Teaching an Online Pedagogy MOOC

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Abstract

When MOOCs arrived, there was an immediate response of how wonderful it was that a course could reach so many students – hundreds of thousands of them. This remains true, but access needs to be tempered with quality. Just as higher education is held accountable for the quality of its traditional, blended, and online courses, MOOCs must be held accountable. There is a call for quality assurance in MOOCs just as much as with online, but less guidelines. Over the past two decades, quality assurance in online learning has developed and matured, yet some of the basic principles are not carried forth in MOOCs. This case study of an Online Pedagogy MOOC found that MOOCs can conflict with certain established best practices in online learning. Teacher/learner interaction and the development of learning communities online are two missing components in MOOCs. Student learning outcomes can be achieved in MOOCs as in online, but stronger persistence is required. Some features such as learning support services are needed in MOOCs to aid in persistence.

Introduction

In online pedagogy, MOOCs are recent phenomena beginning in 2008 when Stephen Downes and George Siemens created the first *Massive Open Online Course* (Downes, 2013). Since that early beginning, MOOCs developed rapidly, becoming a global phenomenon. Today MOOCs utilize three major platforms, Udacity, Coursera, and edX (Daniel, 2012) and their role in higher education is hotly debated (Belkin, 2014; Carr, 2012; Harden, 2012; Heussner, 2013; Kolowich, 2013; Selingo, 2013; Vaidhyanathan, 2012; Valls, 2013). Whether good or bad, MOOCs have become part of the higher education landscape, but there is still a real need for pedagogical research on MOOCs.

This research addresses MOOCs as online pedagogy, utilizing a case study of a MOOC sponsored by NJEDge.Net (New Jersey's Technology Consortium) on the topic of Online Pedagogy. Running from, June 17 - July 8, 2013, the MOOC was designed as a 3-week workshop for higher education instructors who had never taught an online course before. Moving from the traditional environment to the online environment requires a shift in the paradigm of teaching and learning face-to-face. This was the crux of the Online Pedagogy MOOC and represented a focus on the very same concepts both being taught and learned in order to teach and learn elsewhere. Two main questions arose: Do MOOCs represent quality online pedagogy? Are students able to stay and learn effectively in MOOCs?

Literature Review

Quality Assurance Online

Online learning has been around for decades in one form or another. Moore and Kearsley (2012, p.24) outline five generations of distance education: correspondence; broadcast radio and television; open universities; teleconferencing, and internet/web. This has certainly been time enough to research what makes for quality in online programs. Shelton (2011) looked at 13 different paradigms which have evolved for evaluating quality online and found that they shared certain specific dimensions of consideration. Moreover, in terms of priority, the dimensions are rated from highest to lowest in the following diagram with the lowest at the bottom of the funnel:
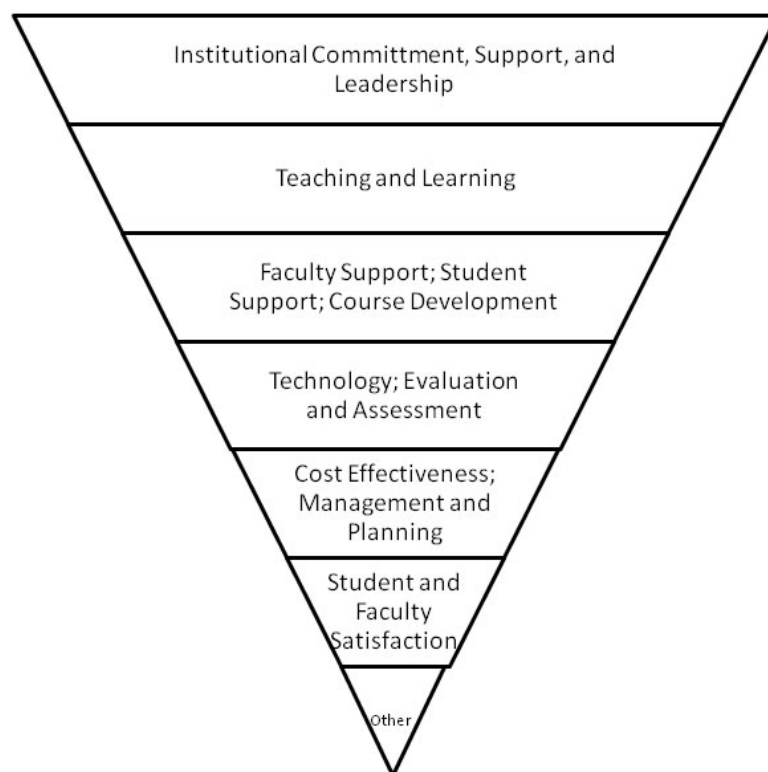
Figure 1. Dimensions for Evaluating Online Programs (Shelton, 2011) Used with permission.

It begs consideration how MOOCs fall within this diagram of quality assurance. Since then, Dr. Shelton has created a scorecard for evaluation of online programs as has Quality Matters™ (QM), Sloane Consortium, and others. The application of a scorecard or rubric is always helpful in guiding those who are preparing to teach online. Adair (2013) applied the QM rubric to MOOCs and found them lacking in certain dimensions. Of the twelve MOOCs that were reviewed: three met the standards in the first review; one met after amendment; and one other plans to make amendments. However, MOOCs may be on another level altogether and may require a rubric of their own.

Online Teaching and Learning Best Practices

Best practices in online teaching and learning have been researched and shared by many (Boettcher, 2011; Ko & Rossen, 2001; Palloff & Pratt, 2007; Ragan, 2011; Swan, 2004). There are several commonalities amongst them. First, the instructor should have a strong presence (or as Ragan (2011) expresses it, "Show up and teach" p. 5). The online teacher still needs to pay attention to course progress and show the students that s/he is there, paying attention. Second, the online course needs to create a learning community amongst the participants. Palloff and Pratt (2007) describe this as a function of people, purpose, and process which leads to the outcome of reflective/transformative learning (p. 18). Third, the instructor needs to construct collaborative experiences for the participants. Boettcher (2011) recommends using group work or teams to enable co-construction of knowledge and to explore diverse views.

Fourth, it's important to invite reflective thought through discussion posts, wikis, blogs, etc. There are three basic types of interactions: learner/content; learner/instructor, and learner/learner. Swan (2004) breaks these out into specific activities to enhance each of these important interactions, using the Community of Inquiry Framework (Garrison & Archer, 2003), and refers to Parker and Gemino's (2001) and Picciano's (2002) findings that online discussions often lead to more "experimentation, divergent thinking, exploration of multiple perspectives, complex understanding & reflection than F2F discussion." (p. 1). Swan's recommendation is to encourage this through provocative open-ended questions and to model the dialogue.

Su, Bonk, Magjuka, Liu and Lee (2005) found that interactions were highly valued by the instructor, but students varied in having more interaction online – perhaps as a result of learning preferences. Chen, Lin, and Kinshuk (2008) found that interactions and instruction were the two most important factors in student satisfaction. The type of course may also affect the need for discussion as evidenced in Sebastianelli & Timimi (2011) findings that a quantitative course relies more heavily on faculty/student interactions and formative assessments and discussion forums were of limited value.

Fifth, the online instructor is encouraged to use formative assessments early and often throughout the course. Ragan (2011) takes this one step further and integrates the idea of formative assessments (quizzes, assignments, self-assessments, etc.) with creating a tempo for course-related activities. Thus, expectations of time management are clearly communicated and understood and "both learner and instructor fall into a comfortable rhythm of class-related activities" (p. 10). All of this should be clearly outlined in the course syllabus (Ko & Rossen, 2010). As a possible sixth best practice, Boettcher (2011) suggests adding a synchronous element to the course as this greatly decreases the feeling of distance or remoteness that online students often encounter (Stodel, Thompson and MacDonald, 2006). In addition, Hastie, Chen, and Kuo (2012) found that a synchronous online classroom greatly enhanced student learning outcomes in an early childhood course.

Chickering and Gamson (1987) first published the following seven principles for good practice in undergraduate education:

1. Encourages contact between students and faculty.

2. Develops reciprocity and cooperation among students.

3. Encourages active learning.

4. Gives prompt feedback.

5. Emphasizes time on task.

6. Communicates high expectations.

7. Respects diverse talents and ways of learning.

They are listed here because they bear an uncanny resemblance to the best practices listed for online teaching and learning. Graham, Cagiltay, Byung-Ro, Craner and Duffy (2001) charted online technologies that could enhance the opportunities for application of each of the seven principles. Today, the technologies have grown even more, creating further prospects for online application. Regardless, whether online or face-to-face, good teaching pedagogy is essential for student success.

Online Student Learning Outcomes

From the perspective of student learning in an online course, outcomes have been shown to either be equivalent or possibly higher than face-to-face – most often in a hybrid course (Means, Toyama, Murphy, Bakia and Jones, 2010). Prineas & Cini (2011) posit that with the data that can be gathered online (big data and learning analytics) and new technologies, assessment of learning outcomes can be enhanced. Breslow et al. (2013) and Koller (2012) predict masses of learning data will be able to teach us about learning. On the other hand, Daniel (2012) and Bates (2012) don't necessarily believe that the big data found in MOOCs will be as effective as predicted. Yet, even earlier, with online courses, instructors were beginning to discover that when they taught an online course, they learned how to teach their traditional courses even better (Kolowich, 2009). Rivard (2013) and Daniel (2012) concur that MOOCs have promise in reviving the scholarship of pedagogy. In addition, 49% of Chief Academic Officers (Allen & Seaman, 2013) think that MOOCs will add to our understanding of learning.

An important facet of understanding MOOC success is comparing it to past online education accomplishment of student learning outcomes. Russell (2001) found "no significant difference" for online courses not based on MOOC delivery, and Means et al. (2010) found online students performed modestly better than traditional. Notwithstanding, faculty today still have little faith in online education as the percentage of change in their distrust of online education from 2002-2012 has barely moved (Allen & Seaman, 2013). However, in 2012, 77% of academic leaders were inclined to accept that online has similar or better outcomes than face-to-face which represents an increase of almost 40% since 2003

(Allen & Seaman, 2013). MOOC learning outcomes, on the other hand, are much in doubt with little evidence to show for them. Boston & Helm (2012) state that "Based on the current state of MOOC courses, much more progress is needed."

Online Student Retention

Retention online continues to be an issue as lower retention rates in online courses are approximately 10-20% lower than face-to-face (Carr, 2000). Academic leaders' responses to whether retention online is a growing barrier to wide-spread adoption increased from 2007 to 2012 by 73% (Allen & Seaman, 2013). Atchley, Wingenbach, and Akers (2013) found that online course completion was less than traditional courses although Waschull (2001) found that they were similar. In addition, Atchley et al. (2013) found that online course completion was differentiated by course discipline with some courses lending themselves to the online environment more readily. MOOCs are known to have a 10% completion rate (Kolowich, 2013), which is much lower than either face-to-face or online education to date.

Hart (2012) conducted a meta-analysis of the literature on student persistence in online programs and found the following factors were associated with persistence: "satisfaction with online learning, a sense of belonging to the learning community, motivation, peer, and family support, time management skills, and increased communication with the instructor" (p. 19). Eastmond (2000), too, indicates the importance of student satisfaction with learning online as an important element for retention. Several studies (Angelino, Williams & Natvig, 2007; Eastmond, 2000; Legon, 2013) further state that learning support services and administrative services need to be available to help retain online students.

Methodology

This study was designed as an exploratory study aimed at understanding the differences in quality online pedagogy between MOOCs and quality online learning as currently defined. The case study approach is considered appropriate for such exploratory research because it is considered to be the best in regard to explaining "how" and "why" issues in a complex contemporary social phenomenon (Yin, 2002).

The Online Pedagogy MOOC used the Canvas platform and was capped at 500 as there were no assistants or mentors available to aid the instructor in the MOOC. Actual enrollments at the beginning of the course listed at 459. Participation in the online forums was measured through posting data. Another source of this research is from two surveys that were conducted – one to ascertain student demographics, and the other an end-of-the course survey. Data collection methods were provided by the Canvas platform and were able to be exported to Excel for further analysis. MOOC participation in the discussion forums was examined for patterns of participation. The following table presents the data collection methods for each research question:

Research Question	Methods	Data Source
Q1. Do MOOCs represent quality online pedagogy?	Comparison of MOOC teaching to Online Quality Factors Survey Research	Online Pedagogy MOOC design End-of-course survey
Q2. Are students able to stay and learn effectively in MOOCs?	Forum Participation Research Synchronous Assignment Research Collaborative Project	Statistics of student retention in the course Student participation in the discussion forums, synchronous web assignment, and collaborative final project

Participant Characteristics

The students were quite diverse. NJEDge.Net targets New Jersey institutions, but the students were from all over the world, although mostly North America. There were only two New Jersey students out of 110 respondents to a demographics survey. Most were from North America (49%), followed by Europe (31%),

South America (7%), Asia and Africa (4%) and the rest at 2%. The following graph shows the respondents' countries from which they were participating in the Online Pedagogy MOOC:
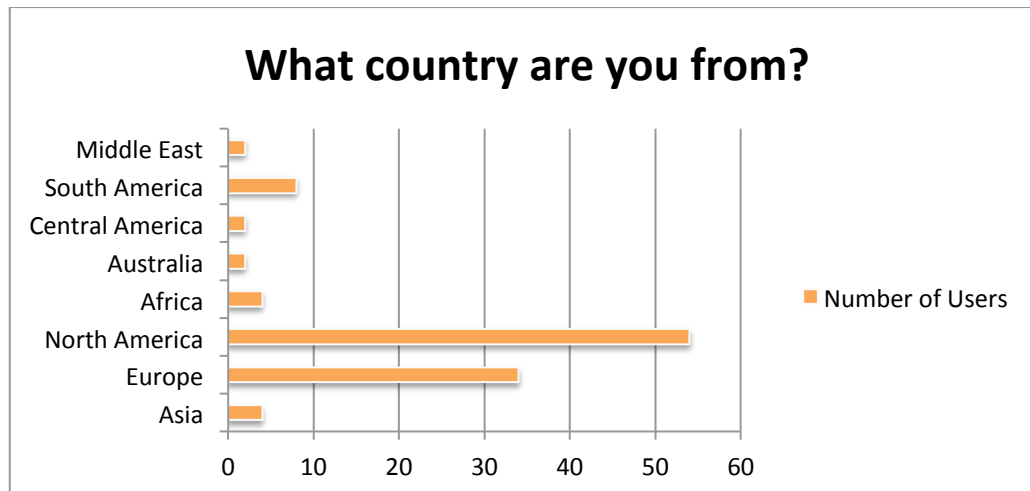

Figure 2. Bar graph of countries in which the respondents were participating

This meant that the language mixture was interesting as 49 of the 110 respondents were non-native English speakers:
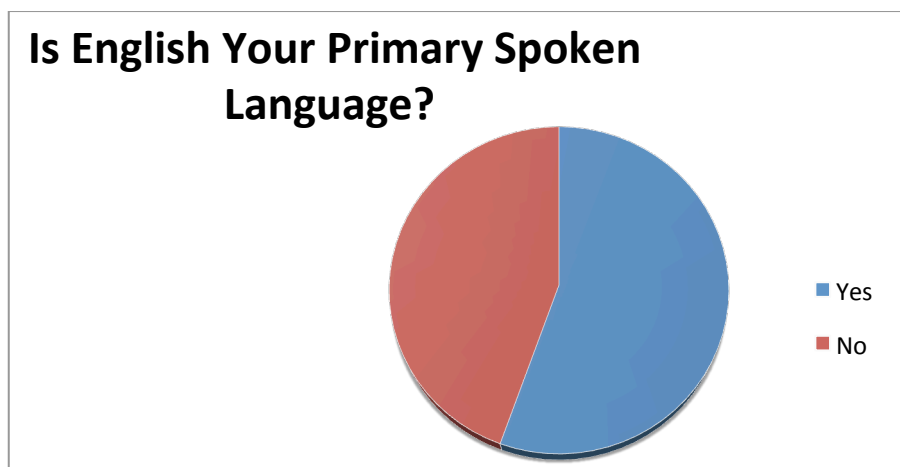

Figure 3. Pie chart of native and non-native English speakers in the survey

The respondents' working backgrounds were also diverse. There was a mix of instructional designers/technologists, faculty, a SME coach, a CIO, instructors in adult degree programs and several in networking. There seemed to be quite a few French teachers. There were also a large number of Spanish-speaking instructors. Both groups tended to participate in the group project with like-speaking students. Cultural inclinations play out in MOOCs or in any kind of online scenario and need to be considered (Albritton, 2006; Liu, Liu, Lee & Magjuka, 2010).

Participants indicated their highest educational level; 71% of the respondents had a Master's Degree, and18% had a Ph.D., J.D. or M.D. The next highest level was the group of respondents who had "some college" (11%). Because of the course content – professional development for instructors moving to the online environment – it made sense that most had higher levels of education as most higher education instructors have a Master's degree or better. The following diagram demonstrates the high number of Master's level students in the Online Pedagogy MOOC and supports the reports of many MOOCs that indicate participants with a high level of education (Nesterko et al., 2014; Zweifler, 2013):
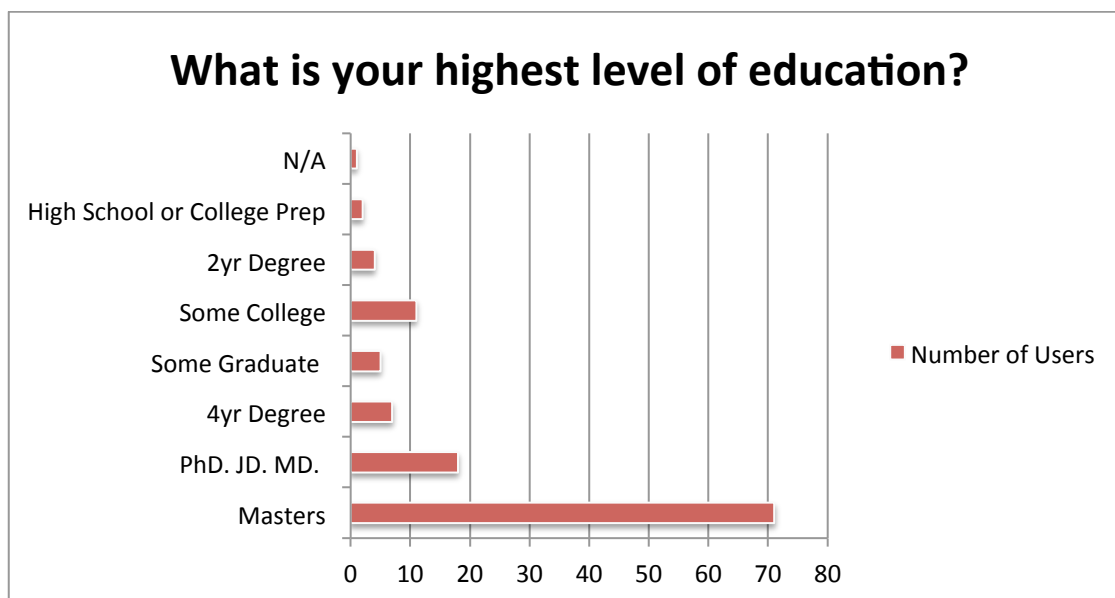
What is your highest level of education?

(Bar graph with categories from top to bottom: N/A, High School or College Prep, 2yr Degree, Some College, Some Graduate, 4yr Degree, PhD. JD. MD., Masters. X-axis labeled 0 to 80 with "Number of Users" legend.)

Figure 4. Bar graph of education levels of survey respondents.

When asked if they had ever taken an online course before, an overwhelming majority (73%) indicated that they had:

Have you taken an online course before?

(Pie chart with Yes and No legend.)

Figure 5. Pie chart of survey respondents who had or had not taken a prior online class.

Although, most of the students had taken a MOOC before (55%), there were still almost as many (45%) who had not:

Figure 6. Pie chart of survey respondents who had or had not taken a MOOC before this one.

Thus, there was still a sizable group who had never experienced a MOOC.

There were more females than males with the number of female respondents at 58% and male respondents at 42%. The following diagram demonstrates the relative proportions:
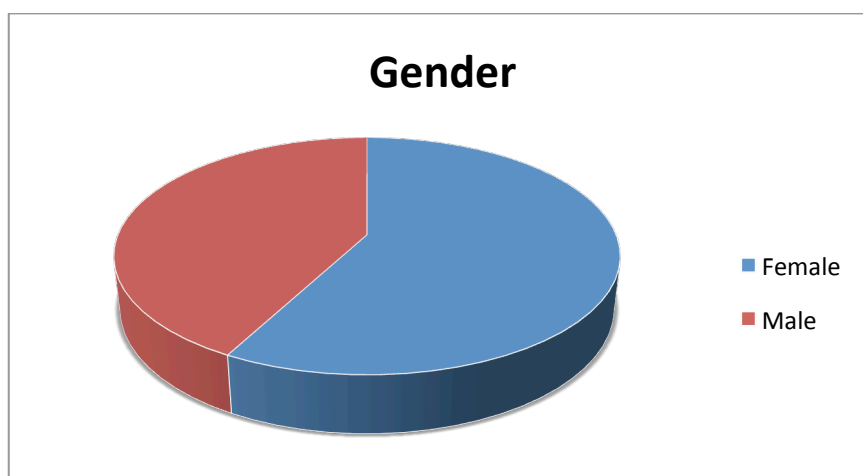

Figure 7. Pie chart of respondents' gender.

Data Sources

The methodology followed is an analysis of the statistical reports available in Canvas, the delivery platform used, as well as a review of the discussion forums and collaborative assignment. In addition, the results of two surveys that were run will be analyzed and discussed. These two surveys were a demographics survey and an end-of-course survey.

Study

The Online Pedagogy MOOC was designed to both teach and model for prospective online instructors how to teach online. It was founded on best practices indicated in the Quality Matters rubric, the research in the literature up to this point, and the instructor's own experience. Yet, it was extremely difficult to model some of the best practices for the students to use in their own teaching. There are differences between MOOCs (Massive Open Online Courses) and the current type of online course that is offered by a University with a set amount of enrolled students from that University. For purposes of this paper, we will call this type of online course a "traditional online course." The instructor found the following differences:

- Massive - Size of student population made it hard to read and participate in the discussion forums (even though this MOOC had been capped at 500 and so many other MOOCs range in size from 25,000 to over 100,000). Thus, communication with the instructor, which is rated so highly in all the literature, was difficult.

- Open – The variance in purpose amongst the students also made a difference. MOOCs are open to many different kinds of students who may or may not be interested in the course as University students are. A University's online course is composed of students who share in their desire to pass the course in order to get their degree from that institution. Hill (2013) identified different types of MOOC participants:

1. No shows – register, but don't even login

2. Observers – log in and read content, but do not engage

3. Drop-Ins – want to achieve a specific goal, which once satisfied, ends the course for them

4. Passive Participants – consume content, but don't do assignments

5. Active Participants – fully intend to complete the course and all activities

With that in mind, it is clear that it is more difficult to know and understand students' needs in a MOOC, than in a more typical online class.

Glance, Forsey and Riley (2013) found that a MOOC's pedagogical foundations are efficacious based on retrieval and testing for learning, mastery learning, peer and self-assessment, short format videos, and online forums and video discussions, contrary to Armstrong (2012) and Bates (2012) who felt that xMOOCs were figureheads of online large lecture classes. What Glance et al.(2013) does not take into account is the importance of the first premise of good online teaching for the instructor, "Show up and teach" (Ragan, 2011) and the importance of the interaction between student and instructor (Su et al., 2005; Swan, 2004). MOOCs do offer some alternative ways to try and accomplish this (instructor-created videos, peer-to-peer discussion and reviews), but tend to limit the social presence of the instructor. Modeling this was very difficult to do.

Design of the Online Pedagogy MOOC

The Online Pedagogy MOOC featured videos (some created by the instructor as well as others available on the Internet), surveys, textbook readings, links to relevant articles, posting assignments, two other assignments, and a final assignment which was a group project. The two other assignments consisted of creating an online syllabus for the course that the students, themselves, were preparing to teach online, subject to peer review. In the other assignment, students were able to experience a synchronous, collaborative session as instructors and reflected on the pros and cons of synchronous versus the usual asynchronous mode. The instructor offered six sessions at all times of the day and different days during the week to accommodate the diverse time zones involved. That students' experiential learning of why and how the synchronous environment could be integrated into the traditionally asynchronous environment of an online class, especially MOOCs, was a great opportunity for them and an opportunity for direct instructor/student interaction.

For the final group project, students organized themselves into groups based on common teaching interests to develop an online group activity and rubric. Students used EtherPad (within Canvas), Chat (within Canvas) Google Docs (outside of Canvas) and DropBox. One student correctly pointed out how hard it is to do collaborative work online and that this is perhaps due to the larger number of lurkers online than in f2f. Online lurkers are problematic, but even more so in a MOOC than in a "traditional online class" because students aren't exactly sure who to reach out to.

Regardless, group work online can be very tricky. In a "traditional online class" of perhaps 20-30 students, it's much easier to create community. Once the students get to know each other, they are much more inclined to work in groups together. In addition, because it's smaller, it's not so easy to lurk and remain uninvolved. Attaching grading criteria to the group work adds motivation for the students to participate more concretely. However, the Online Pedagogy MOOC did not offer badges or credentials.

Students' work was not graded, but the Instructor carefully read and commented on their posts through daily wrap-ups. Again, this is something that falls much more in line with the type of online pedagogy that the Instructor was trying to model and promote in this course. Teacher presence is not eliminated in a "traditional online course" – it can actually be enhanced. It is highly possible that this MOOC was not a "traditional MOOC", but perhaps more of a SOOC (Small Open Online Course). It did not rely on computer-scored quizzes or tests. Instead, peer review and discussion forums were used for student feedback and the Instructor's videos, daily discussion wrap-ups, feedback on assignments, and synchronous interaction to provide instructor feedback.

Analysis

Quality Online Pedagogy

A highly esteemed national platform concerning quality online is the QualityMatters™ Program. Although, this case study was not directly modeled on their rubric, QM, along with known best practices were the basis for the development of the Online Pedagogy MOOC and, in the process, it became apparent that not all could be upheld or demonstrated adequately within the MOOC. Adair (2013) found that learning outcomes, communication, policy statements, and accessibility were a deficiency in 12 MOOCs reviewed by QM standards, although she did acknowledge that institutional policies and responsibilities may be different in MOOCs. Still, learning communities are indeed difficult to build in MOOCs.

This was the biggest challenge for the instructor who has experienced many years as both an online student and an online instructor. Could the level of quality be maintained in the Online Pedagogy MOOC's design as had previously been maintained in "traditional online course" design?

Although there was an overwhelmingly small response at the end of the course to the final survey (28), the responses are helpful in determining if the Online Pedagogy MOOCs outcomes were recognized and/or achieved. The End-of-Course Survey contained two questions that encouraged the students to respond with what they had learned from the course that was valuable and what was their favorite part of the course. Using Atlas.ti, a qualitative analysis software program, a count of the coded responses concerning value and satisfaction was made. The theme with the most references was collaboration (13) with interactivity (4), discussion forums (4) and Module 3 (which was when the collaborative assignment was worked on by the groups) (1) connected to it (see Appendix A). Being able to collaborate and form a learning community with peers is a strong value online although not easily achieved.

The two next highest-coded themes were new resources made available (9) and online course organization (7). MOOCs have been rated highly in terms of providing new and high quality resources to students, and usually the navigation through the course has proven satisfactory (Adair, 2013). The following themes: synchronous (4); expression of not having been aware of what they hadn't known before about teaching and learning online (4); best practices (3); online student perspective (2), online syllabus (2), and online assessment (2) were associated with modeling online (2) which indicated a higher level of reflection and awareness (see Appendix B). In fact, one student commented in the discussion forum, "online students have needs and expectations quite different from students in a traditional learning environment" – something that she hadn't suspected before taking this course. At the same time, her enthusiasm for her content had been reignited through examining her online curriculum – "it's like falling in love again".

Retention and Completion:

In addressing the "success" of this MOOC, there needs first to be a discussion of what it means to be successful in a MOOC. Is success a demonstration of competency? Is success completion of the course and, if so, what constitutes completion? Is success retention in the course until the end? These questions are what higher education is wrestling with today in all delivery formats, but these questions will be addressed only within the context of the Online Pedagogy MOOC. One clear point emerges – evaluating the success of a MOOC is not quite the same as evaluating the success of a "traditional" online course.

Day 1 was simply an introduction amongst the 459 students who originally signed up. Already, it was evident that only 10.9% posted when they were supposed to and that close to ¾ had not even posted on the first assignment. Another 14.3% posted late. Thus, active participation was at about 25% at the beginning.
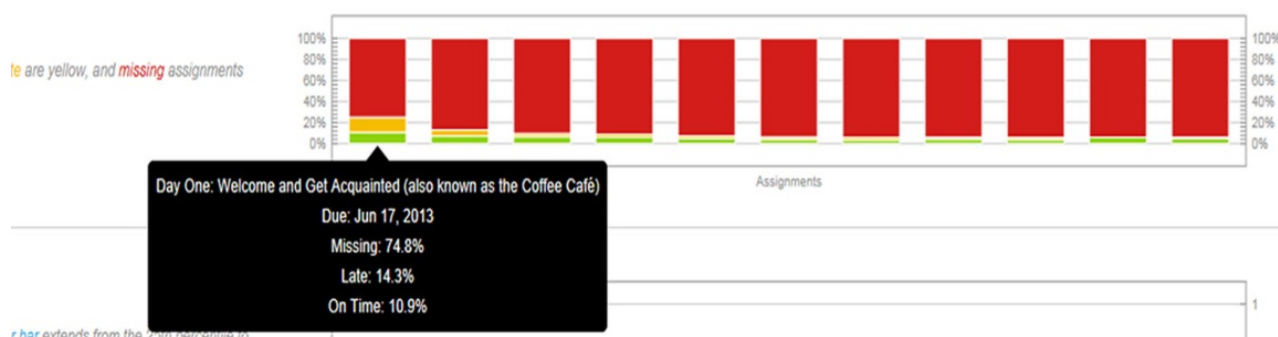
Figure 8. Bar graph of student activity with first day highlighted.

Active participation is defined as completing the postings and assignments. At the tail end of the course (see below), active participation was down to 6% during the end of course survey to which only 28 students responded.
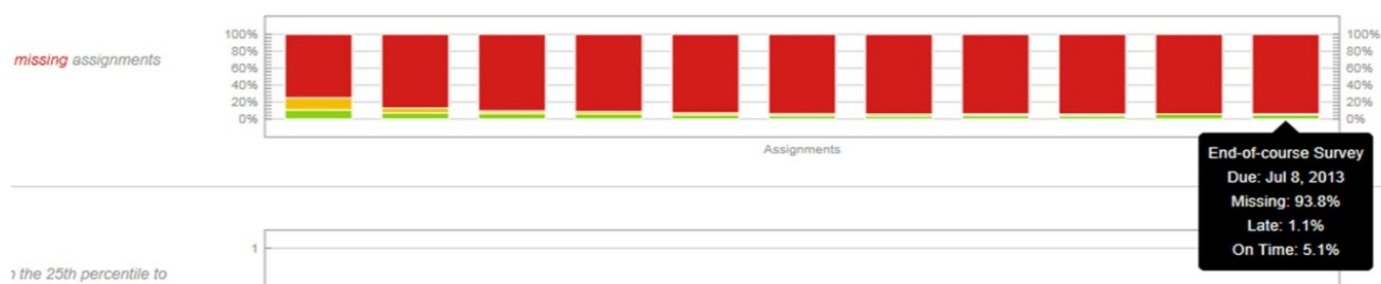

Figure 9. Bar graph of student activity with last day highlighted.

In terms of participating by simple page views, the following shows the greatest activity was on the second day (June 18th) with 13,755 page views. The least activity was on July 6th with 796 page views. However, the class did not end until July 8th and the students who stuck it out to the end came back to finish the class as the last assignment was due on that date. Below is a daily account of page view participation:
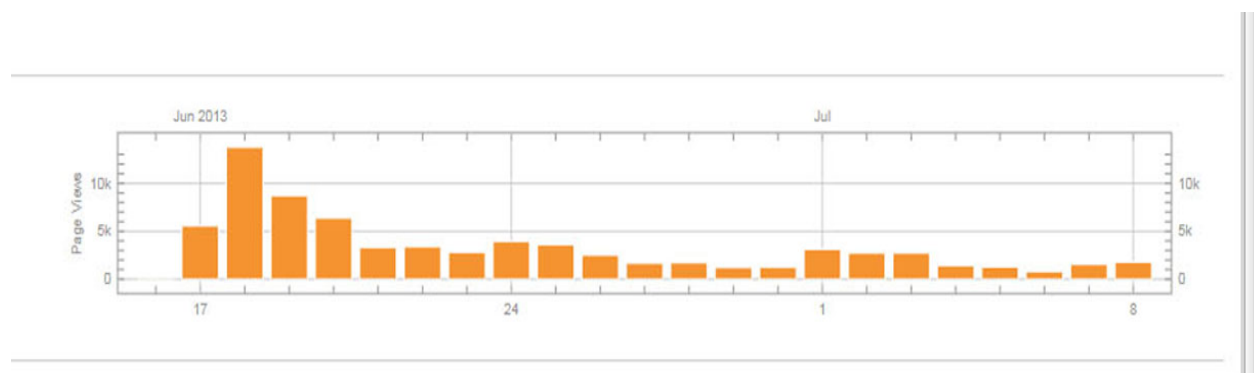

Figure 10. Bar graph of student page views.

There were a few students who actually took the time to drop out. The course ended with 407 still enrolled so 52 essentially took the time to un-enroll themselves. The others either continued to read the materials and/or discussion forums or dropped out without un-enrolling themselves. There were 110 participants in the Demographics Survey which was given on the second day of the course. There were 34 students who participated in the various synchronous sessions. There were 13 collaborations (with groups of 3-4) started for the group project, but only 8 were completed and posted. All in all, the final few

who finished their assignments by the end of the course and posted consistently in the discussion forums were approximately 40 students who could answer to this description – thus, there was about a 10% success rate – consistent with the general MOOC success rate.

Conclusions and Recommendations

In summary, MOOCs are merely another form of online teaching and learning. The continuum for teaching and learning starts with face-to-face, to using online resources, to blended learning, to synchronous online, to asynchronous online but interactive, and onto MOOCs. What's next? MOOCs have opened up a huge number of questions for us as higher education instructors and administrators, but they have firmly established the need for open and more flexible learning. The online environment provides that medium – it's how we, as higher education instructors and administrators, use this online environment to meet our students' needs that remains the crux of the issue. MOOCs do provide for scaling up, but they may not provide for the type of quality education that most of us are committed to. That is the next MOOC question to ask – how can we provide a quality education with a clear demonstration of learning outcomes? We have been able to show that for the last 10 years in "traditional online education" and if we are to make the next move to MOOCs, we need to address this question in that delivery format.

The Online Pedagogy MOOC is over, but the lessons learned are that teaching in a MOOC does not provide for the same social presence for the instructor or for the same type of learning community for the student that can be found in online education today. In addition, MOOCs do not offer the same learner support services that can be found in online education today that are connected to a university-sponsored curriculum.

MOOCs *can* provide, however, an entry level to higher education in many ways. They are free and thus much more attractive. They help students decide if they are really interested in a topic or not without having to "pay" for it. MOOCs help to teach students what "lifelong learning" is really about and, therefore, are great for continuing professional development. The final verdict on MOOCs is not yet out. They are continuing to evolve and, hopefully, will evolve into a delivery format that includes teacher/social presence and the ability to form cohesive learning communities.

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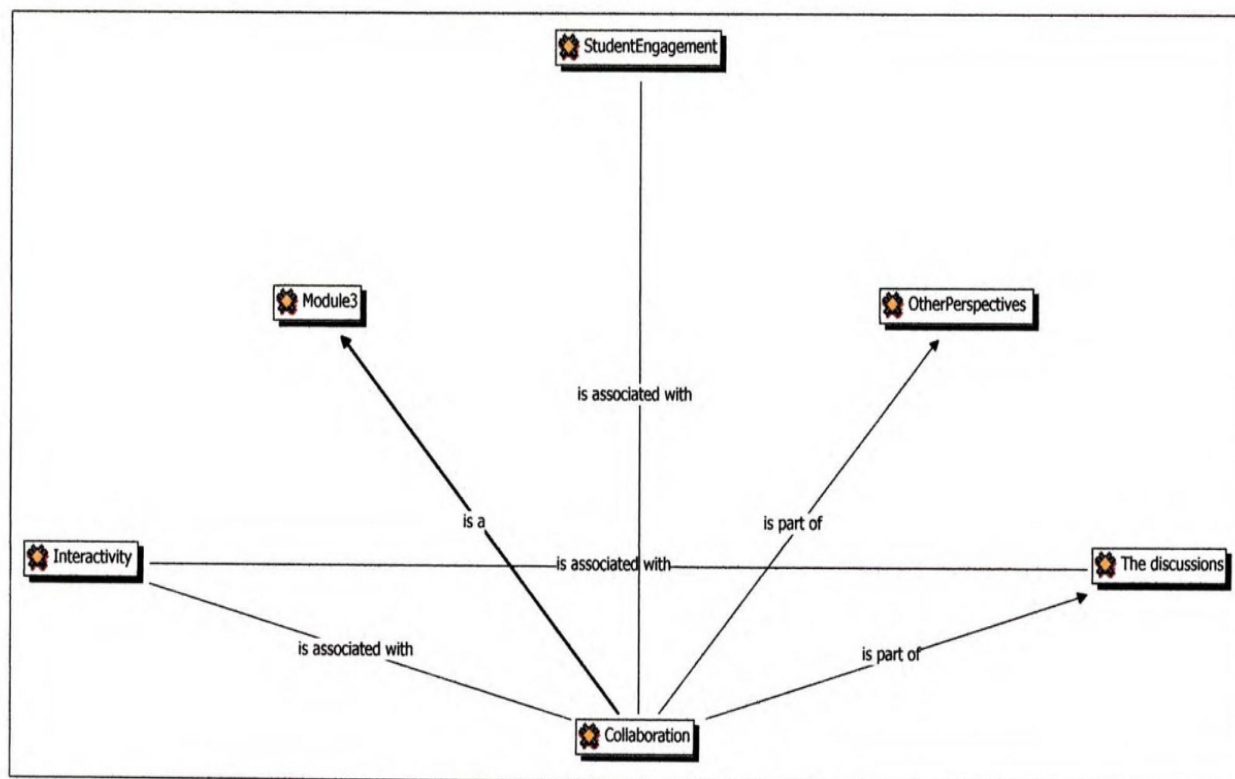
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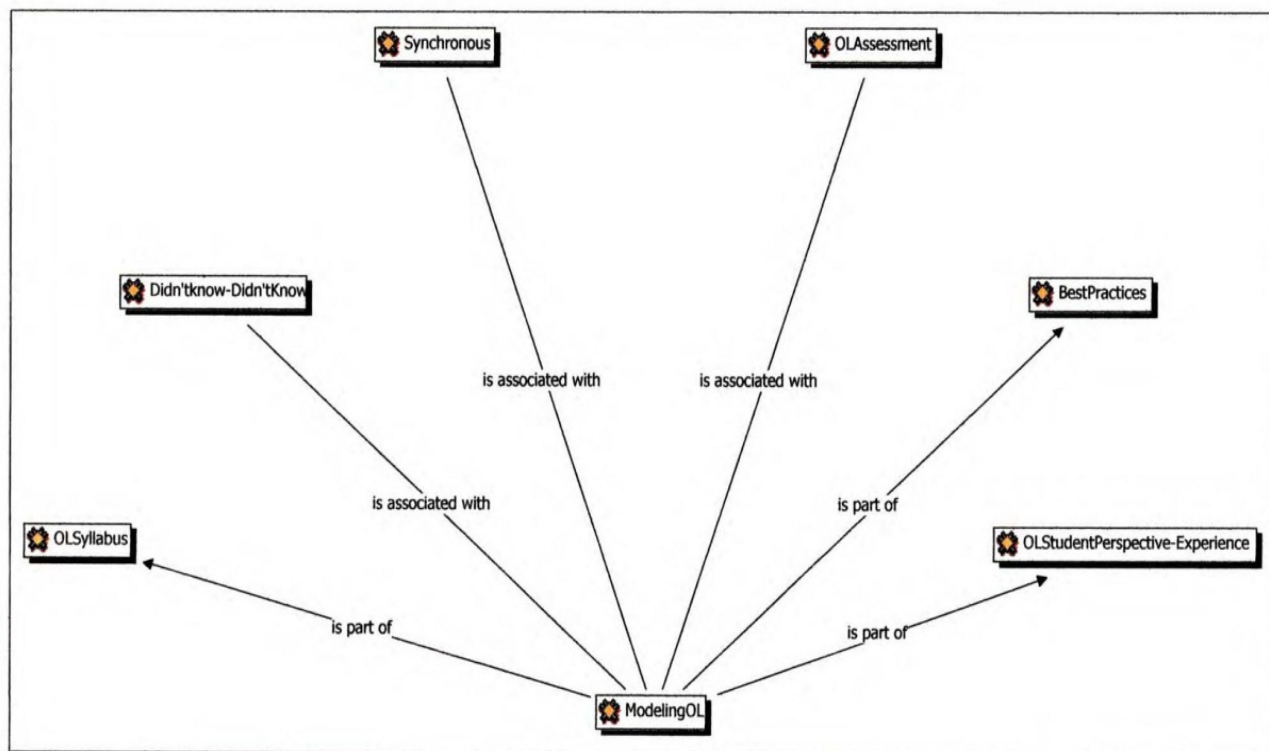
Appendices

Appendix A

Network View on: Collaboration

Appendix B

Network View on: ModelingOL