Prototype Instructions for an Initial Ice-breaker Activity for Building Social Presence in Online Asynchronous Courses

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Abstract: This study focused on the development of instructions for an initial ice-breaker activity. The activity acts as an intervention for online learners to share their Personal Learning Networks (PLN) using Information and Communication Technologies (ICT). The study uses the Community of Inquiry Framework (CoIF), and particularly addresses increasing social presence with added teacher presence through instructional design to improve learner online course experience. The study represents part of the construction phase in an educational design research (EDR) project. The project's goal is to encourage the construction of communities of learners to support and motivate each other to be successful and engaged.

Introduction

Electronic learning (E-learning; Gupta & Gupta, 2020), has become a widely used means to deliver online education in higher education (Boston, et al., 2019; Kattoua, et al, 2016), particularly after COVID-19 (Turnbull et al., 2021). E-learning uses various Information and Communication Technologies (ICT), which are hardware and software used to design and deliver multimedia content online over the internet as online courses (Sekhri, 2021). Many higher learning institutions use ICT to deliver courses via mostly synchronous and asynchronous teaching methods (Huang, 2021; Turnbull et al., 2021). Synchronous instructional content is delivered in real-time with students and teachers over a ICT video-conferencing platform, such as Zoom; whereas asynchronous instructional content is readily available materials, such as Youtube videos, handouts, etc (Amiti, 2020). In addition, e-learning studies even show best practices, such as following criteria, that can be applied to online courses in higher education (Mastan et al., 2022).

Unfortunately, the transition of the instructional method from face-to-face to e-learning may negatively affect a course's quality, satisfaction, or effectiveness (Gherheș, et al., 2021; Shahzad et al., 2021). E-learning in higher educational institutions can put learners at a disadvantage because they require a higher degree of virtualization (Akcaoglu & Lee,

2016; Kattoua, et al., 2016). The shift to virtual environments often reduces social interaction with others (Moriera et al., 2023). Additionally, many educator's lack the knowledge to make instructional decisions for online interaction using technology often explained as technological pedagogical content knowledge (TPACK; Sekhri, 2021; Turnbull et al., 2021).

Teaching with ICT requires both students and teachers to gain new skills and knowledge to use it effectively (Rapanta et al., 2020). The shift from in-person to online requires educators to adapt their pedagogy, the difficulty of change can be explained with the Substitution, Augmentation, Modification, and Redefinition (SAMR) model (Alivi, 2019). Additionally, resistance may come from users to use ICT tools, as seen in Technology Acceptance Model (TAM; Kattoua, et al, 2016; Al Kurdi, et al., 2020). Therefore, E-learning often requires more effort by teachers to evaluate whether learning outcomes are being met (Amiti, 2020), time designing the course (Goodyear, 2015), and organizing social interaction (Oyarzun, et al., 2018). Moreover, many online courses lack meaningful social interaction between participants (Richardson et al., 2017).

Fortunately, e-learning instruction is more student-centered as the role of educators has changed to be more of a moderator with less prescriptive monitoring (Ní Shé wt al., 2019). One of the most frequently used frameworks used to assist in the organization of online educational experiences is the Community of Inquiry Framework (CoIF), which comprises three dimensions—teaching, social, and cognitive presences —that interact in a collaborative-constructivist process (Flock, 2020). Garrison (2009) described social presence as "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop interpersonal relationships by way of projecting their individual personalities." (p. 352). Social presence has been indicated to mediate teaching and cognitive presence (Mutezo & Maré, 2023). CoIF encourages the role of the instructor to be set as a facilitator (Salmon, 2004). Instructors can purposefully create opportunities for socializing, collaborative learning, and student engagement in their online spaces to encourage community building within their online course (Oyarzun et al., 2018). This shift in the role of instructors coupled with the application of ICT offers new methods for informal learning within Professional Learning Networks (PLNs), where learners can help each other. "PLN's consist of formal and informal networks of individuals with similar goals and interests who interact using digital tools to share information, learn from each other, problem solve and collaborate" (Green, 2020). As such, PLNs can be a sophisticated tool for online learning by leveraging the use of web 2.0 social to effectively learn throughout the Internet (Krutka et al., 2017; Poortman et al., 2022; Luo et al., 2017; Morrison & McCutheon, 2019). These web 2.0 technologies allow users to create, share, and develop information (Abdelmalak, 2015).

This study continues in the prototype phase of an educational design research (EDR) developing research-based solutions for the complex problem of developing student presence. We aim for a better understanding of the problem of lack of social presence in online courses by creating an artifact that represents our initial findings towards a solution in context. The goal is to clarify contextual constraints, identify feasible changes,

and outline design requirements (heuristics) in order to improve social presence in online courses.

The specific research question for the study:

1. What specific instructions can be used to facilitate the distribution of learners' PLNs to their online peers?

Literature Review

Building social presence with others is considered vital in online courses as it influences students' participation and motivation to participate (Peacock et al., 2020; Richardson, et al., 2017; Yoon & Leem, 2021). The instructional design and organization aspect of teaching presence has been described as the planning of the structure, process, interaction and evaluation aspects of the online course (Anderson et al., 2001). These elements of an online course can be established prior to the beginning of the course (Liebowitz, 2021; Peacock et al., 2016). In particular, introductory and development interaction can be used to build personal connections, aka social presence (Richardson et al., 2017). Initial course introduction activities (e.g., ice breakers) can encourage the development of swift trust (Paliszkiewicz & Skarzyńska, 2021; Peacock et al., 2016). Learners can establish connections via social capital, which is the sum of their real or potential resources (Huang, 2021). The inclusion of icebreakers in e-learning should help learners to orient with the online environment, each other, and their interests (McGrath et al., 2014) as well as motivate students to learn (Maduretno & Maduretno, 2021).

Another significant aspect vital to e-learning environments is teaching presence. Teaching presence can provide guidance for the social context for cognitive learning and is considered a necessary prerequisite for the development of the other presences (Garrison, 2013; Shea & Bidjerano, 2008). Anderson and colleagues (2001) conceptualized teaching presence as having three components: (1) instructional design and organization; (2) facilitating discourse; and (3) direct instruction. "Learners play a key role as creators and connectors of knowledge that are shared with others through social networks" (de Lima et al., p. 41). Communication channels, including student-student and instructor-student positively impact student engagement and performance (Dixson, 2010). Social networks can facilitate collaboration, understanding, and organization (Siemens, 2005). In collaborative learning, it is important to establish an appropriate social climate for communication that contributes to cultivating learning experiences (Stephens & Roberts, 2017). With the proper social climate, opportunities for peer-to-peer interaction in activities and assignments can create a sense of belonging (Peacock et at, 2020), where learners can what Schwämmlein & Wodzicki (2012) describes as gaining one of two types of identify: 1) common-bond communities, and 2) common-identity communities. In common-bond communities exist only because the members are interested in one another, while in common-identity communities individuals focus on interests that are shared by the community members. The configuration of a Web 2.0, applications that publish and share, allow communication among participants online is fundamental for contributions and collaboration (Towne &

Herbsleb 2012). Web 2.0 tools have also been found to mediate communication for online learning communities (Abdelmalak, 2015).

Computer-supported Concept Mapping

In regards to teachers facilitating the social presence of learners through the use of ICT, computer-supported concept mapping (CSCCM) is a strategy that visually / graphically organizes knowledge by showing relationships using nodes for concepts with web 2.0, which are connected by lines and labels to organizing and representing knowledge so that it is structured and easy to assimilate new knowledge (Farrokhnia, et al, 2019). The concept map content shares Professional Learning Network, a system of interpersonal connections and resources that support continuous learning (Trust, 2012), which is being targeted at student rather than teacher development. Other best practices in instructional design that were also included in the construction of the activity include: Backward Design (Bowen, 2017) and Bloom's Digital Taxonomy (Churches, 2008).

Methods

The study was orientated towards developing an intervention that improves social presence. It continues the construction phase of Educational Design Research (EDR) to gain theoretical and practical insights towards a solution. EDR can be defined as, "a genre of research in which the iterative development of solutions to practical and complex educational problems also provides the context for empirical investigation, which yields theoretical understanding that can inform the work of others' (McKenney & Reeves, 2018, p 6). This development study goes through systematic reflection and documentation to ensure that research-based design and development of an intervention emerges. This initial iteration is a design experiment for constructing (re-usable) design principles for the intervention activity.

Overview of the Ice-breaker Activity Instructions Prototype

In this course, your role is to be a creator and connector. For this activity, you will interact, engage, and connect with others in your class using Web 2.0 tools and concept mapping strategies to learn and stay relevant with current information about your professional interests.

Explore and develop your specific professional interests by presenting your Professional Learning Network (PLN), as students. A PLN is a system of interpersonal connections and resources that support continuous learning (Robinson, 2020).

Follow these steps:

1. Choose any online concept mapping software that can publish an online concept mind map that you are comfortable using. Some popular options include CmapTools, MindMeister, and XMind, etc.

2. Create a concept map using the software. Your concept map must include your individual PLN, which should start by following [Backward Design](), answering question A first, then other questions (use labeled nodes and lines to identify concepts and connections):
   a. What are your PLN goals? (write them using verbs from [Bloom's Digital Taxonomy]())
   b. Which people most contribute to your professional growth?
   c. In what online spaces do you engage in PLN activities?
   d. What resources do you acquire by engaging in PLN activities?

3. Use [Web 2.0 tools]() to facilitate communication and collaboration within the PLN. Invite the other participants to collaborate on the concept map by sharing the link or inviting them to communicate. Some options include social media platforms such as Twitter and LinkedIn, discussion forums, and video conferencing tools such as Zoom or Google Meet.
4. Actively contribute to the concept map by adding new concepts, ideas, and resources.
5. Use the concept map as a resource for the online class and as a way to track the classmate's professional growth and development over time.
6. Regularly check in with the other participants and continue to use the CSCM software and Web 2.0 tools to facilitate communication and collaboration within the PLN.

By following these steps, you can use CSCM and Web 2.0 to create a professional learning network for an online asynchronous class. This will allow you and the other participants to share knowledge and resources, collaborate with one another, and continue to learn and grow throughout the class and beyond.

Implications

Later, we hope to test our prototype instructions and refine it as part of the solution to improve student social presence through EDR as we prepare for the alpha cycle within the second sub-cycle of this study. As such, each sub-cycle also includes a construction phase which is another part of EDR that is iterative. We proceeded relatively quickly into the construction phase as we based the development phase on informal personal experiences of the authors as student-practitioners in many online classes. We also wanted to present a prototype of an activity to other potential practitioners to add value to their current practice. Finally, as a EDR study, the authors hope to make theoretical contributions within teachers' social presence and student group cohesion as well as provide valid practical approaches in facilitating social presence at the onset of online courses.

Conclusion

In conclusion, an introductory icebreaker activity may be used to build personal connections and encourage the development of trust between participants. The use of

initial course introduction activities, such as ice breakers, can help learners establish connections and build social capital through trust and reciprocity. By establishing networks of connections and relationships, learners can build a foundation for academic content and better performance. In answer to our research question, we found that one potential effective strategy for achieving this is the use of computer-supported collaborative concept mapping (CSCM) to create Professional Learning Networks (PLN), which allows learners to organize knowledge into a visual and structured format for increased awareness and learning. Overall, the goal of increasing social presence is to create a supportive and collaborative learning environment where learners can thrive.

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