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# Learning through Design: MOOC Development as a Method for Exploring Teaching Methods

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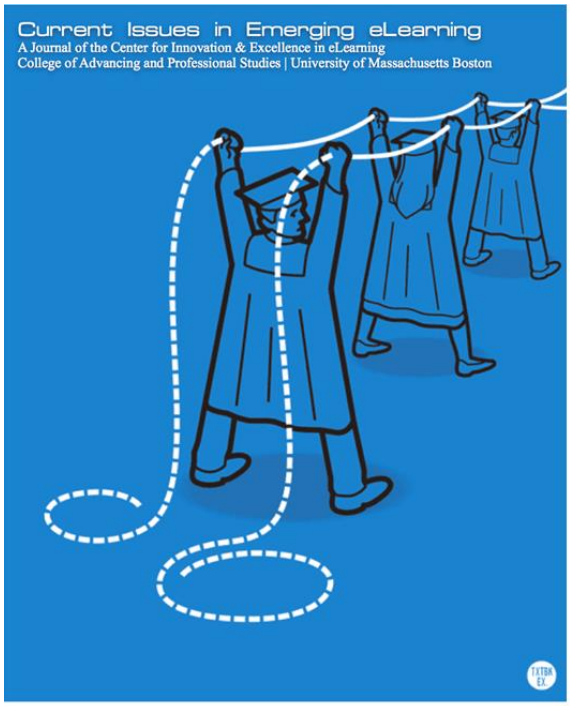




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# LEARNING THROUGH DESIGN: MOOC DEVELOPMENT AS A METHOD FOR EXPLORING TEACHING METHODS

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## ABSTRACT

Exploring new pedagogical approaches and technologies in learning experiences such as MOOCs offers educators a clear opportunity to reflect on and expand their teaching methods and document effective practices. However, while research has affirmed the value of self-reflection as an important means to improve one's pedagogical practices, very limited data about self-reflection during course design exists for online instructors in higher education. A team of MOOC course designers thus seized the opportunity to investigate whether they could improve their teaching practices by engaging in a connectivist and reflective process to create an innovative MOOC. The MOOC design team for Educational Technology and Media Massive Open Online Course (ETMOOC) created a virtual laboratory for reflecting on the pedagogical approaches and technologies they were considering. The underlying question they sought to answer was whether their experiences with the connectivist design process would impact their own self-reflective teaching practice. The design team encouraged exploration of various pedagogical models, leveraged the web to create connected learning experiences, networked learning, and reflected on the design throughout the development of the course. For the author, designing, developing, and teaching a MOOC created trigger moments for improving teaching. The author provides a list of suggested practices for reflecting on teaching and improving course design for Massive Open Online Courses (MOOC) in particular.

**KEYWORDS**: MOOC, cMOOC, connectivist MOOC, instructional design, reflection, self-reflection, connectivism, Taggard Model, social media, learning community, learner-centered

# LEARNING THROUGH DESIGN: MOOC DEVELOPMENT AS A METHOD FOR EXPLORING TEACHING METHODS

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## INTRODUCTION

Learning design involves a wide set of instructional decisions, knowledge, skills, and competencies. Online teaching and learning design involves, in addition, wide opportunities to innovate. The challenge—which is complicated by the proliferation of course models—lies in making it easier for educators to adopt innovative design (Moe, 2014; Rizvi, Donnelly, & Barber, 2013; Voss, 2013). The issue for online educators is to identify the most effective course designs and teaching skills, and use them in ways that will engage students in meaningful, challenging, and engaging learning experiences. Reflective practice of learning design is a mindset that transforms teaching by guiding educators to be more thoughtful and intentional about their instructional decisions (Schon, 1996). In our efforts to do so, we educators constantly self-evaluate and reflect on all aspects of our courses and teaching design to improve and expand our teaching strategies. While research has affirmed the value of self-reflection as an important means of improving one's pedagogical practices, very limited data regarding self-reflection during course design exists for online instructors in higher education.

When designing a MOOC, a team of educators from across the globe identified the opportunity to investigate whether the course designers could contribute to improving teaching practice (Gaebel, 2014) by reflecting on innovation in course design. The underlying question was whether the course designers' experiences with the MOOC design process impacted self-reflective teaching practice. In response to this opportunity, I compiled a list of suggested practices for reflecting on teaching and improving course design for Massive Open Online Courses (MOOC) in particular. This set of reflective practices is based on the personal experiences of instructors who collaborated on course design, during which process each person contributed his or her expertise. The reflective practice took place during initial design and delivery and after the completion of the MOOCs. The lessons learned were then re-used and refined for additional MOOC designs.

# REFLECTION AND REFLECTIVE PRACTICE

John Dewey (1933) describes reflection as "an active and persistent careful consideration of any belief or knowledge." Reflective practice is understood as the process of learning through and from experience towards gaining new insights of self-and/or practice (Boud and Fales, 1983; Jarvis, 1992). Reflective practice in teaching involves an examination of the way one teaches and decisions regarding what areas need improvement. Reflective practice is related to metacognition - the ability to think about one's thoughts regarding teaching with the aim of improving learning (Wilson & Conyers, 2014). Research has shown that instructors who self-reflect have greater confidence and create more positive learning environments that lead to higher student achievement (Hartman, 2001, p. xi). Richards (1995) explained that "becoming a reflective teacher involves moving beyond a primary concern with instructional techniques and 'how to' questions" (para. 2) to ask deeper questions regarding instruction. Through my own experiences, I've come to believe that self-reflection on teaching as well as metacognitive thinking occur readily during course design, delivery, and redesign of MOOCs delivered by groups of educators. The more MOOCs grow and evolve as a format for online courses, the greater the need for educator designers to have basic knowledge in this area. Laurillard and Ljubojevic (2011) recommend that instructors designing and teaching online courses adjust their approach rather than simply transferring their previous face-to-face approaches to the online format. Caudle and Moran (2012) highlight the importance of reflection when making this adjustment. MOOC design accentuates the need for reflection, since the transfer of previous online learning practices may not work as well with the larger and often more diverse audiences participating.

Bartlett and Rappaport (2009) and Alteen, Didham and Statton (2009) found that faculty members' reflection produced the most long-term impact on their professional development. Hativa (2000) claims teaching practices need to change to improve teaching quality as do other personal characteristics that impact teaching: pedagogical knowledge, beliefs about teaching, and beliefs about students. Donald Finkel (2000) wrote that teaching should be "providing experience, provoking reflection," since

> … to reflectively experience is to make connections within the details of the work of the problem, to see it through the lens of abstraction or theory, to generate one's own questions about it, to take more active and conscious control over understanding. (p. 153)

According to educational psychologist Robert Slavin (2006), one characteristic of outstanding teachers is intentionality, or constructive self-awareness in teaching. Intentional instructors methodically consider the impact their actions have on

learners and use relevant evidence to support the strategies they select; they strive to improve their effectiveness over time. One way to accomplish intentionality is through self-reflection, which requires practical, personal insight into what works in a learning situation.

I have found that designing and developing, as well as teaching, a MOOC has led me to reflective practice. As John Sener tells us in *The Seven Futures of American Education: Improving Learning & Teaching in a Screen-Captured World*, "online education can turn teachers from being reflexive to being reflective" (2012). The process of designing, developing, and collaborating in MOOC design can improve practice through reflection, but, as Sener states, "[i]t is not automatic" (2014). Scott (2013) found teachers change their beliefs about teaching when they have the opportunity to collaborate and discuss their work with colleagues. If an educator goes through the whole process of designing, developing, and delivering a MOOC using a personal learning network, resources shared by others, and adaptations of successful strategies, that educator reflects upon teaching practice in ways that greatly increase the likelihood of improved teaching. In the design of the Educational Technology and Media Massive Open Online Course (ETMOOC), the course discussed here, group collaboration and discussion have driven the reflective process. As more and more MOOCs are created, we are seeing learning design teams forming that comprise educators and scholars from all over the globe. The more voices in the mix, the more ideas are shared. The process of group decision-making drives reflection (Sener, 2014). For ETMOOC, design and development involved a working team of 21educators who improved the design of the course and instigated reflection among the designers and participants, a phenomenon Couros has identified (2012). The educator design team was drawn together by the course topic and in smaller groups by specific interests. Design team members widely report finding the result was reflective, exciting, and motivating.

## DESIGNING AND DEVELOPING A MOOC

Team-based MOOC design as introduced above may include the following roles: learning designer, subject matter expert, graphic designer, instructional technologist, social media manager, interaction facilitator, and multimedia developer (Puzziferro and Shelton, 2008). Each of these roles may be assumed by one or several educators. The MOOC design team for ETMOOC encouraged exploration of a variety of pedagogical models, leveraged the web to create connected learning experiences, networked learning, and included reflection on the design throughout the development of the course. Jones and Steeples (2003) refer to "networked learning" as "learning in which information and communication technology is used to promote connections: between one learner

and other learners, between learners and tutors; between a learning community and its learning resources" (p. 2).

The MOOCs I have co-designed have involved a large volume of communication conducted through a variety of technologies among the designers operating as community members. This communication during design often has led to exploration of the use of personalized and networked reflective practice. Our communication has often taken place via social media tools. This aligns with evolving MOOC design practice: Social media tools have become essential to MOOC design because these tools enable connectivity, communication, and interaction (deWaard, Abajian, Gallagher, Hogue, Keskin, Koutroupoulos & Rodriguez, 2011). Social media can lead to interaction and dialogue that become central to the learning design, as the network of designers and learners establish essential social presence. In the case of ETMOOC design, interaction and dialogue led the design team to construct knowledge through *reflection-in-action* (at the moment of teaching) and *reflection-on-action* (action planned before or after teaching) (Schon, 1987). Reflection consisted of several stages: Typically the educators identified a question regarding teaching or learning, proposed actions to address the question, gathered and analyzed data, then evaluated the solution.

## CONNECTIVISM: CENTERING ON LEARNERS IN A DIGITAL AGE

The literature reveals that the technology tools and pedagogical practices utilized in MOOCs vary from those used in more traditional online education. The methods of content delivery and instruction may be different as well. However, interaction in a MOOC remains the crux of the matter, just as in other delivery formats. "Interactions have a direct influence on learners' intellectual growth" (Hirumi, 2002). Meaningful interactions result from learners responding, negotiating internally and socially, arguing points, evolving ideas using alternative perspectives, and solving real tasks (Jonnassen et al., 1995; Lave & Wenger, 1991; Vygotsky, 1978). The emerging technologies and creative thinking about teaching and learning represented by the MOOC model call for new pedagogies that specifically foster meaningful interactions in large, networked learning environments. By exploring the different pedagogical approaches and technologies in learning experiences such as MOOCs, educators can reflect upon and expand methods of teaching and document effective practices.

The ETMOOC design and delivery I experienced leaned heavily toward connectivist pedagogy. Connectivism has been described as a learning theory for a digital age, a theory that situates the student at the center of his or her own learning (Kop & Hill, 2008; Siemens, 2005; Dunaway, 2011; Tschofen & Mackness, 2012; Ravenscroft 2011). Connectivism seeks to strengthen the

tendency of learners to engage in an intentional learning process by enabling those learners to form connections between sources of information, and therefore to create useful information patterns (Siemens, 2005). One goal of connectivism is to engage learners in an overtly social and networked learning experience, with the goal of extending learners' knowledge base and empowering them to become lifelong learners (Chetty, 2013). Utilizing this pedagogical model requires that the instructor create a learner-centric learning environment and then guide learners through the learning experience. In becoming a guide the instructor optimally also reflects constantly on the course and on the connections that develop among the participants, materials, and learning. Connectivism is largely about self-education *structured as a distributed network*, and *aggregated together using technology*.

Couros identifies the following activities associated with connectivist inquiry as helpful to MOOC designers and learners: Orient, declare, network, connect, and find a purposeful way to apply their newly acquired knowledge (2009). Connectivists assert that the learning experience cannot center on the instructor but instead must be about the learner, about the content and the activities (Downes, 2012). The teaching role moves from that of controlling classroom activities to influencing or shaping the network; control is replaced by influence (Dunaway, 2011).

In the case of MOOC design, connectivism directly relates to reflective practice. The process resembles methods described by the Taggart Model of Reflective Thinking, albeit with one chief difference. While the Taggart model guides the attainment of goals and intended learning outcomes through expanded opportunity and support for learning success, connectivist pedagogy guides the attainment of the goals and intended learning outcomes through networks, navigation activities, and the use of tools or media appropriate for exploring concepts and reflective thinking (Sui Fai John Mak, 2013).

## MOOC DESIGN AS REFLECTIVE LABORATORY: ETMOOC

Like good teaching, good course design takes attention and hard work every time. With MOOCs, the process of design and development lends itself to an experimental and reflective technique because some constraints are lifted while new constraints are imposed, leading to opportunities for creative thinking and problem solving. In the case of the design and development of ETMOOC, the design team, described by Couros as "conspirator," (2013) worked within a Google group. Within this collaborative work space, design team members were able to define, refine, and reflect on the MOOC design. Figure 1 below provides screenshots of artifacts of ETMOOC designers' interactions in our Google group.

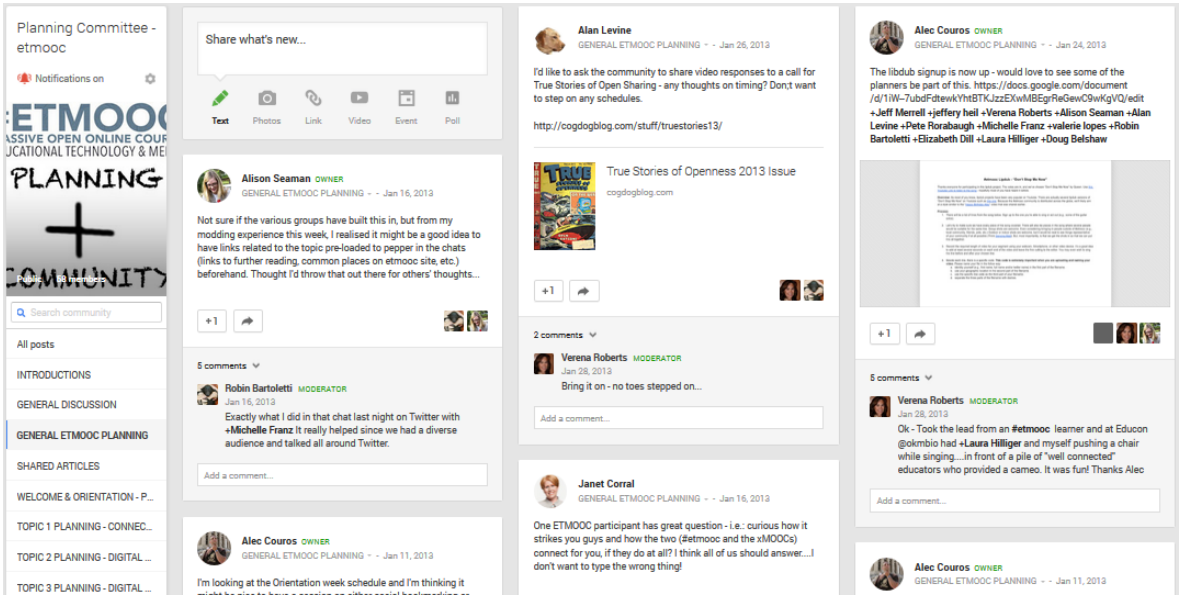



**Figure 1:** ETMOOC Planning Google Group

A wide variety of design and development activities took place in the Google group, including:

- Interactions and communications regarding the MOOC during pre-design, design, delivery, and post-design.
- Collective intelligence and crowdsourcing of MOOC content, references, and resources.
- Discussion of MOOC order and flow and strategies for learning activities.
- Resource aggregation of particular MOOC topics and subtopics.
- Live co-editing of course design documents.
- Nomination and selection of topic experts.
- Original content creation and gathering of existing unique activities to create learner engagement.
- Gleaning, defined by Booth as observation, documentation, integration, acknowledgement, and incorporation of the connections (2011, p. 26), all of which occurred through collaboration and participation in the learning design.

Another aspect of the ETMOOC course design process that added to reflection involved the fact that the design process was opened to learners as well as designers. The ETMOOC open design process in part helped the design team to address the challenges of MOOC design identified in the literature. Anyone could join in the design Google Group and contribute to the course design and/or give opinions on design decisions. This openness resulted in a rich dialogue and

shared thought. The open forum encouraged collaboration and self-review that led members of our design team to consider and reconsider our teaching strategies and approach.

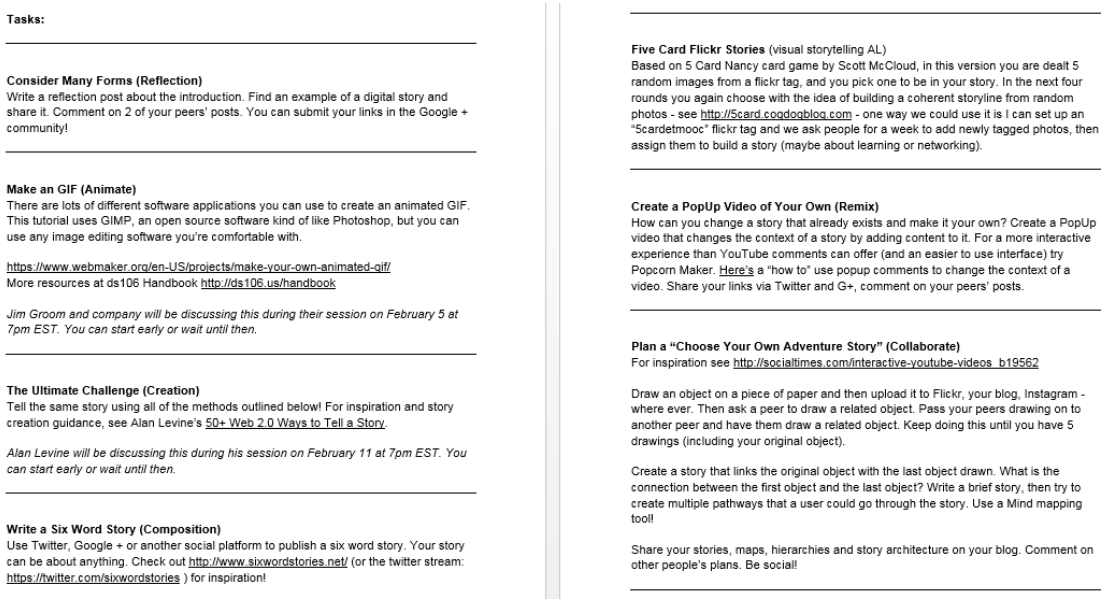
MOOC designers design for unknown participants who will enter the MOOC with various levels of background knowledge and experience (Macleod, Haywood, Woodgate, & Sinclair, 2014). This learner diversity creates a challenge for design team members who must create learning experiences that are adaptable for novice students while providing personalized learning pathways that induce critical thinking for advanced students.

Figures 2 and 3 below document the design team's efforts to accommodate the unknown learner population and meet the need for personalizing learning paths for learners with disparate degrees of preparedness for study of the course topic, educational technology.

**Draft Calendar:**

| DATES (2012) | TOPIC | OVERVIEW | |
|---|---|---|---|
| **Mar 10-16**<br>**Week 9** | Citizenship, Identity, Footprint (Overview & Implementation) | | suggestion: ask Bonnie Stewart<br>Is a continuation of media/digital literacy, in my opinion, which is appropriate? Same resources listed above are appropriate this week, as well.--Debbie Fucoloro I (Catherine Cronin) have been working w/ 2nd year students & academic staff exploring digital identity issues & ideas... would love to work with Bon Stewart (& others) on this. Will speak with Bonnie. |
| **Mar 17-23**<br>**Week 10** | Privacy, Corporatization, & Other Issues with Web 2.0 | - Issues of commodification<br>**Discussion of**: Google, Facebook<br>- privacy tools (ghostery, VPN, Https Everywhere) | suggestion: ask Robin Wharton<br>Could also fall under media/digital literacy umbrella.--Debbie Fucoloro |
| **Mar 24-30**<br>**Week 11** | Open Movement: Open Access, Open Educational Resources, MOOC Movement (What Educators Need to Know) | - the philosophy of open<br>- the culture of open<br>- Connectivism | Suggestion: George Siemens/Or Wiley? Brian Lamb / Scott Leslie/Stephen Downes.<br><br>We (will) have a recording of Wiley/Cable green that can be repurposed for this - on Finding and using OER//Robin Bartoletti |
| **Mar 28-Apr 4**<br>**Week 12** | Ed Tech Implementation: Classrooms & Courses | - Ed tech in the classroom<br>- Online education<br>- Building a personal cyberinfrastructure (Gardner Campbell)<br>- interest-based project work that use the web as the platform | Suggestion? Wendy Drexler?<br>Can help with this one:verena - if don't need PhD. Not sure where this is going?--Debbie Fucoloro<br>Robin Bartoletti - I can help |

**Figure 2:** ETMOOC Topic Planning Calendar excerpt



**Tasks:**

**Consider Many Forms (Reflection)**
Write a reflection post about the introduction. Find an example of a digital story and share it. Comment on 2 of your peers' posts. You can submit your links in the Google + community!

**Make an GIF (Animate)**
There are lots of different software applications you can use to create an animated GIF. This tutorial uses GIMP, an open source software kind of like Photoshop, but you can use any image editing software you're comfortable with.

https://www.webmaker.org/en-US/projects/make-your-own-animated-gif/
More resources at ds106 Handbook http://ds106.us/handbook

*Jim Groom and company will be discussing this during their session on February 5 at 7pm EST. You can start early or wait until then.*

**The Ultimate Challenge (Creation)**
Tell the same story using all of the methods outlined below! For inspiration and story creation guidance, see Alan Levine's 50+ Web 2.0 Ways to Tell a Story.

*Alan Levine will be discussing this during his session on February 11 at 7pm EST. You can start early or wait until then.*

**Write a Six Word Story (Composition)**
Use Twitter, Google + or another social platform to publish a six word story. Your story can be about anything. Check out http://www.sixwordstories.net/ (or the twitter stream: https://twitter.com/sixwordstories ) for inspiration!

**Five Card Flickr Stories** (visual storytelling AL)
Based on 5 Card Nancy card game by Scott McCloud, in this version you are dealt 5 random images from a flickr tag, and you pick one to be in your story. In the next four rounds you again choose with the idea of building a coherent storyline from random photos - see http://5card.cogdogblog.com - one way we could use it is I can set up an "5cardetmooc" flickr tag and we ask people for a week to add newly tagged photos, then assign them to build a story (maybe about learning or networking).

**Create a PopUp Video of Your Own (Remix)**
How can you change a story that already exists and make it your own? Create a PopUp video that changes the context of a story by adding content to it. For a more interactive experience than YouTube comments can offer (and an easier to use interface) try Popcorn Maker. Here's a "how to" use popup comments to change the context of a video. Share your links via Twitter and G+, comment on your peers' posts.

**Plan a "Choose Your Own Adventure Story" (Collaborate)**
For inspiration see http://socialtimes.com/interactive-youtube-videos_b19562

Draw an object on a piece of paper and then upload it to Flickr, your blog, Instagram - where ever. Then ask a peer to draw a related object. Pass your peers drawing on to another peer and have them draw a related object. Keep doing this until you have 5 drawings (including your original object).

Create a story that links the original object with the last object drawn. What is the connection between the first object and the last object? Write a brief story, then try to create multiple pathways that a user could go through the story. Use a Mind mapping tool!

Share your stories, maps, hierarchies and story architecture on your blog. Comment on other people's plans. Be social!

**Figure 3:** ETMOOC Activity/Task planning example

# SOCIAL COURSE DESIGN

Social media tools are essential to connectivist MOOCs because these tools promote connectivity, communication, and interaction (deWaard et al., 2011). Couros asserts that knowledge creation is central to the learning process (Couros, 2009; Milligan et al., 2013). Moreover, social sharing provides a sense of connectedness that enhances learning and helps learners create and reflect meaning through discourse (Kop, 2011). In the case of ETMOOC, our use of social media provided design team members with similar opportunities for knowledge creation and learning. Interaction and dialogue among the course designers led to reflection that proved central to learning design because the designers (themselves learners), by networking, were able to share how they had created knowledge in the design process.

# REFLECTING WHILE TEACHING

According to Couros (2009), the guiding principles for an open, social, connected course such as a connectivist MOOC are that instructors assume the role of facilitators and social connectors rather than that of lecturers or knowledge delivery systems. Connectivist MOOCs such as ETMOOC are developed so that learners engage in social knowledge creation and participate in collaborative activities. Online synchronous events via social media draw a community of educators together and help grow MOOCs because community members typically invite their colleagues and friends to join the event and thus expand the community. Stewart has observed that social media tools can increase course

enrollments as friends and colleagues recommend courses to one another through social networks (2013). This process of evangelizing occurred during the course design phase of ETMOOC—open to the public, as noted above—and during the run of the course itself. In consequence, both the design team grew in numbers and levels of commitment through our social media connections, and our learning community at large grew through social media use. Adams et al. (2014) have confirmed Cormier's notion that MOOCs are event-based learning experiences, and that this "eventedness" contributes to the uniqueness of MOOCs.

Research on online education suggests that the presence of facilitators and participants throughout a course and across various social media networks enhances the sense of community in a course (Kilgore & Lowenthal, 2014; Kop, 2011). In ETMOOC the participants were socially very active. The MOOC design seems to have been successful at exploiting networked learning principles to foster at large scale the situation one group of educational researchers has dubbed "highly motivated, personally relevant, and socially situated learning" (Macleod, Haywood, Woodgate, & Sinclair, 2014, p. 246).

## INSTRUCTIONAL DEVELOPMENT/DESIGN PROCESS

ETMOOC design team members tested the concepts and practices we acquired through course development using a cycle of informal reflective practice. Informal reflection involves self-questioning and helps develop awareness of one's own assumptions (Shoffner, 2008). Our goal for engaging in cycles of informal reflection was to apply what we were learning in the development of future MOOCs. The instructional design process evolved to include a reflective process of collection, and transformation through self-questioning and collaboration, as outlined below. We suggest that the practices described are useful for reflecting on and improving course design for Massive Open Online Courses.

- Employ a team-based approach to MOOC design.
- Collect, research, and gather resources and ideas to support topics.
- Curate and cull resources and ideas through a group process of reflective thinking and discussing.
- Explore new, older, and sometimes beta tech tools to create powerful learning experiences.
- Connect, reflect, and reclaim ideas, tools and resources through open conversation about what is most meaningful.

Conole & Willis assert that a key principle of learning design is to make the design process explicit and shareable (2013). Strategies to support explicit, shareable learning design include visible learning (Hattie, 2015), flexibility, adaptation, intellectual play, and reflective practices of development and teaching. Table 1 below shows some of those methods that can be used for design of future MOOCs. Note that many include an element of reflective practice.

| Visible learning | Flexibility | Adaptation | Intellectual play | Reflective Aspect (Taggart, 2005) |
|---|---|---|---|---|
| Blog | Offer a variety of choices for blogging | Base comments and adaptation of the content upon groupthink/input | Research, remix, and add | Frame problems |
| Google Group | Open the group - allow anyone to join | Create knowledge collaboratively and reflect on that knowledge | Think, puzzle, explore as thinking routines | |
| Google Hangouts | Open the hangout – allow anyone to join | Operate with no set agenda other than the topic of the week/module | | |
| Wiki | Open Wikispaces for public development | Share & curate resources among group members | Label, categorize or tag, and strategically link ideas and content | Gather data, schema, and context |
| Remixing | Modify existing materials | Use technology and learning strategies to transform content and ideas | Connect and adapt to own experiences | Reframe problems |
| Design visible activities that support or bring perspect-ive to the content | Examples:<br>Animated gifs<br>Video interviews<br>Hangouts<br>Video introductions<br>Voice/video Feedback | Design that provides an essential structure with coaching to enable participants to adapt their own versions of the activity (Brown and Edelson, 2013) | Design team members themselves complete the course work to be provided to students to increase likelihood activities are all "doable." The input from a diverse team further increases the likelihood that global learners will be able to perform the tasks | Experiment |
| Discuss-ion | Host improvisations in which materials may provide a "seed" idea, but participants contribute the bulk of the design effort required to bring the activity to fruition (Brown & Edelson, 2013) | Focus iterations, review, and redesign to improve the instructional moment | Debate the benefits and pedagogy of each activity | Observe, Judge, Evaluate |

**Table 1:** Explicit MOOC instructional design and development process pieces

## DEVELOPMENT OF MOOCS ENHANCES REFLECTIVE TEACHING

In my experience, designing, developing, and teaching a MOOC created what Waite et al. describe as trigger moments for improving teaching (2013). Those triggers facilitated reflection immersed in an atmosphere of collaboration. Conole (2013) defines course design as a "methodology for enabling teachers/designers to make more informed decisions in how they go about designing learning activities and interventions, which is pedagogically informed and makes effective use of appropriate resources and technologies." Keppell et al. (2011) state, "[a]cademic teachers should be encouraged to model and share learning designs within their own university, partner institutions and symposiums and conferences in higher education" (Recommendation 8). Modeling and sharing learning designs certainly occurred among members of the design team of the MOOC discussed herein. Participants in ETMOOC shared their reflections regarding the MOOC and have shed light on whether they themselves anticipated any long-lasting effects from the MOOC design process in their own daily practice. Overall, ETMOOC designers assessed participation in design of the MOOC as successful. They enjoyed learning and using motivational tools, group collaboration and peer engagement. ETMOOC co-designer Daniel Bassill (2013) reflected on his experience as follows:

> I've been using technology to communicate, gather ideas, and support the work I do in Chicago since I first started using computers in 1980. The MOOC has provided a constant flow of new ideas. Over the past two (now three) years, starting with ETMOOC, it was often with the goal of encouraging other people in my network to join in and take advantage of the learning as well as encouraging those within the MOOC who share the same goals as I do, to connect with me in my own efforts….Having a network of people to help you find information to support your learning, and problem solving, enhances your efforts.

ETMOOC design team member Peggy George (2013) describes learning courage as part of the ETMOOC experience:

> I'm thankful for the "permission" to learn, lurk, share and explore in MY OWN WAY ....While I have enjoyed being on this journey with so many educators I know and respect, I wasn't sure I had the courage to actually take the step to create a blog and reflect publicly. There have been so many powerful connections and learning experiences, but it only took one that finally motivated me to take that next step and create my reflection blog for ETMOOC!... It's a small step for most, but a big step for me.

Paul Signorelli (2014) expresses a similar sentiment when he shares that "one of the most fascinating parts of the ETMOOC experience is that the community continues to thrive nearly three years after it first formed, as we saw again through our latest online tweet chat."

## REFLECTIONS ON LEARNING DESIGN IN MOOCS

As discussed above, MOOCs are designed for a heterogeneous international audience (Matkin, 2014). This situation invites the blending of design approaches to meet the needs of diverse learners. During this time of immense diversity of learning populations, technological change, pedagogical exploration, and educational innovation, there is a need now more than ever for online courses, especially MOOCs, to be built by educational teams comprising a variety of roles such as learning architect, graphic designer, and video production specialist. While research has affirmed the value of self-reflection as an important means of improving one's pedagogical practices, very limited data regarding self-reflection during course design exists for online instructors in higher education.

Typically in MOOC development, the content, media, and design approach incorporates a variety of learning strategies enabled by technologies such as interactive audio and video, webinars, microblogging sites, discussion tools and social media. Strategies that rely so centrally on technology tools impose a new layer of responsibility upon the course designer and instructor. These strategies also open a new window of opportunity to explore what works well in MOOCs. It is critical that educators continue to expand thinking about how learners learn using technology. MOOCs can create a networked community in which learners share content, make it their own, and expand on the ideas of the community by adding back into the network of learners (Downes, 2012).

Our team's experience demonstrated to us the significance of self-reflection in improving online instructional design. One might reasonably conclude that when MOOC instructors and developers engage in self-reflection, they not only improve selected aspects of their own teaching practice, but also model best practices for others who may be developing MOOCs in the future. I further suggest that reflective practices can help us to expand our design repertoires beyond the standard operating procedures we use in daily practice.

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