Massive Open Online Courses: Potential Implications for Advancing the Field of Family Science

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ABSTRACT. This paper explores the recent advent of Massive Open Online Courses (MOOCs) into distance learning and higher education. Distance education itself has been effectively employed in family science and other social science curriculums, but the web-enhanced, innovative technologies that MOOCs provide have the potential to advance family science and family life education even further. This paper will explore the challenges that MOOCs offer in regard to attrition and retention, pedagogy, academic standards and cost, as well as consider the opportunities for enhancing family science curriculums and family life education on a global scale. A process for a faculty considering whether or not the MOOC technology is appropriate for a family science department is proposed.

Keywords: MOOCS, massive open online classes, internet teaching

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Massive open online courses (MOOCs), a new form of online, distance learning, are at the crest of the latest wave of technology to hit higher education. The use of massive enrollment in online community forums with open access has become so influential, so quickly, that 2012 was dubbed the Year of the MOOC (Pappano, 2012). Multiple well-financed providers have emerged, many of which are associated with top brick-and-mortar universities, which have the potential to change the landscape of higher education (Pappano, 2012). Stakeholders in higher education have debated their relevancy, appropriateness, and potential impact on teaching, learning, and scholarship, further labeling MOOCs as everything from exemplars of disruptive innovation (Flynn, 2013) to transformative educational practice (Hyman, 2012; Lewin, 2012b). MOOCs have received extensive press regarding their myriad of potential impacts, both positive and negative, on the conception, implementation and evaluation of teaching and learning. The goal of this paper is to provide a framework for a thoughtful discussion of the potential impact of MOOCs on the field of family science and family life education.

We begin with a review of the ideological underpinnings of MOOCs and their short history in higher education. We follow with debate about the pros and cons of MOOC use in the field of family science, and the potential applications for classrooms, family life education, and communities. We conclude with recommendations for family science departments and family life educators considering MOOC innovations.

MOOCs in an Ideological and Historical Context

Open online educational content is not new and has been available to the general public for some time. Digital communication technology transformed possibilities for distance education in the late 1990s. As observed by Grossman (2013), iTunesU has offered free access to complete courses from leading universities for several years; public libraries loan copies of *The Great Courses* series that includes more than 450 college-level audio and video courses for free; and the Massachusetts Institute of Technology (MIT) has been providing open internet access to course materials since 2002. MOOCs are part of this broad movement to make educational resources and other online learning resources freely available for use and adaptation in research and learning environments world-wide (Waldrop, 2013). McCauley, Stewart, Siemens & Cormier, (2010) assert that a MOOC does the following:

> …integrates the connectivity of social networking, the facilitation of an acknowledged expert in a field of study, and a collection of freely accessible online resources. Perhaps most importantly, however, a MOOC builds on the active engagement of several hundred to several thousand 'students' who self-organize their participation according to learning goals, prior knowledge and skills, and common interests. Although it may share in some of the conventions of an ordinary course, such as a predefined timeline and weekly topics for consideration, a MOOC generally carries no fees, no prerequisites other than

> Internet access and interest, no predefined expectations for participation, and no formal accreditation. (p. 4)

One of the advantages of a MOOC is that anyone with an e-mail address and an internet connection can participate. Open licensing of course content, open structures and learning goals, and principles of social and educational connectivism are central to the fundamental ideology of MOOCs.

Early MOOCs were university-based, with course content available through rich site summary (RSS) feeds publishing frequently updated information, and learners participating through use of tools such as discussion boards, blog posts, and synchronous online meetings,very similar to traditional online learning methodology. Soon after, a shift to MOOC offerings from private, non-profit institutions featured prominent faculty members and expanded course offerings to subscribers in free and open online course formats. In the fall of 2011, Stanford University introduced three separate MOOCs, with one that had an enrollment of 160,000 students globally (Perez-Pena, 2012). Then Stanford University launched Coursera, a private, for profit, educational technology company that works with other interested universities to make selected courses available online. Coursera now partners with more than 100 top universities and educational organizations to bring classroom content into a massive open online format, including multiple institutions with large family science programs like Pennsylvania State University, the University of Illinois, University of Maryland, University of Minnesota, and the University of Wisconsin (coursera.org/about/partners).

Concerned about the commercialization of online education, MIT and Harvard University created a not-for-profit free and open online platform that launched in the fall of 2012 (Pappano, 2012). Their effort goes by the name edX and is intended to offer free online university-level courses in a wide-range of disciplines to a global audience. Coursera, edX, and newer MOOC platforms began to consider offering certificates and some anticipated that universities may begin to award college credit for successful completion (Pappano, 2012). In fact, Arizona State University, in conjunction with edX, will develop and offer a dozen general education courses for students interested in completing program requirements in a massive, open, online format (Straumsheim, 2015). According to Straumsheim (2015), students can pay a nominal fee to verify their identity during participation, and at the end of each course may choose to pay Arizona State a larger fee to earn academic credit for their work. As MOOCs have evolved over their brief history, there appears to now be two distinct types: MOOCS that resemble more traditional and well-financed online course forums, and MOOCs that emphasize the original connectivist ideology (Kop, 2011).

Distance Education in Family Science and Family Life Education

Many family science departments have embraced the connectivist ideology within their distance learning approaches. According to Rehm et al. (2013), family science programs have traditionally approached distance learning with one of four models for teaching online:

positivism, constructivism, communities of inquiry, and experiential learning. Early online courses took on a positivistic approach and attempted to incorporate face-to-face lecture techniques into an online format. More recent courses have moved to constructivist approaches that focus on the use of blogs, discussion boards, electronic journals, and individual projects that ask students to critique and engage in critical thinking related to the course topic. The communities of inquiry approach focuses on "social presence, teacher presence and cognitive presence" (Rehm et al., 2013, p. 242) that allows for students to emotionally connect with content as well as with their peers. The sense of community intentionally created by instructors using the communities of inquiry approach becomes an environment where students are able to connect and explore content more meaningfully. An experiential learning approach in distance learning has allowed family science faculty to transform the belief in learning-by-doing into an online platform, effectively utilizing internship and service-learning experiences in online classes.

These approaches to distance learning in family science have been effective. As early as 2002 (Imig & Bailey, 2002) research has confirmed that students do as well, and sometimes better, in undergraduate and graduate family science distance courses than in traditional face-to-face environments (Piercy & Lee, 2006) as distance learning has evolved to offer new models for mastery of knowledge that are more interactive and not as reliant on lecture. These approaches have also been embraced by practitioners. Family life educators and extension specialists have effectively used the Internet as a tool to disseminate information about family life issues in non-academic, community-based settings (Hughes & Hans, 2001; Hughes, Bowers, Mitchell, Curtiss, & Ebata, 2012).

Online FLE is an educational outreach effort that is primarily delivered via the internet and shares some aspects of MOOC pedagogy: they use programmatic educational strategies and structures; participation is often voluntary and rewards for participants are often intangible (Hughes et al., 2012); the length of the programming varies; and there are relatively high attrition rates. Research has confirmed the efficacy of providing family life education online (Gelatt, Adler-Baeder, & Seeley, 2010; Morris, Dollahite, & Hawkins, 1999). Most recently when Schramm and McCaulley (2012) examined program effectiveness by method of delivery for the *Focus on Kids* divorce education class, they found minimal differences in understanding, knowledge, and anticipated behavior change between online and in-person methods.

Considering Adoption of MOOC Innovations

While MOOC innovations offer new conceptualizations of online education, understanding the context of the institution or organization and the current debate surrounding MOOCs can help inform decisions about whether or not to venture into the world of MOOCs. Decisions about MOOC courses are made at multiple levels in an academic institution (e.g., university/college, department, individual faculty) and will be influenced by context and culture of the institution. Factors to be considered when making decisions about MOOCs, at any level, fall into two broad headings – pedagogical concerns and resource concerns. Retention, attrition, evaluation, and the management of resources are issues to be explored in the context of a

MOOC. What may be an attraction for one department or institution may be an issue or barrier for another. The goal of this section is to support consideration of an analysis of the potential for massive, open, online courses for family science curriculum and family life education, recognizing that some in academe may be for and others against MOOC innovations. Decisions, however, may be better informed by an understanding of the MOOC debate in the institutional and departmental context.

Institutional context and culture

Adoption of new ideas and technologies has been of interest in higher education over the centuries, with land grant and state educational systems in the United States focused on how to encourage the speedy adoption of research and technologies. Deciding the value of MOOCs for an institution or a department requires just as much an understanding of the social change position of the institution and the department as it does an understanding of the technology itself. Change is a consistent feature of education, but different educational institutions have different cultures surrounding the process and implementation of innovations, especially those that require additional investment. The *early adopters* often seek out the research and listen to the specialists (Rogers, 2003). These institutions and faculty are ones that do not search for untapped technology, but rather seek out and listen to the adoption leaders. They tend to pay attention to the trends and look for applications that are on the forefront but not brand new. In contrast, later adopters may actively try to avoid dealing with the changes and information to make decisions. Change agents who help those who contemplate adopting new knowledge are more effective at certain stages in the process. Even relatively simple innovations vary greatly in their path to wide spread adoption (Gawande, 2013). Now, most research programs include some effort for what are called *translational activities* that get new information to potential users more rapidly. MOOCs are both the innovation itself, and may also be part of the adoption process.

Institutions also have different cultures in terms of commitment to innovations. The constant university search for rebranding and new themes and goals, if coupled with some administrative turnover, can threaten big investment like MOOCs because they take a long term effort and revisions. Each department needs to take the current temperature for institutional support before committing. At the University of Delaware, there has been a tradition of early adoption of and a high level of commitment to teaching technology and making computers available to faculty and high tech development moving from developing a film library, to onsite high production value video tapes, to recording in special classrooms, to having computer assisted learning production facilities, and currently to using software that captures video and screen recordings of face-to-face classes for use in distance learning. Upper administration enjoyed being involved and often were briefed on technology purchases. Currently a new budget process, which encourages units to track and stay within budgets, has meant less opportunity for innovation at the departmental level, but some new university wide teaching supports have been put in place. The University of Delaware president has been emphasizing a strategic planning approach and commenting on MOOC's and other educational proposals as part of an economic and an operations perspective on reform of higher education (Harker, 2014). MOOCs seem to offer economy of scale and suggest cross-institutional collaborations as potentially effective.

Administrators in higher education are also looking for pedagogical innovations that position their campuses as leaders in change (Rees, 2014) and MOOCs present one such innovation. The first university-based MOOCs were initiated by institutions that desire to be on the forefront of the trends and value the prestige/marketing, and name recognition that comes with early adoption (Rogers, 2003). If a university is interested in being on the forefront of new MOOC technologies, faculty may be engaged in the discussion at different stages of the process. For example, a university may articulate an interest in pursuing MOOCs and ask departments to engage in the consideration process. Wilmington University, an open-access educational institution that is known for its scholar-practitioner model and its niche in online education, brought together a group of faculty, administrators, and online learning specialists to explore MOOCs as a potential endeavor. After consulting experts in the area and discussing the pros and cons, a decision was made to not move forward at the current time to develop MOOCs as a university endeavor.

On the other hand, a department may also be asked or expected to think through MOOC possibilities because the university has already made a commitment or financial investment. Departments may consider an opportunity to initiate and support MOOCs because grants and start-up money are often available for innovative projects. Another reason is that the name recognition and expanded reputation of the department may be enhanced through developing a MOOC. For example, family science departments may want more awareness of and recognition for family science in an environment where the number of undergraduate majors offered to students has expanded significantly (Simon, 2012) and family science continues to be a discovery major (Hagenbuch & Hamon, 2011). However, in general, faculty have expressed concern that the role of faculty to control the content may be undercut. "Faculty do not want to be "unbundled" by having the provision of content separated from actual instruction" (Rees, 2015, p. 15). Much of the discourse in the popular media has presented both benefits and challenges that MOOCs bring to educational settings. While the focus has included a limited discussion about social sciences in general, the debate has not included family science as a distinct field. With little outcome research available on MOOCs, the question of feasibility and value for a department or university will be influenced by prior innovation experiences and context of the department/university.

Retention, Attrition and Evaluation

One defining characteristic of a MOOC is that it is massive. MOOCs have included course enrollments that range from several hundred to one hundred and fifty thousand students. High attrition rates are common for MOOCs. While MOOCs attract large numbers of interested learners on a global scale, completion rates may be as low as 5% (Lewin, 2012a) and rarely exceed 15% (Waldrop, 2013). An enrollment of 100,000 in a MOOC typically translates to 5,000 students completing the course. With the number of students completing courses in the thousands, proponents argue that the focus should be on the retained students, not attrition rates (Collins et al., 2013).

Recent data on a pilot project between Udacity, a for-profit educational organization, and San Jose State University that included both matriculated university students and non-matriculated enrollees indicates MOOC completion rates that ranged from 12% to 54% (Collins et al., 2013). The higher completion rates were achieved by matriculated students, while non-

matriculated students achieved at lower rates (Collins et al., 2013). Data from the University of Pennsylvania revealed that 80% of individuals participating in MOOCs had already earned a degree (Christensen et al., 2013) which could explain the low completion rates of non-matriculated students enrolled in MOOCs. Neither study provided evidence that the courses met the original intent of MOOCs to reach the masses of individuals who have been traditionally unable to access higher education.

In fact, comparisons of completion rates of MOOCs versus face-to-face courses revealed that students designated at-risk because of previous failure in the course did better in face-to-face courses than in a MOOC (Collins et al., 2013). The use of online tutors and support has not seen the expected impact on student success in initial models and may need further development and research to effectively support students in a MOOC (Collins et al., 2013). Student engagement in a MOOC, as measured by the amount of time spent watching videos and completing practice problems, was the greatest predictor of successful completion of the course (Collins et al., 2013). MOOC faculty saw the technology as efficient in offering opportunities for critical thinking, but they report that the majority of student-faculty contact was not about content, but generally involved questions regarding course requirements that were available in the course syllabus (Collins et al., 2013).

Previous research on behavioral learning processes in distance education highlight the successful incorporation of computer-assisted tutoring to scaffold student learning through increasingly complex tasks. "The effectiveness and efficacy of instruction increase when students are expected to interact with critical features of a subject" (Vargas, 2014, p. 12). Such individualized, targeted supports have not been widely incorporated into MOOCs as most MOOC formats simply present and evaluate standardized tests without individualization or support.

Earning credit hours and maintaining academic standards.

Part of the original intent of MOOCs was to address social justice issues in education by providing free, open access to college courses; the potential to earn college credit for courses that are free and open, however, was not part of the original conversation. As MOOCs have evolved, so has the conversation about offering credit for successful completion of a course. In 2015 MOOCs University was launched with the goal of providing free and open access college education to all and partners with accredited higher education institutions worldwide to create "MOOCs to Academic Certification and Degree" pathways opportunities for the serious MOOC learner (www.moocsuniversity.org, 2013). A number of platforms offer the option for students to pay for a certificate of completion with the potential for converting it to academic credit (Lewin, 2012a). Both options leave several issues unaddressed.

In some cases, students can request a certificate once they have successfully completed the course. In traditional online and face-to-face courses, students have a limited period of time to enroll and withdraw; their selections are on record. A student's retention in courses and persistence in completion of courses have been used as indicators to measure academic success and to provide academic advising, as well as important markers for financial aid and potential success in graduate study. If students have the option to select credit after completion, then the students will also be able to carve out an academic record that only records selected successes.

To combat this, Coursera now asks students to commit to taking a MOOC for either credit or non-credit within the first two weeks of a course.

Additionally, universities may be faced with the decision as to whether to accept academic credit hours earned by students in MOOCs. They will also need to decide on whether they will be recognized as prerequisites or as contributing to the hours for the major. This decision may be pressing now with 118 universities partnering with Coursera. The host university of a MOOC may be responsible for the academic integrity of the earned hours. However, universities may need to revisit the current process for evaluating course credit and its application to MOOC courses and/or transfer credits.

Still further, family science departments concerned about maintaining the academic integrity of their programs may want to develop qualifying exams similar to the current College Level Examination Program (CLEP) exam (clep.collegeboard.org). Doing so could provide an avenue for students who have participated in lower level courses in a MOOC environment to place out of course prerequisites and/or qualify through exam for credit in a required program of study. These exams could be fee-based as CLEP exams are. Clear benchmarks for competency required at each level of the curriculum can be developed to uphold the academic standards for degree completion (see article by Schvaneveldt, Payne, Huebler & Merrill, 2012, discussing potential undergraduate competencies for Family Science).

Specific ways to use MOOCs at the undergraduate and graduate levels may be constrained by accreditation and professional certification requirements at the state and national levels. For example, the National Council on Family Relations (NCFR) recognizes regionally accredited schools offering undergraduate and graduate family science degree programs with course work that includes content covering the 10 family life education content areas required for approval as a provisional Certified Family Life Educator (CFLE). NCFR approval allows the school to offer their graduates the opportunity to apply for provisional certification using the abbreviated application process. In addition, most higher education institutions are accredited by a regional Commission on Higher Education. Such standard setting groups have a role in deciding if MOOCs can be acceptable ways to earn credit or prerequisite status.

Assessment of learning outcomes is critical for maintenance of academic standards. The quality of teaching, learning, and assessing in massive open online learning environments is not yet understood empirically (Hyman, 2012; Lewin, 2012a). The lack of evidence based assessment practices in MOOCs raises a concern about awarding academic credit before bestpractices in measuring student learning have been identified, implemented, and measured. Learning in MOOCs has centered on objective exams and problem based assessments and may or may not provide guidance in assessing comprehension and application of the complex issues that student are exploring in advanced level courses. In addition, with institutions considering the possibility of offering certificates of completion and possible academic credit, the debate becomes how best to confirm student identify and authenticity of student work (Hyman, 2012). For example, universities are now offered the option for human graders and certified testing sites for students enrolled in MOOCs with Coursera (Dommonell, 2013). Additionally, students wanting to showcase successful completion of a MOOC to employers and schools, can pay for a certificate that authenticates their identity at a testing site.

Retention, attrition, and evaluation are interrelated problems which each new MOOC must address. Both university assessment and evaluation systems and accrediting organizations have increased the specificity and techniques of monitoring and evaluation. If MOOCs are accepted for credit or certification programs they may not fit the current procedures and requirements. As MOOC innovations evolve, continued attention to credit allocation and assessment of MOOCs may generate new possibilities for inclusion in family science.

Resource Concerns

Open access to college courses, as originally intended in the fundamental collectivist ideology that spawned the MOOC movement, was implemented by providing courses free of charge to participants. If the implication is for MOOCs to be free, or at least low-cost, then departments that have struggled with growing budgetary restraints may be limited in their ability to develop MOOC options for their programs. Purchase of platforms, software implementation, course development, and instructor fees may significantly impact departmental budgets. Faculty course loads may not be able to accommodate the time requirements for implementation. developers for MOOC platforms, such as Udacity and Coursera, offer video and content support that may relieve some of the time pressure for course development (Collins et al., 2013). In some cases, tuition income may be earned from students who opt to pay for credit or certificates of completion (Domonell, 2013) but credit and secure identification of the students involved may require more monitoring and interaction with users and may be more costly. How much and Software has a short shelf life and MOOCs may evolve with a lot of lost effort although course whether the fees will offset the costs for academic institutions is unknown and highly debatable.

At a national level, educational reformers have turned their attention to the rising cost of higher education (Lewin, 2013). President Obama has urged three year programs and dual enrollment programs for high school students and called attention to MOOCs as useful (Lewin, 2013). Lawmakers are proposing policies that hold institutions accountable for student outcomes and providing education that is inclusive, affordable, and flexible (Stratford, 2013); they have identified methods of linking federal student aid to an institution's ability to achieve two goals. MOOCs are specifically discussed as an a) option to decrease time to graduation and b) opportunity for lower cost options for academic credit (Lewin, 2013). One hundred million dollars in start-up funds have been targeted to develop MOOC platforms and web based technologies (Dennis, 2013). Many universities that have invested in MOOC software have large family science programs (coursera.org/about/partners); those universities may expect their departments to pursue available funding.

Marketing and publicity are needed to get the recognition and participation in a new MOOC to reach the objectives of broad dissemination and utilization. "Diffusion is essentially a social process through which people talking to people spread an innovation" (Rogers, as cited in Gawande, 2013, p. 41-42.) Even if sound content and presentation has been developed, MOOCs may require more participation with potential audiences beyond regular marketing tools. In most major changes that reach beyond the innovators, some sort of a change agent is needed. In work in developing countries with simple technologies, contact with people has been necessary for broad adoption to occur (Gawande, 2013). Every place where there were 'sandals on the ground' – where individual's went and taught some locals the new innovation – the practice became

institutionalized and not when marketing was used alone (Gawande, 2013). For online FLE to be adopted in developing countries, an infrastructure that includes digital technology paired with human interaction and modeling may be needed.

Having sufficient startup resources to answer questions and provide the support to help students and faculty navigate the new experience may be critical to success. The fact that MOOCs are designed to be "free" does not mean that most people can intuitively use and manage the experience for success. Selingooct (2014) discussed findings on the first launching of MOOCs that showed the typical enrollee to have had college work often with a degree. Many of the students enrolling to make up traditional courses, fail or do not complete the courses especially as compared to courses that are offered on campus. Whether MOOCs are utilized for family science courses or FLE and Extension, some consideration may be needed as to how to assist potential enrollees as well as faculty and family life educators in adopting the new innovation in use of the new technology and format. A department cannot assume that the faculty or the potential audience would be early adopters.

Time is often the most difficult resource to mobilize. Outside or special funding would allow time to be reallocated and proper recognition of the real costs. Without workload adjustments for the faculty and staff involved – it may be a labor of love or interest, but it may have adverse effects on the developers. For example, the large commitment of time and focus may not be recognized in terms of tenure or promotion. If it is classified as service, then it may only be that a full professor can afford to commit the time and may be appropriate because of their name recognition. Junior members of the faculty may feel pressed into helping without sufficient recognition or compensation. Some of the work of creating a MOOC will require other skills than faculty and temporary or university staff may need to be secured for a high quality outcome. Rearranging the use faculty and staff may provide some of the resources. If a department has been offering many sections of an introductory course, there may be ways to redeploy the workload. However, if the department or institution has made a commitment to discussion and small group interaction, it may not be the easiest to change. On the other hand, large enrollment service courses may also provide a basis for change in that the course is already broadly based for diverse audiences.

Applications of MOOC Innovations for Family Science Classrooms and Outreach to Communities

Applications for classroom use

Most often MOOCs have been offered in the STEM areas and little focus has been given to the feasibility of MOOCs in the social sciences, and, more specifically, family science. Feasibility may differ based on whether the course is an introductory level course or an upper level course. For family science survey courses that focus on breadth of basic introductory concepts and methodologies, content can be structured with evidence-based, constructivist approaches in mind (Rehm et al., 2013). For example, the use of video content incorporated in the Udacity platform is a constructivist approach that has been well received by faculty members of the courses (Collins et al., 2013) and may be an option for survey courses but not for upper

level family science courses because pedagogical research has not yet addressed the impact of a massive format for upper-level courses, where critique and critical thinking in group environments are often the goal.

MOOCs do challenge what we already know works well for distance education in family science, especially for upper-level courses. The effectiveness and efficacy of teaching and learning increase when students interact with course materials (Vargas, 2014) and have positive relationships with their instructors. Student and faculty contact is a major predictor of both persistence and success in online family science courses (Hart, 2012). Family science departments have been successful in supporting student-faculty contact using pedagogical models, including Communities of Inquiry and Experiential Learning approaches (Rehm et al., 2013); however, these models have not been tested with massive enrollment. The types of feedback and interaction most often employed in contemporary MOOC environments have been immediate, structured, and pre-determined automated responses (Scurry, 2002). While that process may be appropriate in introductory survey courses, such feedback may not capture the complexity of social issues that impact family life and the emotional connections to content that previous research has deemed important for family science students as they progress in the discipline (Schvanevelt et al., 2012).

So far, the MOOC model has been a cross between online courses which feature the instructor and The Great Courses that feature some well-known expert. In a recent sociology newsletter, Grusky and Owens (2014) discuss their approach to a second generation online course in Poverty and Equality. According to Grusky and Owens:

> the typical online course does not draw on resources outside a single university or even a single professor. The premise of our course, by contrast, is that the online model is best exploited by delivering scholars from universities across the nation into the homes of students. (p. 5)

The underlying theme of the article was that, in some areas, there may be room for only one online course, but that it needed to represent the best of the research and teaching across the discipline. Whether there is a need for only one course on ‘marriage’ or any other family science content area has not been established in the family science field. Both NCFR and the Family Science Association have actively sought sharing and discussion of approaches to teaching and selection of content and recognize that there may not be a “one size fits all” approach to teaching family science.

Providing family science content in a MOOC format may serve as a first step to content mastery, and possible course credit, while at the same time facilitating open access to knowledge about families that addresses the social justice issue that MOOCs were first intended to address. For example, introductory courses on parenting and marriage open to non-majors and/or college graduates could be available in a MOOC format. If 80% of MOOC students already have a prior degree and are engaging in the course to address curiosity and expand knowledge on diverse subjects (Christensen et al., 2013), then free MOOC courses on marriage and family may be

appealing. Recently, Jacquelyn Meshelemiah's research on human trafficking inspired her to do a four week MOOC which reached more than 30,000 students in 187 countries (Jansen, 2015). Family science faculty research could provide the content for a short MOOC that could then be tied to credit-bearing online course or face-to-face class.

MOOC courses on family could also be used in course planning for face-to-face classes. MOOC-informed technologies may allow family scholars to disseminate some course content more efficiently, freeing class time for deeper conversations, and experiential and applied learning, e.g., the flipped classroom (Bowen, 2012; Kachka, 2012). Students in a face-to-face course could be required to participate in a MOOC for part of the instruction. With a fundamental knowledge-base established, course contact time could be spent on application of course concepts and experiential learning activities. The use of online quizzes prior to the face-to-face class could facilitate student learning and encourage accountability for knowing the information. The face-to-face experience can then facilitate student learning allowing time for students to ask questions and explore content at a deeper level.

Beyond using MOOCs to supplement content, a MOOC may be a good path for departments to develop short courses that teach skills that can supplement applied courses. The first MOOC launched at the University of Delaware was a course on picture taking on a cellphone and was created by a photography professor at the university (UDaily, 2014). MOOCs can be conceived as a single concept idea to teach a skill that facilitates healthy family functioning. Skill based instruction that does not rely on YouTube, offers consistency of concepts, and exemplifies evidence-based practice could supplement undergraduate or graduate courses.

Applications for Outreach to Community Through Family Life Education

Dennis and Ebata (2005) assert that web-enhanced technologies offer increased convenience and flexibility for both users and instructors, cost-effectiveness for departments and the Cooperative Extension Service, the capability to provide additional content and support for users in the community, and the ability to reach audiences at a distance. The Cooperative Extension Service has embraced a “learn anytime, anywhere” philosophy (O’Neill, Porter, Pankow, Schuchardt, & Johnson, 2010, p. 39). MOOCs offer a new potential to expand that philosophy (http://www.nifa.usda.gov/Extension/).

Family life educators can disseminate important information on family-related processes to large groups of people in virtually any geographic location (Elliott, 1999). The research-based materials that Cooperative Extension experts prepare for public use are already appropriate for large scale dissemination and there is not currently the participant demand for awarding course completion credit afterward. For example, "Just in Time parenting" newsletters are available in multiple accessible languages and have practical examples and applications (Walker & Nelson, 2004). The newsletters are currently distributed to families through the mail and e-mail, but could be more globally available through a MOOC platform which also could help in process evaluation. Beyond the potential for state and national impact, MOOCs have the potential to

further expand FLE on a global scale. MOOC innovations can begin to address the calls for development of a global network of FLE providers addressing issues of professional and social concern (Powell & Cassidy, 2007). Global collaborations could enhance content delivery to diverse populations worldwide while providing the opportunity for MOOC participants to inform and expand cultural understanding and competence. An FLE MOOC would perhaps need to be more generic in design and/or integrate diversity and contextual issues relevant to a variety of contexts, since participants could represent innumerable cultures and countries of origin. However, participants would have the benefit of becoming a "rooted cosmopolitan" (Appiah, 1996; Berke, 2014) and learn from others around the world.

Another difference between online FLE and MOOCs is that online FLE is often self-paced (Kalinka, Fincham, & Hirsch, 2012) and completed individually, while MOOCs tend to follow a time-restricted model and the learner is part of a group. Providing FLE that is more structured and includes specific time-to-completion requirements could reach individuals with varied learning styles and provide a different level of incentive for persistence and completion. MOOCs also provide an opportunity to rethink continuing education for professionals in service. For example, MOOCs could offer predesigned, evidence based best practice in common FLE areas (such as parenting and marriage and relationship education) to multiple institutional systems. CFLEs needing to achieve continuing education units and individuals seeking to achieve the knowledge needed for provisional certification may find MOOCs useful as well.

Having research-based predesigned courses that are free and accessible for FLEs may also relieve pressure from smaller social service organizations that develop professional training for their employees and programming on demand for their clientele. For example, state social service agencies could use this style of family life education for specific populations who are mandated to take parent education, such as couples experiencing divorce or incarcerated parents maintaining contact with their children. While many states require a co-parenting course, many states do not have the resources to develop these courses and monitor attendance. An open and accessible online course could be incorporated into course mandates without requiring additional resources. The benefit of professionally developed FLE utilizing a MOOC platform is increased availability, consistency and efficacy of content delivered at state and national levels.

Final Thoughts

The cost benefit analysis for investment in a MOOC has to be done within multiple contexts - the context of the individual instructor/individual classroom, the department/discipline, and the institution/organization. Individual instructors may identify MOOCs that have educational benefits for their classroom and decide to utilize MOOCs as part of the teaching resources for their course. Departments/disciplines can consider whether there is a potential need or fit for a MOOC as they would likely need to pursue either internal or external funding for MOOC technology. The other benefit of engaging in a conversation about MOOCs is

to be ready to accept and actively manage a good opportunity when it arises or to turn it down with an educated and well-supported rationale. Institutions as a whole must engage in conversations about the benefits and challenges of MOOCs and the fit with their university/college mission. In closing, we leave you with some final thoughts or considerations from our own discussions. If you are potentially interested in exploring MOOCs at your institution but have identified through this paper several barriers or concerns, perhaps consider these suggestions:

1. Bring the *sandals to the ground*. Identify a MOOC and get a small team to enroll and experience and evaluate the MOOC.

2. Then, IF you are still interested, get several student volunteers to try a MOOC and provide feedback.

3. Consider the potential for offering a competency exam at the school for the MOOC that you identified and experienced. How comparable would the experience be to creating a competency exam for a family science MOOC or designing an in-house online course?

4. Consider – is the ultimate goal to consider MOOCs for courses or the ultimate goal to use MOOCs in FLE and Extension? If it is for courses, then consider beginning with a single, high interest skill and knowledge based FLE, such as building or enhancing family strengths, particularly using an international model (Asay & DeFrain, 2012). What would be the skill that you would want to experiment with in family science? What knowledge base would you like to build? Will the reward for reaching a global audience with a meaningful concept of interest to you be enough if in the end the MOOC innovation is just a passing fad?

5. Explore funding and supports for either expanding a current online course to a MOOC level or designing a new course as a MOOC. Start with introductory level courses or single skill modules.

6. Remember, the benefit is teaching the masses about family science and the prestige that comes from the early adoption of innovation. Even if the first attempt at a MOOC may not be what you want, consider doing it for the experience.

7. Grants give the access – sustainability may only be achieved if the technology sticks or if you can keep up with the trends, so be prepared. Even at the frontline of this technology, you have to be prepared for the next new technology.

8. Take the time to understand your comfort zone and the comfort zone of the faculty in your department. What technologies are currently used? Are you/they early adopters or do you/they wait to see if a technology becomes necessary? Knowledge of innovation can inform the next steps for some family science departments and family life educators.

9. Massive open online courses and their web-based pedagogies have the potential to enhance family science programs and the field of family science. MOOCs may offer new outlets for family life education while the potential for family science MOOCs is yet untapped. Coursera currently has offerings related to family resource management and human development (e.g., Personal & Family Financial Planning; Living with Dementia; Impact on Individuals, Caregivers, Communities and Societies; Child Nutrition and Cooking; Resilience in Children Exposed to Trauma, Disaster and War: Global Perspectives) but these are limited; edX, the only other large MOOC platform to offer social science classes, has courses primarily addressing macro level issues (e.g., Introduction to Global Sociology and The Challenges of Global Poverty) (www.edX.org). Departments and family life educators that explore MOOCs and MOOC informed technology may have the opportunity to shape best practices. Addressing issues related to academic integrity and incorporating smaller group sections within a course with massive enrollment can ensure that departments maintain the academic standards necessary to advance the field of family science. However, MOOCs do come with the risks associated with any new innovation. Both family life educators and family science departments will want to engage in an ongoing discussion about the MOOC innovation and its potential challenges and benefits. The cost-benefit analysis, however, must be done on a case by case basis.

Whether or not MOOCs will prove to be transformative practice or a passing educational fad is still unclear. However, the conceptual and theoretical underpinnings of MOOCs as vehicles for exploring education reform are gaining momentum in higher education. Family science scholars/practitioners and departments have the opportunity to join the discussion of this latest wave of educational reform and technological advancement. Will family science be at the table?

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