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Designing Online Courses in Teacher Education to Enhance Adult Learner Engagement

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Online courses are now a significant part of the higher education landscape. Faculty awareness of the needs of the changing population served, the inherent challenges in learning online, and the importance of enhancing student engagement are of paramount importance to successful online course design. Knowledge of theory and research in adult learning and student engagement, as well as Communities of Inquiry, provide a foundation for understanding teaching and learning in this context. This foundational knowledge has been synthesized in this article into a framework of critical components for engagement of adult online learners that can be used to inform development of online course assignments and activities that maximize student engagement and learning. A tool for embedding the critical components for student engagement is provided to support instructors' development of online courses.

With the advances in technology, colleges and universities have moved toward online course delivery to more efficiently disseminate programs and to provide greater access through distance education. Online courses are now a significant part of the higher education landscape, with colleges and universities across the United States (US) continuing to increase online course offerings. According to a report of distance education enrollment at US institutions of higher education (IHE), the rate of increase in the percentage of students learning online was 9.6% in 2002 and up to 29.7% in 2015 (Allen & Seaman, 2017). Furthermore, of the students who took at least one online course, 48.2% of the students were exclusively taking online courses (Allen & Seaman, 2017).

This increase in online education has resulted in a substantial change in faculty responsibilities in course design and instruction. Not only must faculty become proficient in using the requisite technology, but they must also conceptualize their course design and instruction for the online environment. Technological innovation challenges adult educators to refine instructional practices in order to engage online learners and best support their professional growth and development (Cercone, 2008). Not surprisingly, Allen and Seaman (2013) indicated that 44.6% of faculty agreed that teaching an online course takes more time and effort than a face-to-face course.

As IHEs shift in the medium of instruction from face-to-face to online environments, concern has been expressed about the quality of student learning outcomes in online courses. Although perceptions of the quality of online instruction vary, findings reveal that student learning outcomes are largely similar between the two modes of course delivery (Robinson & Hullinger, 2008; Shea, Hayes, & Vickers, 2010). However, higher first year drop-out rates have been associated with online courses (Kahu, Stephens, Leach, & Zepke, 2015), making retention and completion a concern. Understandably, students' perceived and actual learning outcomes, as well as satisfaction with online education, have received much attention in the literature. The purpose of this article is to integrate research, theory on student engagement and adult learning, and the Communities of Inquiry framework (CoI; Garrison, Anderson, & Archer, 2000) into the design of online courses for learners in the field of education (i.e., pre-service and in-service teachers).

Online Learner Characteristics

In the findings from a national survey of online students, Clinefelter and Aslanian (2016) reported that only 26% of online graduate students are below 25 years of age. Adult learners aged 25 and older are primarily enrolled in degree programs. In addition, an increasing number of individuals are completing their initial teacher licensure programs through post baccalaureate or master's degree programs, with many attending programs that are partially or fully online (AACTE, 2013).

Yoo and Huang (2013) reported the primary motivation of adult learners enrolling in online courses was career-related, i.e., to advance in their current career or prepare for a career change. A major factor impacting their choice of online learning was the opportunity for balancing their family and work responsibilities with their education. Being able to study anytime and any place was very important to them, as was the convenience of the course formats. There were, however, features of online education that concerned adult learners. Aslanian and Clinefelter (2012) reported the following concerns that made up 81% of those reported by respondents on a national survey: (a) lack of direct contact with their classmates and instructor, (b) inconsistent or inadequate communication with instructor, and (c) difficulties related to motivation, attention, or focus.

Park and Choi (2009) reported that course design strategies and student motivation were critical for student participation, interest, and engagement in an online course. Jackson, Jones, and Rodriguez (2010) indicated that poor course design was found to have a negative impact on students' behavioral engagement in a course. Specific faculty behaviors that were associated with students' perceived satisfaction and course value were the timeliness of instructor feedback, instructor availability, clearly stated expectations, instructor enthusiasm, and creating a positive, comfortable course climate.

Mazer (2013) claimed that specific instructor practices in course design and instruction resulted in increased student emotional interest and were a strong predictor of student engagement and learning. Faculty-student interactions most predictive of a student's perceived satisfaction with a course were, in order of most to least: (a) the opportunity for questions and provision of satisfactory answers; (b) a positive sense of the instructor's presence in the course; and (c) support and management of course content, including feedback from the instructor (Kang & Im, 2013). It is apparent that understanding and employing the necessary types and levels of interactions to support student engagement are clearly an imperative regardless of the medium of instruction.

Theoretical Frameworks

Arghode, Brieger, and McLean (2017) found that all facets of online instruction for adult learners have not been accounted for in a single theory and that components of different theories may be useful when examining online learning and course design. With the shift towards online learning, several theories have emerged that seek to explain the complexities within online learning environments, such as connectivism (Siemens, 2004) and generativism (Carneiro, 2010). Connectivism extends the learner's opportunities to form connections and make meaning based on information obtained from virtual communities and other entities which may be non-human (e.g., databases or information sets). There is emphasis on the individual as the main locus in the learning process. Generativism has a social learning focus within technology rich environments and emphasizes that the learner produces new knowledge by deriving new meaning from experience (Carneiro, 2010). Although these more recent theories have been developed in response to a shift from more traditional face-to-face instruction to online learning environments, the foundational premise of what influences adult learning continues to have relevance for the adult learning experience (Tainsh, 2016) in the context of teacher education. Thus, we have drawn on the frameworks of student engagement (Kahu, 2013), adult learning theory (Knowles, 1980), and CoI (Garrison et al., 2000) in the conceptualization of an instructional design framework and course instructional design tool for use in creating or improving existing online courses to enhance the engagement of adult learners

Student engagement framework. The extant literature is replete with the importance of student engagement as a significant factor influencing student outcomes. In a study linking emotions to student engagement, Kahu et al. (2015) found factors that positively impacted student engagement included (a) personal interest in the topic, (b) course content aligning with their life, and (c) choice in assignment topics to include their interests. Strong correlations have also been found between student satisfaction and high levels of student-faculty and student-student interactions (Shea et al., 2010). Positive outcomes correlated with student engagement include "achievement, satisfaction, and retention" (Kahu et al., 2015, p. 481).

There are many conceptualizations of engagement in the literature. In response to concerns regarding the risk of using a simplistic, one-dimensional perspective of student engagement, Kahu (2013) developed a conceptual framework that identified the factors impacting student engagement. Kahu's framework has the student at the center with two dimensions: those that are external to the student and related to their IHE program (e.g., course instruction, faculty, support, and workload) and those that are internal to the student (e.g., motivation, skills, identity, and self-efficacy). In this framework, student engagement itself has three facets: (a) affect, including enthusiasm, interest, and sense of belonging; (b) cognition, including deep learning and self-regulation; and (c) behavior, including time and effort, interactions, and participation. Regardless of the perspective, student engagement is clearly complex, dynamic, and situation specific, and it varies across contexts (Kahu, 2013). This is especially significant for today's online adult learners whose unique needs have been conceptualized through theories reflecting adult learning.

Adult learning theory. Knowles (1980) described six core principles of adult learning theory which included (a) learners' need to know, (b) self-concept, (c) prior experience, (d) readiness to learn, (e) learning orientation, and (f) motivation to learn. Caruth (2014) summarized Knowles' six principles and suggested that engaging adults would more likely occur if learning were directly applied to an individual's life. Learners' engagement is enhanced when learning is purposeful, and the utility of knowledge and skills drives their need to know. Immediacy of application and relevance of knowledge and/or skills may influence the learner's investment in their learning, and consequently, they may be more apt to persist and initiate efforts to acquire

information. As learners mature, they develop a self-concept based on autonomy (i.e., the desire to act independently) and self-direction (i.e., the desire to select learning opportunities that are applicable to their lives) (Ozuah, 2005).

One distinction that characterizes adult learners is that life experiences influence their thinking and contribute to their developing frames of reference (Snyder, 2012). Learners' prior experiences can serve as resources for learning and influence how they respond to events (Knowles, 1975). The connections made between new learning and prior experiences may lead to application and deeper critical thinking since the learner has a frame of reference from which to draw upon. Conversely, prior experiences can also inhibit learning as the learner may reject new ideas that challenge or differ from existing personal beliefs or views that are strongly ingrained in his or her ways of thinking and knowing. Receptivity to learning may occur when the individual recognizes the need for additional knowledge or skills to meet the challenges that they are facing.

Knowles, Holton, and Swanson (2015) recognized that adult learners' readiness to learn is fueled by life events requiring them to solve problems that arise in their personal or professional lives. Thus, a learning orientation that is problem-centered and situated within relevant contexts has potential to actively engage adult learners and sustain their interest and motivation to learn. Personal goals, interests, attitudes, and beliefs that drive internal motivation may compel the individual to seek sources of information and engage others. Ultimately, these self-initiated experiences enable the individual to develop more effective problem-solving skills (Caruth, 2014).

Community of Inquiry (CoI) Framework. The CoI Framework (Garrison et al., 2000) including three dynamic structural elements—(a) social presence, (b) cognitive presence, and (c) teaching presence—has been used to examine online and blended learning environments. Social presence emphasizes the development of group cohesion and participants' ability to openly communicate their thoughts and emotions. Indicators of social presence were categorized as: (a) emotional expression, (b) open communication, and (c) group cohesion. Group cohesion includes activities that build, as well as those that sustain, a sense of commitment to the group. Furthermore, cognitive presence highlights students' critical thinking in order to construct meaning through interactive learning activities. Finally, the element of teaching presence has a central role within the CoI model in enhancing social and cognitive presence. Indicators of teaching presence include: (a) instructional management, (b) building understanding, and (c) direct instruction. The construct of direct instruction in this framework includes a wide range of teaching and administrative activities, including (a) presenting content, (b) scaffolding learning experiences, (c) conducting assessments, (d) providing feedback, and (e) responding to technical concerns (Akyol & Garrison, 2008). The CoI model stresses the importance of instructors designing and facilitating a learning environment that provides both instruction and activities that foster critical discourse.

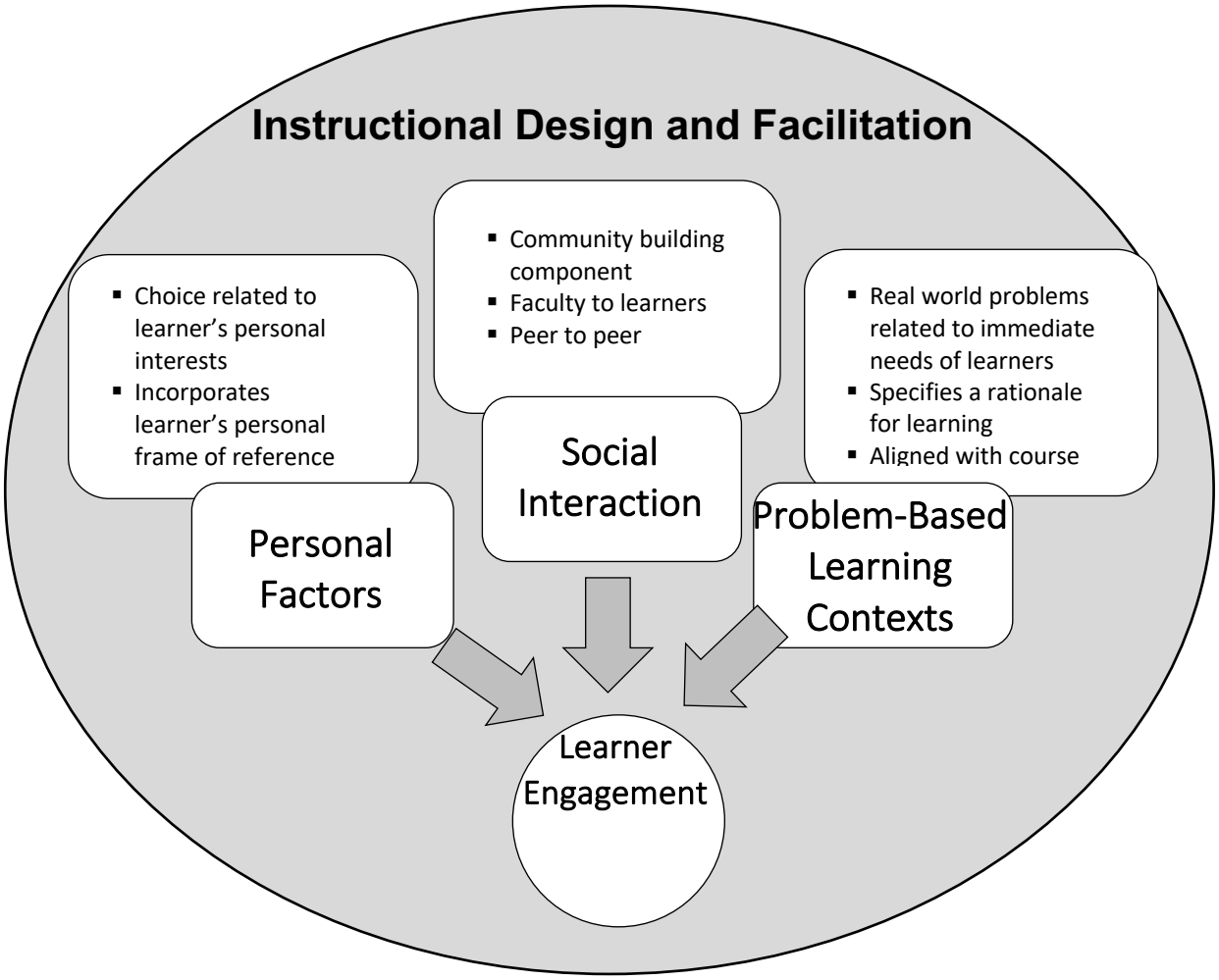
Shea and Bidjerano (2010) suggest an additional dimension of learning presence, which reflects the learners' self-regulation and self-efficacy and which extends the CoI framework. Research has indicated an interconnectedness between the three presences: social, teaching, and cognitive. Shea and Bidjerano (2010) reported that the establishment of social presence was contingent upon the establishment of teaching presence and that teaching presence was predictive of perceptions of cognitive presence.

Instructional Design and Facilitation

The instructor's role. The instructor has a vital role in structuring learning activities to maximize learners' engagement and interaction with material and with others. Thoughtfully designed activities and assignments can provide substantive and provocative learning opportunities that ignite learners' interest, desire, and motivation to delve deeply into content. The principles of adult learning (Knowles, 1980) and student engagement (Kahu, 2015) provide the foundation for design of robust learner-centered activities. Our proposed design framework draws from the CoI Framework, which underscores the direct relationship between learner engagement (i.e., cognitive and social presences) and teaching presence. The focus for this article is to provide a means for activating and sustaining learner engagement by establishing a strong "teaching presence" in online course design.

As instructional faculty we have been tasked to develop and design numerous courses for online delivery. Arghode et al., (2017) acknowledged a need for more qualitative studies to explore instructors' use of theoretical principles to improve online learning. As we each struggled to translate theory into practice, we recognized the need for conceptualizing a practical instructional design tool to facilitate the design process. Caruth (2014) purports that major design steps applicable to online instruction include establishing a learning climate that values trust, support, collaboration, and respect, as well as aligning course content with learners' needs. Based on our examination of the research on online teaching and learning, three critical components—personal factors, social interactions, and problem-based learning context—appeared foundational for guiding instructional design and facilitation to maximize engagement of our students and to achieve desired course outcomes (See Figure 1).

Figure 1
Instructional design and facilitation to enhance student engagement.



Personal factors. Personal factors are at the core of learning experiences. In terms of a learner's self-concept, in adulthood there is an increasing tendency toward self-direction and independence in decision making and problem solving. Encouraging adult learners' active involvement is critical and providing them with opportunities for self-directed learning (e.g., mutually identifying with the instructor how learning objectives will be met and assessed; self-monitoring and self-evaluation of progress) further strengthens their course experience. The adult learner's proclivity towards self-direction is aligned in many respects with the demands of learning in an online course where the structure and nature of the course may require self-managing different aspects (e.g., viewing critical resources and materials, engaging in group online discussion, completion of group and/or individual assignments, etc.).

Drawing from adult learners' background and prior experiences can serve both to personalize and validate a learning experience. All facets of an individual's perspective—their expertise, talents, and personal interests—can support development as a teacher. Providing opportunities for adult learners to reflect and draw upon their existing frames of reference allows them to apply information in personally meaningful ways. This promotes their retention and use of information.

Adults' intrinsic motivation to learn is high when they are problem-solving real-life situations and involved in defining the focus of their learning (Caruth, 2014). Sogunro's (2015) study identified factors that contributed to adult learners' motivation, which included relevance, pragmatism, and self-directedness (i.e., learner's autonomy). The adult learner's attitude,

interests, beliefs, and personal goals can influence their desire to initiate and persist when faced with thought-provoking topics or tasks. Structuring online learning opportunities in ways that encourage learners to analyze and think deeply about critical issues, such as inclusion and collaborative practices (e.g., co-teaching practices, supporting and involving families), can inspire their personal commitment to addressing these vitally important and challenging aspects.

Overall, personal factors including self-concept, life experience, and motivation to learn have a significant impact on learners' engagement. Although learners draw from personal factors and apply what they know to new situations, their attitude and ultimately their response to learning can be considerably affected when they engage with others. Thus, embedding social interactions into an online course can have a positive influence on learners' active involvement (Tsai, 2013).

Social interaction. The value of online learning experiences can be further enhanced through social interaction as learners draw from the ideas and knowledge bases of others; however, the very nature of online learning may be antithetical to social engagement. The online environment has the potential to be impersonal, and individuals may not feel part of a cohesive learning community. In order to maximize meaningful social interactions, the instructor needs to structure experiences to support social exchange between the instructor and the learner, as well as between learners (Huang, 2002; Sogunro, 2015).

The instructor-student relationship can be strengthened when the instructor personalizes feedback to each student. Actionable feedback is valuable as adult learners can directly apply information to their practice. Furthermore, the nature of feedback provided by the instructor may serve to strengthen adult learners' abilities to critically engage with content and to develop in areas, such as complex problem-solving. The instructor may opt to provide feedback that focuses on content, promotes connections across ideas, and encourages deep thinking versus feedback that is closed-ended or that focuses on technical aspects, such as mechanics and writing accuracy. The instructor is instrumental in guiding learning through provision of critical feedback and facilitating interactions between learners in an online community (Covelli, 2017).

Joint or team activity can also be encouraged through assignments that align content with personal factors (e.g., the learners' experience, environment, interests, and expertise). Strategically requiring collaboration between adult learners through discussions (i.e., virtual discussion, both synchronous and asynchronous) has the potential to enhance and extend deeper understanding of course material (Davis, 2013). Interacting with others may broaden an individual's view and enable them to acquire strategies or ideas that may in turn be applied in teaching practices. The instructor may intentionally plan focused opportunities for adult learners to engage others on critical topics. Adult learners may work together on a thematic group project and examine key components or elements that contribute to critical or deeper understanding of the content. They may post essential questions or responses to their peers, and ongoing online discussion may enable learners to formulate a more complex and thorough understanding for key topics. Small groups can be assigned to meet virtually (e.g., through Zoom, Google docs, Skype) to discuss and collaborate.

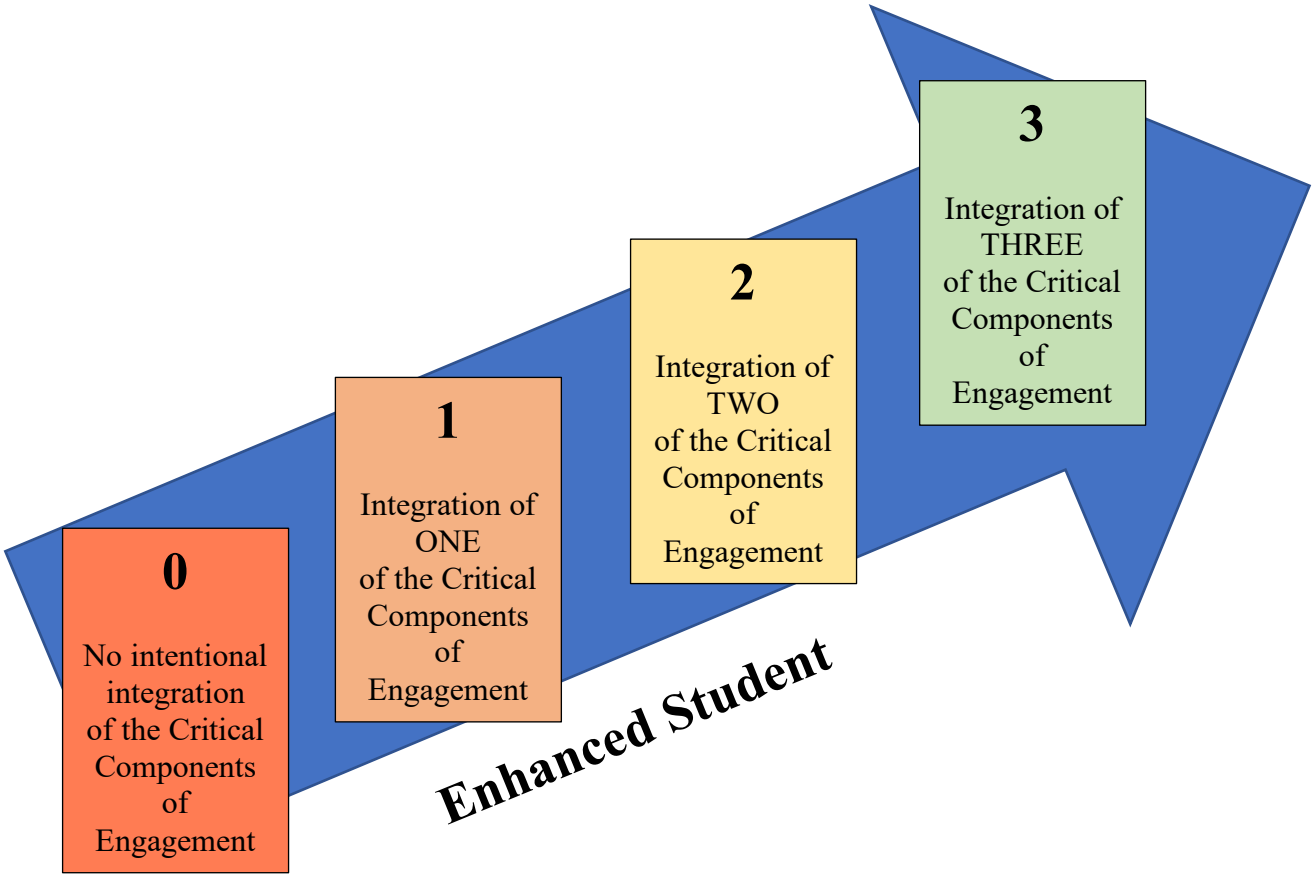
There also may be informal opportunities for interactions that benefit adult learners. For example, the instructor may designate online space for students to post creative ideas, share resources, and discuss course-related questions with one another. Adult learners may also be involved in identifying the purpose for designated spaces to address their interests and needs. Each member of the course is an invaluable human resource as each individual has the potential to strengthen the learning community. Adult learners' interactions spur the generation of multiple solutions to challenging issues and numerous ideas offered by members ultimately support richer experiences in the problem-solving process.

Problem-based contexts. Adults' learning orientation is influenced by personal and contextual factors which drive them to seek information to problems or challenges that they have prioritized. The direct correlation between the knowledge and skills addressed through a course and the specific needs of the adult learner provokes their readiness to attend to, and to absorb, the content of a course. Using a problem-based learning approach by situating concepts and content in real-life situations supports critical thinking (Lopez Brown, 2017).

Assignments can directly address these kinds of areas and allow adult learners to design and implement projects that are responsive to their needs. Adult learners may also role-play the collaborative process and discuss how to more effectively involve and engage members of the team. Lastly, learners may share information with each other about students who are struggling with accessing the general curriculum. Acquiring and refining problem-solving skills that address real-life issues may motivate learners and offer them opportunities to deepen their learning and critical thinking skills.

Connecting the three critical components. Incorporating personal factors, social interaction, and problem-based contexts when designing a course enhances the engagement of students online. Taylor (2007) recognized the importance of personal and socio-cultural contextual factors in adult learning. Maximizing productive interactions between faculty and learners

Figure 2
Critical components of engagement continuum scale.



contributes to learners' satisfaction, deeper engagement with course content, and retention. Providing access to course material and opportunities to delve into problem-based learning contexts equips adults with strategies and tools that can be directly applied in their professional practices. In addition, course assignments with clear expectations that connect the content of study with hands-on experiences provide learners with authentic opportunities to apply knowledge and skills. Embedding these components in the design of course activities or assignments increases the likelihood of learners' engagement with others and with course material. While not all course activities will address each of the components, when the instructor is able to meaningfully integrate two or even three of the components in an assignment, the potential engagement value of that assignment is heightened (See Figure 2).

Online Course Assignment Examples Reflecting Critical Components of Engagement

Through course structure and instructor facilitation (See Table 1), faculty develop engaging learning opportunities in an online environment for adult learners. Within an online course there are a variety of learning activities that instructors may assign learners. Instructors must also determine whether an assignment is best suited for individual completion or peer collaboration. Strategic selection of group activities and assignments increase the opportunity for student-to-student interaction which may deepen student learning. Instructors must also consider the following elements when designing online courses: (a) creating community, (b) content acquisition, (c) content application, or (d) evaluation and/or culminating activities. A detailed example is provided for each, thus illustrating how activities and assignments can incorporate the three critical components of engagement.

Creating community. The first activity in many online courses focuses on learners getting to know the instructor and one another. One way to do this is by having individuals represent themselves in a shared document or PowerPoint. Learners can be instructed to add a photo and a list of information about themselves. The information could include their name, where they

Table 1
Examples of Enhancing Student Engagement Through Course Design and Instructor Facilitation

Online Course Elements	Example Activity	Course structure and Curriculum	Instructor Course Facilitation
Creating Community	Introduction of Yourself	• Content is self-selected and generated • Summary provides a brief description of each member in the class • Link made to creating a sense of community	• Create Google doc or Google PowerPoint • Contributes a personal example • Post instructions and link on course platform
Content Acquisition	Readings, Virtual Group Meetings, and Discussion Posts	• Students meet virtually in small groups to respond to questions based on personal experiences and a problem-based learning scenario • Students post group discussion summaries on an online discussion forum page • Students respond to peer's posts on discussion forum	• Assign readings • Establish groups and post on forum • Create discussion forum aligned with the readings • Provide personalized feedback to students

Content Application	Lesson Plan	• Incorporate choice:
		  • Grade level
		  • Content
		  • Population (GEN, SPED, ELL)
		  • Lesson plan format
		• Peer review of lesson plans with feedback
			• Post assignment description incorporating target content, scoring rubric, and example
			• Instructor established or peer selected peer review dyads
			• Provide personalized feedback to students

Group Project	Evidence-Based Practice Research Project	• Virtual meetings with group
		  • Share resources
		  • Discussion
		• Incorporate choice:
		  • EBP to research
		  • Presentation format (Power Point, Prezi, Video, etc.)
		  • Format for flyer about EBP
			• Post assignment description incorporating target content, scoring rubric, and example
			• Instructor assignment of groups
			• Provide personalized feedback to students

Culminating Activity	Case Study	• Completion within current teaching context
		• Incorporate choice:
		  • Grade level
		  • Content
		  • Population (GEN, SPED, ELL)
		• Submit sections of assignment for instructor feedback:
		  • Participant selection
		  • Assessments on performance
		  • Implementation
		  • Analysis of results
			• Post assignment description incorporating target content, scoring rubric, and example
			• Provide personalized feedback to students on components of assignment as completed and final submission

are from, educational experience, and hobbies or interests. This assignment focuses on personal factors as learners are sharing their life experiences, personal interests, and photos of themselves with the class. Social interaction occurs through sharing of the document. Additionally, learners have the opportunity to familiarize themselves with their class members.

Content acquisition. A common individual activity to enhance learners' foundational knowledge is to assign readings from journal articles or chapters from a textbook. For instance, learners could be assigned to read about two different methods for teaching writing (e.g., self-regulated strategy development and a writer's workshop). To engage learners through personal factors, one or more reflection questions could ask learners to make connections between the readings and their life and practicum experiences. A final reflection question could provide learners with a classroom scenario and then ask the learners to decide which methods for teaching writing they would incorporate and defend their answer. This provides learners with an opportunity to engage in problem-based learning. Furthermore, having learners meet virtually in small groups and/or having learners read and respond to their peer's postings enhances their engagement by incorporating a social interaction component.

An example of a group assignment that can deepen learners' knowledge is a collaborative research project. For instance, learners could be assigned to research an evidence-based practice (EBP) that they could implement in their future or current classrooms. Learners' personal factors, such as their life experiences and current or past classroom practicum experiences, will influence group discussions and the determination of the EBP they select to research. Allowing groups to work together to determine the EBP, to choose the articles and resources to read, and to task analyze the project integrates social interaction within the project. The project is problem-based because the group must work together to discover the required information (provided by the instructor through the assignment description and rubric) about an EBP. Additionally, the group then needs to synthesize their knowledge in a user-friendly way to share with their classmates in the form of a one-page flyer.

Content application. Teachers are constantly adding to their pedagogical content knowledge. To help in this development, course instructors frequently assign learners to write a lesson plan based on newly learned knowledge from the course. For example, after learning about the components of Universal Design for Learning (UDL), learners may be assigned to write a lesson plan that incorporates UDL components. Within this assignment, learners are able to draw upon their life experiences to design their lesson plan. The assignment also allows for learners to make decisions based on their personal interests by choosing the grade level and content area for their lesson plan. Furthermore, the assignment is problem-based as learners are required to determine the appropriate resources to use and how to effectively implement UDL components within their lesson plan. After completing the lesson plan, social interaction can be incorporated by having learners exchange lesson plans with a peer and provide their peer with feedback based on the assignment rubric.

Culmination activity. Finally, a case study is an assignment that is often utilized to assist learners' in applying and analyzing all their newly acquired knowledge from the course. This assignment heavily relies on the integration of personal factors. Learners are assigned to select a student they are currently teaching, assess the student's performance, determine and implement an intervention, and then analyze the results. This project requires learners to utilize their practicum experience to select a student who is in need of an academic or behavioral intervention and then assess the student's current performance level. Based on social interactions, the learner will choose the student and skill to focus on within the intervention. Through analyzing the student's current performance and the knowledge learned throughout the course, the learner will be solving the problem of how to address the target skill and implement the intervention.

Critical Components Course Design Matrix

The *Course Design Matrix for Embedding Critical Components of Engagement* (Table 2) is a tool for online course instructors to use in course design and for assessing the degree to which individual assignments and the course as a whole are inclusive of the critical components for engagement of adult learners in an online environment. Assignments and synchronous course activities can be examined by listing each in a column of the matrix and identifying whether the individual critical components of engagement can be identified within the assignment or activity. This process takes the instructor through an examination of whether, and to what extent, the three critical components—(a) personal factors, (b) social interaction, and (c) problem-based learning—are evident within each assignment and activity. Examining the critical components across the full range of assignments and activities within a course enables an instructor to locate gaps and make changes to existing assignments or construct new assignments that increase the degree to which the critical components are embedded within the course. Increasing the critical components of engagement integrated within and across course activities will enhance student engagement which has been shown to lead to improved student outcomes, satisfaction, and retention (Kahu et al., 2015).

Table 2
Course Design Matrix for Embedding Critical Components of Engagement

Critical Components of Engagement		List of Course Assignments and Activities Directions: For each assignment identify if and how each component is incorporated.				
		1.	2.	3.	4.	5.
Personal Factors	Choice related to learner's personal interests					
	Incorporates learner's personal frame of reference and context					
	Encourages active reflection					
Social Interaction	Community building component					
	Faculty to Learners					
	Peer to Peer					
Problem-Based Learning Context	Real world problems related to immediate needs of learners					
	Specifies a rationale for learning					
	Aligned with course content					

Conclusion

In today's environment of increasing online courses at IHE's, faculty awareness of the needs of the changing population served, inherent challenges in learning online, and the importance of enhancing student engagement are of paramount importance to successful online course design. Knowledge of theory and research in adult learning and student engagement, as well as CoI, provides a foundation for understanding teaching and learning in this context. This foundational knowledge has been synthesized in this article into a framework of critical components for engagement of adult online learners that can be used to inform development of online course assignments and activities that maximize student engagement and learning.

Enhanced learner engagement has been indicated as essential to the success of students in online courses. Course design and instruction have been clearly linked to student engagement and learning (Mazer, 2013). Thus, intentionally designing courses so as to embed the three critical components of engagement of adult learners (personal factors, social interactions, and problem-based learning) within courses is necessary to enhance students' engagement and their subsequent learning outcomes.

A tool to facilitate instructor assessment of the degree to which existing courses embed the critical components of engagement within course assignments and activities is provided. This tool may also be useful in designing new course assignments and activities that maximize student engagement. As faculty understanding increases regarding how to design courses that actively engage learners online, improvements in course design and student learning outcomes should occur. In addition, increases in retention of online students, as well as greater student and faculty satisfaction, may also be realized.

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