage. Possible solutions, both suggested and hypothesized, tend to fall into the area of teaching presence (Redmond, 2011; Rienties, Giesbers, Tempelaar, & Lygo-Baker, 2013).

Cognitive presence has been the least researched and one of the more difficult areas to examine (Akyol & Garrison, 2008; Garrison, 2007). Rourke and Kanuka (2009) suggest that the lack of evidence may indicate a problem with the CoI framework. However, other suggestions point to issues with course design or facilitation (Akyol & Garrison, 2008; Rourke & Kanuka, 2009).

Chickering and Gamson's Seven Principles

One set of principles consistently used in undergraduate education is Chickering and Gamson's (1987) seven principles for good practice in undergraduate education (Bigatel, Ragan, Kennan, May, & Redmond, 2012; Cakiroglu, 2014; Calsolaro Smulsky, 2012). When incorporating technology, Chickering and Ehrmann (1996) suggest that technologies can be employed in line with the seven principles to fully realize their potential.

The seven principles state that good practice in undergraduate education (Chickering & Gamson, 1987)

1. Encourages contact between students and faculty.
2. Develops reciprocity and cooperation among students.

3. Encourages active learning.
4. Gives prompt feedback.
5. Emphasizes time on task.
6. Communicates high expectations.
7. Respects diverse talents and ways of learning.

These seven principles center on communication and interaction of faculty with their students. Calsolaro Smulsky (2012) described two different instruments used to evaluate student–faculty interaction based on the seven principles—the National Survey of Student Engagement (NSSE) and the Student Evaluation of Online Teaching Effectiveness (SEOTE). In reviewing the results, it became clear that even though both instruments were based on the seven principles, one instrument measured student satisfaction while the other measured students perceptions of frequency of interaction (Calsolaro Smulsky, 2012).

Arbaugh and Hornik (2006), in looking at online MBA students' experience, stated that the seven principles "provide additional support for the idea that the interpersonal and behavioral aspects of conducting business courses online may be more important than technological prowess for producing a positive learning environment" (pp. 13–14). However, the researchers struggled to empirically connect "Chickering and Gamson's seven principles of effective undergraduate instruction to graduate-level web-based courses" (p. 14).

The seven principles have also been used in the development of an online faculty peer review instrument (Taylor, 2010). In modeling the common practice of faculty peer review in traditional courses, the instrument provided guidelines to find evidence of each of the principles in reviewing an online course; this is limited to only the evidence found within the LMS.

The seven principles for good undergraduate education are good guidelines that focus on the communication between faculty and students. The variety of instruments illustrates the difficulty in measuring these principles. In addition, the focus on communication excludes other factors involved in online teaching, such as the course design.

Summary of the Strengths of the Frameworks

Each of the frameworks discussed adds to our understanding of online teaching. However, no single framework can provide all the answers (Mishra & Koehler, 2006). The TPACK framework provides solid descriptions of content areas and the need for each to integrate and inform each other. The CoI framework identifies three essential elements of presence in an online educational exhibited by both instructors and students. The seven principles focus on the interaction and engagement, bringing a focus to the delivery of a course.

Online teaching is multifaceted, and as the CoI and TPACK frameworks attempt to illustrate, the intersection of pedagogy/andragogy, technology, content, cognitive, social and instruction components is a significant aspect to consider. There is a

Table 1 Comparing Three Frameworks for Online Teaching: TPACK, CoI, and the Seven Principles

TPACK	CoI	Seven Principles
CK—Content Knowledge	(Selecting Content)[a]	
PCK—Pedagogical Content Knowledge	Cognitive Presence (Supporting Discourse)	(3) Encourages active learning.
		(7) Respects diverse talents and ways of learning.
PK—Pedagogical Knowledge	Teaching Presence (Setting Climate)	(1) Encourages contact between students and faculty
	Social Presence	(2) Develops reciprocity and cooperation among students.
		(4) Gives prompt feedback.
		(5) Emphasizes time on task.
		(6) Communicates high expectations.
TK—Technological Knowledge		
TPK—Technological Pedagogical Knowledge		
TCK—Technological Content Knowledge		

[a]The items listed in parentheses are the intersections of the three presences identified by the CoI model

need to step back, embrace the "wicked problem" (Ward & Benson, 2010) of online teaching and seek out additional perspectives to provide a better understanding of the whole picture. In addition, Eskey and Schulte (2012) reaffirm that "online instructors are an extremely important component of online student success" (p. 9), and, as such, their experience should be central in creating faculty development. As McQuiggan (2007) and Anderson (2012) recommend, in addition to developing skills and expertise, research needs to also address beliefs, attitudes, and assumptions about online.

Table 1 aligns the components of these three frameworks beginning with the knowledge identified by the TPACK framework. The majority of the aspects of all three frameworks fall within the pedagogical knowledge areas, with technological knowledge only represented by the TPACK framework. Despite the fact that technology is the most requested topic for faculty development (Arinto, 2013), only one of the three frameworks explored addresses this area. In addition, amidst the skills, knowledge, and strategies these frameworks focus on, attitudes, beliefs, motivations, and other emotional factors are missing.

Rebecca looked at the data sitting in front of her, the mix of quantitative and qualitative data focused on student perceptions and faculty behaviors. The attitudes, beliefs, assumptions, and motivational factors of the faculty were missing. How could she better capture this information in order to design professional development to create the transformational changes needed to help faculty move to the next step?

Flow Theory

Flow theory provides a framework for the optimal experience, one which equally integrates the cognitive and the affective domains (Schweinle, Turner, & Meyer, 2008). The focus of education has traditionally been on the cognitive domain, with tasks and objectives centered on learning facts, developing skills, and hopefully thinking critically (Csikszentmihalyi, 1995). In addition to the foundation of the cognitive domain, research has shown that the affective domain (Hartnett, George, & Dron, 2011; Keller, 2011; Vansteenkiste, Lens, & Deci, 2006) is equally important in education.

Csikszentmihalyi's Flow Theory is the result of years of research exploring the optimal experience across people of all ages, cultures, economic status, and gender (1990). The data identified nine criteria that were consistently reported as common characteristics of the optimal experience (Csikszentmihalyi, 1990). These moments become worth doing, simply for the sake of the activity, in a word—autotelic (Csikszentmihalyi, 1997a).

The following criteria describe the feeling of flow, or the optimal experience (Csikszentmihalyi, 1997b):

1. Goals are clear.
2. Feedback is immediate.
3. A balance of skill and challenge.
4. Deep concentration.
5. Problems are forgotten.
6. Control is possible.
7. A sense of transcendence.
8. Awareness of time is altered.
9. The experience becomes autotelic, or worth having for its own sake.

Flow theory is at the heart of positive psychology (Seligman & Csikszentmihalyi, 2000). Historically, psychology research has focused on the "disease model," wherein a solution is sought to solve a problem (Seligman & Csikszentmihalyi, 2000). Positive psychology seeks to draw upon the strengths of individuals (Seligman & Csikszentmihalyi, 2000). Scholarship in teaching and in faculty development has struggled with the general research approach to find a "problem" (Potter, 2010). It is a professional risk to focus on "problems" in teaching (Potter, 2010). This perspective of positive psychology identifies optimal experiences and can help to identify the characteristics, contexts, and emotions evident in a quality online teaching moment from the faculty perspective.

The optimal experience or flow has been used to study many areas including education students (Min, 2013; Mustafa, Elias, Roslan, & Noah, 2011; Shernoff & Csikszentmihalyi, 2009; Shernoff, Csikszentmihalyi, Shneider, & Shernoff, 2003; Shernoff & Schmidt, 2008; Stephanou, 2011). In addition, flow is very apparent in computer, gaming, and internet use (Chen, 2006; Coller, Shernoff, & Strati, 2011; Procci, Singer, Levy, & Bowers, 2012; Reese & Tabachnick, 2010; Voiskounsky, 2008).

In addition flow has been studied in various computerized learning environments (Bachvarova, Bocconi, van der Pols, Popescu, & Roceanu, 2012; Beylefeld & Struwig, 2007; Burgess & Ice, 2011; Cooper, 2009; Scoresby & Shelton, 2011). However, there is little research using flow theory in online learning within an LMS specifically addressing the experience of the instructor.

In the educational context, flow has been shown to be a positive influence on learning (Liao, 2006; Sun, Tsai, Finger, Chen, & Yeh, 2008; Weibel, Stricker, & Wissmath, 2012). Gunderson (2003) reported that an instructor in flow promotes students in flow, in alignment with what Csikszentmihalyi (1997b) described as an ideal learning environment. In studying online students, Shin (2006) reported that flow significantly predicted student satisfaction. Meyer and Jones (2013) also reported online students experienced flow; however, flow was reported more often in the non-class setting than when they were "in class." Min (2013) in researching traditional undergraduate students' experience in their course work found that the type of activity (analytical, intuitive and repetitive, or creative) influenced their flow experiences, with repetitive and creative tasks promoting more occasions of flow.

Flow has traditionally been studied using experience sampling method (ESM) to measure three key conditions of flow—skill, challenge, and either interest, enjoyment, or the desire to be doing the activity (Hektner, Schmidt, & Csikszentmihalyi, 2007). Measurements can either be taken randomly when signaled, or after specific events. ESM captures data closest to the moment of occurrence, without the intrusion of an observer and minimizes the loss of information due to global recall (Hektner et al., 2007). While not intrusive due to an observer, ESM is an intense method of data collection that requires the participants to stop when signaled and respond to a questionnaire about the current situation. This type of interruption would be harmful if participants were truck drivers or heart surgeons, due to the nature of their work. While large studies (Csikszentmihalyi, 1990, 1997a; Delle Fave & Massimini, 2003; Nakamura & Csikszentmihalyi, 2002) have used ESM in educational settings, the focus has been mainly on the students. While not harmful in the same sense as with the surgeon, teaching moments are easily lost and ESM surveys interrupt teaching to the detriment of the students. Previous studies which have explored the experience of flow in instructors have relied on general surveys, videotapes, and interviews, moving the moment of data collection away from the moment of flow (Gunderson, 2003; Hektner et al., 2007; Livingston, 2011). The asynchronous nature of online teaching minimizes the concerns of using ESM in the traditional classroom, making it an ideal methodology to capture data closest to the moment of occurrence.

Hektner et al. (2007) reported that one condition of the flow experience, the balance of skill and challenge, has shown to consistently predict the other characteristics of flow. Flow is at the intersection just above a perfect balance of skill and challenge. This is similar to the zone of proximal development (ZPD) described by Vygotsky (1978). According to Vygotsky (1978) learning happens when the situation is located just outside an individual's ability to function on their own, thus requiring another to enable their learning and forward progress. Csikszentmihalyi (1997a) describes this zone as a "magnet for learning" (p. 33). It is in this area

where faculty workshops and training need to focus in increasing both skills and challenges to improve the development of the online instructor.

The use of flow theory and ESM to study the experience of online teaching from the perspective of the faculty will provide additional information for an integrated picture of online teaching to include the affective aspects of attitude, beliefs, motivation, and emotional engagement. This new lens and methodology will also capture moments related to online teaching outside normal working hours and outside of the LMS. It will also focus on the faculty experience, including both the cognitive and affective factors involved in online teaching. Research using flow theory and ESM methodology will help to identify expert online instructors in flow. By studying these optimal experiences, professional development can then be created to support all faculty in "taking the next step" and becoming experts.

Conclusion

Online learning has become a permanent part of higher education. With the demand for online courses increasing and online learning becoming a more integral part of institutions' long-term strategic goals (Allen & Seaman, 2014), more faculty will need to teach online. Flow theory is recommended as a guide for future research, to add the affective components of online teaching to the current body of research using other frameworks. Flow theory provides an integrated framework to identify the optimal experience, across the domains of the cognitive and the affective, from the faculty perspective in teaching online. With a better, broader, and integrated picture, more effective and focused professional development can be designed to support quality online teaching for novice and experienced faculty.

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