

MOOCs AS AN INNOVATIVE PEDAGOGICAL DESIGN LABORATORY

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Whitney Kilgore, chief academic officer of iDesignEDU and PhD candidate at the University of North Texas, has an extensive background in educational leadership, educational technology, strategic planning, learning management systems, professional service delivery, and organizational change. Her primary areas of research are faculty professional development, humanizing online instruction, and increasing learner engagement. She recently keynoted at the University of Texas System's Innovation in Online Learning conference, presented at the European MOOC Stakeholder's Summit, and has been selected to speak at the Digital Learning Research Network Conference at Stanford.

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Al-Freih is currently pursuing a PhD in learning technologies design research with an emphasis in instructional systems design at George Mason University in Virginia, where she also works as a graduate research assistant. She recently designed, developed, and delivered a workshop on portfolio creation using Google sites, Twitter, and blogs to 50 in-service teachers at the Virginia Center for Teaching Excellence at George Mason University. Her primary research interests include learners' engagement and persistence in massive open online courses (MOOCs), personal learning environments (PLEs), self-regulated learning (SRL), learning analytics, and design-based research (DBR).

Abstract

Increased demand for online learning options coupled with the pace of the evolution of technology and pedagogy has necessitated growth in the quality and quantity of facilitation training for online faculty to support effective educational experiences. Based on data presented in a variety of reports on MOOCs, the participants tend to primarily be people with master's degrees or higher, so it makes sense to use MOOCs as multi-institutional professional development for educators who teach online. These digital learning spaces can bring educators together to explore new pedagogical techniques that can have a positive impact on their teaching practice. This paper will explore one such course, Humanizing Online Instruction, which was designed to allow instructors to learn the principles of a community of inquiry while exploring the use of social media and asynchronous video to enhance presence (instructor, social, and cognitive) in online courses.

KEY WORDS: MOOCs, pedagogy, social media, audio and video recording, community of inquiry, instructor presence, social presence, cognitive presence

1. INTRODUCTION

In 2008, a new learning model emerged in the e-learning landscape and attracted the attention of educational researchers, designers, instructors, and students, namely, massive open online courses (MOOCs). The acronym highlights its key components: massive, there is no limit on attendance; open, free of charge and accessible to anyone with Internet connection; online, delivered via the

Internet; and course, structured around a set of goals in a specific area of study. MOOCs stand out because of their unprecedented scalability and open access, which challenge many held conventions about formal learning. While the novelty and scalability of MOOCs pose new challenges to researchers and practitioners within the educational community, they also serve as a rich ground for experimenting with innovation at scale.

Most of the discussions about MOOCs distinguish between two different formats, often referred to as connectivist MOOCs, or cMOOCs, and instructivist MOOCs, or xMOOCs. cMOOCs are based on connectivist pedagogy and emphasize the learning journey defined by the connections learners create between resources and with a distributed network of peers by harnessing the power of social media (Bates, 2014). Consequently, social media tools that foster connections, co-creation, and sharing constitute the course platform. Siemens (2004) outlines the following principles of connectivism:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in nonhuman appliances.
- Capacity to know more is more critical than what is currently known. “Know where” replaces “know what” and “know how.”
- Nurturing and maintaining connections is needed to facilitate continual learning.
- The ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

xMOOCs, which emerged in 2011 and are usually offered by prestigious universities, are predominantly associated with the cognitive-behaviorist theories of learning and teaching and emphasize individual learning rather than learning with and through peers. Learning in these online courses is primarily based on lectures, videos, texts, quizzes, and peer assessments (Bates, 2014). Videos in these online courses are instructional in nature and designed and produced for individual consumption, reflecting an outdated mode of video usage in the classroom. Consequently, the focus of these instructional videos has been on production quality rather than the pedagogical aspects of using videos for learning purposes (Bates, 2014; Zahn et al., 2014).

There has been an increase in the use of social media for personal and professional purposes by higher education faculty in recent years. However, not all social media tools and sites are used equally in the classroom. In a recent survey (Moran et al., 2011), faculty in higher education indicated that online videos are by far the most common type of social media used in their classrooms followed by podcasts and blogs. Videos in the classroom, whether for teaching

purposes or as part of student assignments, were used by 80% of faculty who indicated any use of social media in their courses. Despite this increase in social media use in teaching and learning, and the potential value faculty see in many social media tools in the classroom, they still reported some barriers to technology adoption including the amount of time it takes for effective integration of social media for learning as well as privacy and integrity concerns (Moran et al., 2011; Roebuck et al., 2013).

With the increase in video usage in the classroom and the potential impact it might have on teaching and learning, a number of researchers have begun to investigate and share effective practices that can support student learning. Some of the strategies reported in the literature include the use of videos to stimulate discussion among students and including videos that present opposing arguments as a way to engage students in deeper learning by critically analyzing opposing views and synthesizing their own conclusions (Tan and Pearce, 2012). This suggests that a more active and social use of videos is beneficial and results in the development of higher-order thinking skills.

Clearly, support for faculty regarding the use of social media tools in general and videos specifically is needed to support the effective integration of these tools in the classroom. The purpose of the HumanMOOC was to provide this support for faculty and others interested in the use of social media tools for learning and/or training. The focus of the HumanMOOC extended beyond the mere development of these videos to sharing innovative strategies for how these tools could be used to support deeper learning. Our goal in the HumanMOOC, described in more detail below, was to incorporate video activities as a tool to foster reflective learning that empowers learners to share their thoughts and ideas rather than passive watching.

2. INNOVATION

The cMOOC drew attention to the use of social media and the open web to help connect educators and develop community online around specific topics of interest. Prior to the arrival of the xMOOC in 2011, there was very little attention paid to producing high-quality video in online courses. The MOOC phenomenon has had many impacts on teaching and learning online and significantly changed the expectations of students, faculty, and administrators about what a good online course contains or looks like, however, the engagement of the learners is often questioned in the news and research (Koller et al., 2013). As the Web becomes more and more video based, how can this innovation be leveraged within online learning experiences to enhance understanding, engage learners, and create a sense of presence and connection that text simply cannot do? An open course creates a space for innovative educators to connect, share, and explore new methods and tools in order to improve their practice.

3. MOOC ITERATION AS A REFLECTIVE PROCESS: THE HUMANMOOC

In 2011, xMOOCs rose from the laboratories of computer scientists who brought a machine learning approach to education (Fazackerley, 2012). These xMOOCs were best known for their re-creation of the lecture as video, computer-graded assessments, and very little to no interaction with the professor. While technology can certainly enhance some aspects of learning, researchers have written about the sense of loneliness that online learners experience. The lack of human connections in these courses has been reported in the literature as one of reasons for high attrition rates in MOOCs (Kop et al., 2011).

The HumanMOOC design focused on creating opportunities for intellectual exploration that ultimately benefits society rather than knowledge dissemination. Therefore, the HumanMOOC design team gathered to discuss the impacts that xMOOC models of delivery could have on online education if online instructors perceived these as possible examples of quality and value. While we applauded the achievements of these scientists in their development of more efficient systems, we had serious concerns about pedagogy and learner support.

4. DUAL-LAYER DESIGN

The design intent of the HumanMOOC was to create a community space where ideas could be shared and new thoughts about teaching and learning are generated and discussed. The description of the course made it clear that instructors who teach online from multiple institutions and many disciplines would be the ideal candidates for the MOOC. The Canvas Learning Management system hosting the course served as the embedded learning space for the learners to share their thoughts and ideas. This space became the private “members-only” sharing community for participants who were not comfortable sharing their ideas and comments out on the open Web. However, in true connectivist fashion, we also encouraged participants to share their learning openly using blogs, Twitter, and other technology tools, which we called exoskeletal learning. Using a dual-layered design (Crosslin and Dellinger, 2015) our embedded and exoskeletal approach was utilized in the format and structure of the HumanMOOC learning environment.

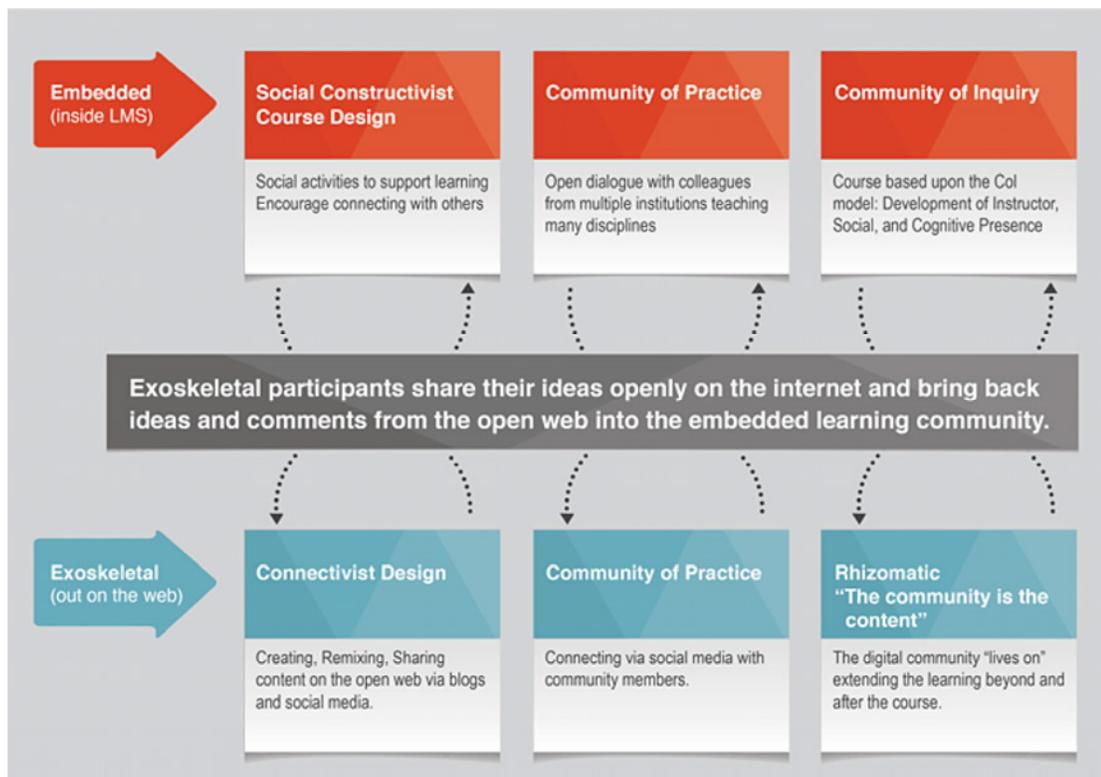


FIG. 1: Dual-layer (embedded/exoskeletal) design

Inside the learning management system (LMS), tucked away from the open Web, was a rich learning community who came together to learn about the community of inquiry (CoI). Within the course, each week was designed to focus on the various online presences of the CoI framework (teaching, social, and cognitive). The learning design inside the LMS was social constructivist, where participants learn by “doing.” The HumanMOOC community brings together thought leaders who are passionate about the topic of humanizing online instruction. Wenger et al. (2002) discusses designing for communities for “aliveness,” as all communities require interaction in order to become living, collective repositories of knowledge. This design allows for “participating in group discussions, having one on one conversations, reading about new ideas, or watching experts duel over cutting edge issues. Even though communities are voluntary and organic, good community design can invite, even evoke, aliveness by advocating relationship building, collaborative learning, sharing of knowledge and best practice, and networking among colleagues” (Wenger et al., 2002, p. 4). Wenger (1998) affirms that negotiated meaning is not the same as starting from scratch but rather is a collaborative and productive learning process. This new negotiated meaning is useful due to its uniqueness and the collaborative nature by which it is created. Hence, a Community of Practice (CoP) is not something that can be designed for, but rather is something that evolves with a group around their particular needs and for purposes that they value as meaningful (Wenger, 1998). However, understanding the social dynamics and learning processes of learning communities and how technology supports such actions can help

instructional designers articulate and implement design principles that evoke and nurture the development of such communities.

In the exoskeletal portion of the course, an intentional connectivist design to the learning experience is observed. For those who participate in the exoskeletal layer the learning is more rhizomatic, where the community is the content (Cormier, 2008). It is this intentional community cultivation through live events, regular announcements, discussion posts, blogging, Twitter chats, and more that helps to maintain the connectedness. These events allow the participants to stay informed, to continue communicating, and remain connected to each other.

When designing a MOOC for unknown participants, it is important to assume that everyone will enter the MOOC with various levels of background knowledge and experience (Macleod et al., 2014). This variety creates a serious challenge for the design team who must create structured learning experiences for novice learners while ensuring more personalized learning pathways that induce critical thinking for more advanced learners. Course materials inside the LMS are designed as a scaffolded social constructivist course that can stand alone; however, elements that engage learners in connectivist learning are found outside the LMS in most cases.

5. CONNECTIVISM AND COURSE DESIGN IMPLICATIONS

There is no clear typical learning design of a cMOOC (Bates, 2014). This type of MOOC can be loosely structured by the week, and courses are open, messy, and lack a clear method of assessment of learning outcomes since the objectives or learning goals are defined by the learner (Kopet al., 2011; Stewart, 2013). cMOOC learners often state that cMOOC courses lack a coherent structure or summary of learning and describe them as chaotic. Researchers have found cMOOC courses provide fuzzy or messy learning opportunities with flexible, open, disruptive, unpredictable tasks that create tension and anxiety that are an essential part of the transformative process (deWaard et al., 2011; Kop et al., 2011). These concerns regarding connectivism and the chaos of messy learning are addressed in the embedded design of the HumanMOOC, yet messy learning is strongly encouraged in the exoskeletal layer of the course. While the course is structured in a very linear, logical, and weekly format, it is anticipated that the learning will stretch far beyond the LMS into the blogosphere and beyond.

6. SOCIAL AND MOBILE

Social media tools are essential to MOOCs as they promote connectivity, communication, and interaction (deWaard et al., 2011). They also increase course enrollment through social networks as friends and colleagues recommend the course to one another (Stewart, 2013). Learners also use mobile phones to access materials and learning via the Internet at an increased rate (deWaard et al., 2011; Williams et al., 2011). Williams et al. (2011) believed learning spaces should be designed

to allow flexibility and self-organization because even when learners are in a face-to-face environment, most learning takes place outside of the classroom.

Interaction and dialogue in an MOOC are central to learning design because the network of learners shares how they have created knowledge, and knowledge creation is central to the learning process (Couros, 2009; Milligan et al., 2013). This social sharing provides a sense of social presence or connectedness that enhances learning and helps learners create meaning through discourse (Kop, 2011). The ability of learners to create knowledge and share it online is a very different model of learning from the traditional model where the learner passively absorbs knowledge from the teacher (deWaard et al., 2011; Stewart, 2013). Milligan et al. (2013) stated, “Even lurkers can learn effectively in connectivist environments: taking the knowledge they acquire to their own external networks” (p. 156).

The guiding principles for an open, social, connected course, according to Couros (2009), are that instructors assume the role of facilitators and social connectors rather than that of lecturers or knowledge delivery systems. Learners in these courses engage in social knowledge creation and participate in collaborative activities. In addition, learners should be provided assignment choices to allow for alignment between an individual’s personal and/or professional goals and course outcomes. It is expected that connections developed between learners and course facilitators across social networks should outlive the course. These connections between learner and MOOC facilitators/other learners that last beyond the course provide a sense of ongoing support to learners as they begin implementing what they have learned during the MOOC.

Learners can leverage emerging technology tools to consume and create content and reflections on personal learning experiences that can be shared across distributed networks using Twitter, LinkedIn, blogs, and other social media tools. Online synchronous events draw a community of learners together and help grow MOOCs because community members typically invite their colleagues, friends, and classmates to join the event and thus expand the community. Adams et al. (2014) confirmed Cormier’s notion of MOOCs being event-based learning experiences, much like attending a sporting event, and that it is this “eventedness” that contributes to their uniqueness.

7. ROLE OF THE INSTRUCTOR

The instructor as facilitator role includes curating content for the learners, aggregating ideas to help clarify discussions, modeling expected interaction patterns, being visibly present, and amplifying important ideas and concepts (Rodriguez, 2013). This role is quite different from that of the traditional lecturer and requires a considerable shift in pedagogy and practice. Rather than controlling a classroom, an educator now influences or shapes the network; in other words, control has been replaced by influence (Dunaway, 2011).

Sam Brenton, one of the 2013 HumanMOOC facilitators, stated:

Social learning is the missing ingredient in too many MOOCs. I was so interested to teach *The Human Element* because it explored ways in which to embed that crucial peer-peer learning in a large scale (if not quite massive) online course, but also because it offered an opportunity to practice those techniques and embody the approach it was trying to promote. I was pleased to discover just how straightforward it was to stimulate and guide quite rich learning conversations among large numbers of people. True, this audience of learners was prepared to participate (as social participation was essentially the subject of the course) but nevertheless I took away a renewed conviction that it is absolutely possible to create rich learning dialogues within the environment of a large online open course. My two takeaway lessons: 1) that you need well designed learning activities to prompt social learning, aligned with the outcomes and embedded in the assessment regime; 2) perhaps a less fashionable point of view but not to be overlooked – that the software’s UI is vital if you want to make it easy for social learning to flourish; simple below-the-line comment tools won’t work well for true dialogue, and the over-engineered forums of the recent past are likely to be too complex for many learners. So: learning design and user interface design are essential.

Much like the work of Ke (2010), the HumanMOOC instructors made use of instructor self-disclosure coupled with feedback on students’ discussion board posts to strengthen the sense of connection and motivate students. The presence of the facilitators and participants throughout the course and across various social media networks enhanced the sense of community (Kilgore and Lowenthal, 2014; Kop, 2011). There is a significant body of research that notes student-to-student interactions of a high-quality nature lead to student success, and instructor presence can be reduced if social presence of the students is increased (Anderson, 2003; Brinthaup et al., 2011). In the HumanMOOC we noted that the participants were very active socially. Our goal was to ensure that this MOOC exploited network learning principles to create “highly motivated, personally relevant, and socially situated learning” at scale (Macleod et al., 2014, p. 246).

8. REDESIGNING BASED ON THE LEARNING AND REFLECTIVE PROCESS

After teaching HumanMOOC in 2013, receiving feedback, and reviewing learner reflections and evaluations, a new design team was formed. This time the team included two learners from the previous course iteration. The new team made use of several processes during the redesign phase: live coediting, resource curating, and sharing, expert consultations, and collaborative content creation. The new version of the course was presented as a more reflective design as it was based on data and experiences of both instructors and learners.

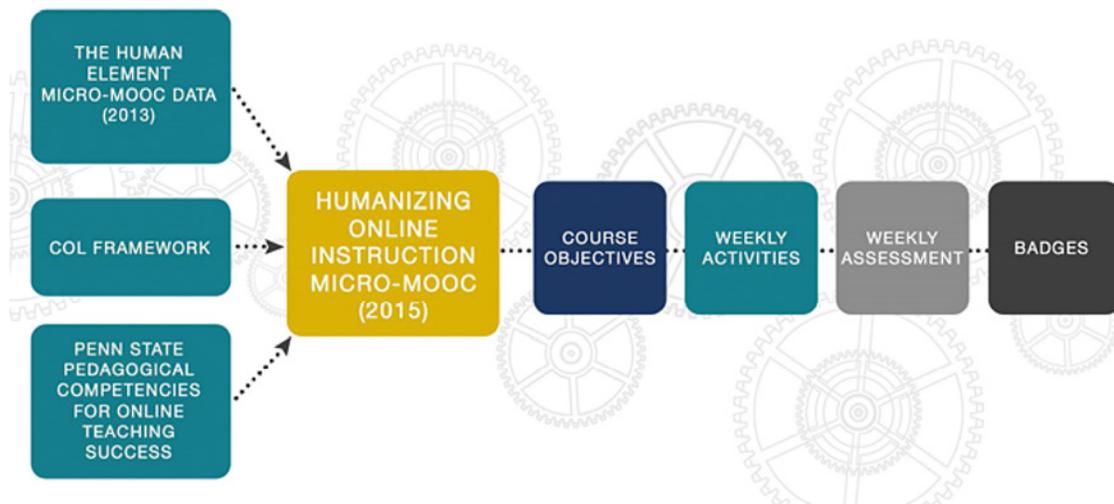


FIG. 2: The considerations for a new HumanMOOC design

9. SECOND ITERATION: THE HUMANMOOC 2015

Humanizing Online Instruction: Building a Community of Inquiry was the second offering of the HumanMOOC 2013 and was designed to prepare online instructors who teach college and university courses to improve learning and teaching practices in their online courses. Each of the weekly modules contained annotated research related to social, instructor, and cognitive presence elements of the CoI framework (Garrison et al., 2000) grounding the application-based activities in theory. Each week of the MOOC was designed as a stand-alone module in which participants could earn individual badges for completing specific tasks for that week, or elect to complete all assignments and earn a completion badge. However, assignment submission was voluntary and participation was still encouraged even if participants did not wish to complete assignments or earn badges.

Engagement in this networked community of practice was designed to stimulate the process of inquiry and collaboration among educators. Participants explored emerging technologies (e.g., flipgrid and voicethread) and created digital assets that they could employ in their own instruction. Several “live” events also took place during this course.

10. EXPERIMENTS (IF ANY) WITH INNOVATION

One of the design principles of the HumanMOOC was not only to describe innovative ways in which instructors could enhance their online teaching practices, but to actually model these techniques for participants as they completed the different learning activities within the MOOC. Videos were used in innovative ways in the HumanMOOC that encouraged active participation and reflective learning. For instance, during the first week of the course, participants were asked to introduce themselves via video rather than text as a means to increase social and peer presence

among participants and develop a sense of community and connectedness early on in the course. Furthermore, participants were asked to create flipgrid videos to reflect on how they plan on increasing instructor presence in their online courses. Having participants engage in these activities over multiple assignments increased their confidence by allowing them to practice the skills necessary for effective video creation and integration in a safe place while receiving constructive feedback from MOOC facilitators and other participants.

One HumanMOOC participant, Helen DeWaard, shared her experience in a blogpost:

“I’m a reluctant video star. I’m sure I’m not the only one. Once we face the camera for the first time, our uncertainties arise. My comfort with my video voice has increased with exposure and experience due to some #HumanMOOC work. The first task for this open, online course was to create a video introduction. The second task had each participant creating a video to introduce their online course to their students. Then more video capture using Flipgrid where our face and voice was recorded while answering some focus questions. After each of these experiences, and with encouragement and feedback from the course instructors and participants, I became less reluctant to face the camera.”

This participant goes on to share how she was able to incorporate what was learned in her own teaching practice, “With culminating projects for my own course to mark, I decided to do a video for each of the students to provide feedback on their digital stories. I sat facing the camera, notepad with jot notes at my side, green screen behind me, and I recorded a message to each of my 34 students. At the end of this process I felt that I had shared a personal message and connected in a small way to each of my students.”

11. UTILITY OF INNOVATION FOR ONLINE EDUCATION

The stages of adoption (SA) of technology instrument is a single item survey that measures educators stage of technology adoption and includes six stages: (i) awareness, (ii) learning the process, (iii) understanding the application of the process, (iv) familiarity and confidence, (v) adaptation to other contexts, and (vi) creative applications to new contexts. Because the purpose of HumanMOOC was to help educators utilize audio and video recording technologies and social media to increase their presence in online instruction, it was used in this pilot study as a pre- and posttest to allow us to measure the effectiveness of the MOOC by testing whether their level of technology adoption changed as a result of participating in the HumanMOOC. Furthermore, due to the complexity and novelty of learning in MOOCs compared to formal online classes, many researchers argue that terms such as learning and achievement should not be assessed in the conventional sense (i.e., final grades or completion) (Ho et al., 2014). Thus, using this scale can give us a sense of participants’ learning gain and achievement as change in their level of technology adoption in their online courses.

A gain score was calculated for each participant. In this case a negative gain score means that there has been an increase in their level of adoption of audio/video recording and social media tools while a positive score means a decrease in their level of adoption. The average increase in participants' adoption of audio and video recording tools was .82 (i.e., the average increase for audio/video recording tools increased by approximately one level on the SA scale) while their level of adoption only increased by .06 for social media tools. This is due partly to the fact that the educators who completed the course were very connected via social media. The increase in the adoption of video for online teaching is worth noting as it may mean that they will develop more video for their own courses in the future. Interviews with participants in the future will help shed some light on the impact that this course had on their teaching practices.

12. PROSPECTS FOR THE INNOVATION

The apparent shortcomings of traditional professional development coupled with the current proliferation of MOOCs for learning and training have shaped new visions of teacher learning and professional development (Stevens, 2013). These new practices include the adoption of networking technologies in supporting teacher professional development. While advanced online technologies are gradually decreasing the barriers of traditional professional development programs, instructional designers are still faced with the challenge of designing online venues for professional development that are based on sound design principles and also take advantage of the strengths of the online medium. In this paper, we share our experience designing an MOOC for online faculty and designers that combines the principles of social constructivism and communities of practice (CoPs).

There is a significant opportunity to continue to provide professional development to educators in order to help transform pedagogy and practices as new technologies continue to allow us to explore new pedagogical innovations. Without these design-based research experiences it will be difficult to explore and share these innovations at scale and across institutions, which is why using MOOCs to scale these innovations is key to their success. If teaching and learning centers at universities leveraged MOOCs to deliver innovative professional development, thus expanding the pool of options for educators, this course significantly impacts the profession.

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