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Abstract

Technology changes more rapidly today than in any other point in human history. These changes affect the tools we use to perform day-to-day personal and professional tasks. Exploring Emerging Technologies for Lifelong Learning and Success (#EmTechMOOC) has been created to help adult learners with diverse backgrounds from across the globe discover tools and resources they can adapt to fit their needs in today's fast-paced world. This article examines how the 4 Cs of 21st Century Skills: communication, collaboration, creativity, and critical thinking are strengthened through #EmTechMOOC. Results from the pilot and the improvements that have been made are also addressed.

Keywords

faculty development, faculty learning communities, lifelong learning, instructional technologies, technology integration, digital literacy, MOOC

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Introduction

Rapidly changing technologies and a global economy demand new and different skills to participate as a global digital citizen. Continually evolving and emerging technologies require the ability to effectively curate, modify/adapt, and critically evaluate the information we encounter. We must also effectively communicate across geographic locations and interact visually and creatively. These abilities are crucial to the success of 21st-century learners (Spires, Paul, & Kerkhoff, 2018; Trilling & Fadel, 2009). They also present a significant challenge to educators who must continually master new technological tools alongside the students they are preparing for this new world. Educators and students will need to master these abilities to be successful in classrooms and careers. The current article reviews a professional development course focused on teaching these skills to students and educators.

The National Educational Technology Standards are published through the International Society for Technology in Education (ISTE). These standards were recently revised in response to significant technology trends. The standards outline the skills that students, instructors, and educational administrators must possess to excel in today's technology-rich environment. In the process of developing the revised standards, ISTE drafted the seven traits of Digital Learners (ISTE, 2016). Digital Learners must be empowered to leverage technologies to achieve desired goals; digital citizens who understand legal and ethical considerations; knowledge constructors who curate and create information resources; innovative designers able to implement new and imaginative solutions; computational thinkers who use data to solve problems; creative communicators fluent using a variety of media; and active collaborators in local and global teams. The ISTE standards for educators serve as guidelines to implement appropriate technologies and practices to prepare students for the 21st century. Carolyn Sykora, senior director for the ISTE standards, describes the standards as, "moving beyond just productivity to really realizing the promise technology offers for that more authentic, deep learning" (Roscorla, 2016).

The State University of New York (SUNY) put these ideas into practice through the development of a Massive Open Online Course (MOOC) with the capacity to address the needs of students, instructors, and learners from around the world. SUNY's "Exploring Emerging Technologies for Lifelong Learning and Success" assists educators to promote the development of successful lifelong learners. This learning opportunity is referred to as #EmTechMOOC, which is also the hashtag used to follow the project on social media. This project is funded through a SUNY Provost's Innovative Instruction Technology Grant awarded to the University at Buffalo, Binghamton University, SUNY Center for Professional Development, and additional partner campuses. Developing strategies for faculty and students in the SUNY system and any learner around the world with an interest to stay current with the continual evolution

of technology is the purpose of this project. In this article, we will describe the processes of making this MOOC and assess its effectiveness. Specifically, this research focused on the following objectives:

1. Developing an online MOOC to support faculty and students in pursuing professional and personal development in the 4Cs of 21st Century Skills.
2. Understanding if a MOOC platform is beneficial for teaching the 4Cs of 21st Century Skills.
3. Examining the feedback learners provide after participating in a MOOC to formulate a set of recommendations for constructing online professional and personal development opportunities.

Background of MOOCs

What is a MOOC?

MOOCs, or Massive Open Online Courses, are distinct from traditional online college courses. Traditional online college courses are available to a select number of students who have met the administering college's admissions requirements and have paid for the course in exchange for college credit. MOOCs are open to anyone with Internet access and do not usually offer college credit. The term *MOOC* is a concept that emerged from the Open Educational Resources Movement.

MOOCs were initially developed to *democratize* education and create learning opportunities that are beneficial for all. MOOCs are generally divided into two categories: cMOOCs (connectivist MOOCs) and xMOOCs (extensionist MOOCs) (Haber, 2014; Jordan, 2014). Zawacki-Richter, Bozkurt, Alturki, and Aldraiweesh (2018) define the two categories as,

> The first-generation cMOOCs embraced a decentralized, learner-centered approach; the second generation xMOOCs were characterized by teacher-centered teaching and learning; the third generation hybrid MOOCs took a more pragmatic approach by combining the two previous approaches; to diversify learning opportunities and to reach a broader audience. (p. 243)

There are generally two types of MOOCs, but it is important to note that there is also now a third hybrid category that combines these two approaches.

The first MOOCs were connectivist in philosophy and the term "Massive Open Online Course" was developed by Cormier's analysis of Siemens and Downes' 2008 "Connectivism and Connective Knowledge" online course offered through the Extended Education and Learning Technologies Centre, University of Manitoba (Cormier & Siemens, 2010; Haber, 2014). Through the use of online communication tools like bulletin boards, chat rooms, and

social media, these original cMOOCS demonstrated that knowledge emerges from both connectivity among participants as well as connectivity between instructor and participant (Haber, 2014). By 2012, the emphasis in MOOCs shifted from "openness" to "massiveness" (Haber, 2014, p. 33). Enrollment in xMOOCs tends to be very large, usually over a few thousand participants (Hew, 2014). Coursera, edX, and Udacity have emerged as the leading xMOOC platforms with large initial enrollments: Coursera, 1.7 million; edX, 370,000; and Udacity, 150,000 (Pappano, 2012).

The Utility and Challenges of MOOCs

Since 2012, MOOCs have become the subject of various educational studies to determine their utility and to situate their role within the higher education landscape. MOOCs have come under scrutiny for their low level of successful participant completion (Jordan, 2014; Kolowich, 2013), their mostly well-educated participants (Emanuel, 2012; Koller & Ng, 2013), and the limited geographic representation of non-Western nations among the population of participants (Liyanagunawardena, Adams, & Williams, 2013). The future of MOOCs relies on a commitment to addressing these concerns as well as developing a method of instructional design that provides "appropriate human interactive elements" alongside "excellent content" (Hone & Said, 2016, p. 166). Recent studies have steered away from measuring success in direct correlation to completion. The perspective that completion is not always the goal often results in learners exploring portions of a MOOC with a specific interest in a subtopic who come away satisfied even when they do not complete all the course requirements (Henderikx, Kreijns, & Kalz, 2017).

In this stage of the third-generation hybrid MOOC, there is significant opportunity to reflect on how MOOCs can shape the learning process. MOOCs can offer an opportunity for both instructors and students to "fully engage with the academic process," and "promotes collaboration, responsibility and a commitment" among all learners (Cormier & Siemens, 2010, p. 32). MOOCs are a tool that can provide supplemental opportunities for learning and do not have to only be seen as a substitute for a traditional brick and mortar education (Krause & Lowe, 2014). MOOC instructors report many qualitative successes in their courses linked to student engagement and personal achievement (Comer, 2014; Halasek et al., 2014; Woodworth, 2014). MOOCs are an exercise in teaching and learning that can force instructors to reflect on the strategies they employ both on and offline (Halasek et al., 2014). In thinking about the future of MOOCs, Krause and Lowe (2014) share this reflection from a professor who has recently taught a MOOC, despite the challenges, "the potential for people to learn in a massive, distributed way remains" (p. 225).

Despite low metrics of completion, MOOCs remain immensely popular. Student (or participant) voice is often absent from large-scale studies of

MOOCs, and this qualitative feedback is essential to understand why participants enroll and whether or not they complete the course (Jordan, 2014). In the conclusion of invasion of the MOOCs: The Promise and Perils of Open Online Courses, Krause surveyed contributors to the book about their thoughts on the future of MOOCs and identified Professor Elizabeth Woodworth as summing up the spirit and motivation of many MOOC students:

> I continue to sign-up for and explore MOOCs with the express intention of getting something amazing from each one if I can. I mostly gravitate toward arts-oriented MOOCs, but I search for leadership MOOCs, too, and those on higher education to explore as well as something totally out of my wheelhouse: like astronomy or architecture. It's there for the investigation—why not see what I can learn that I could then bring back to my classroom? It's like having a huge playground for my teaching self where all the toys are free to take home (Krause & Lowe, 2014, p. 227).

The most engaged MOOC participants are those who identify as teachers. A 4-year survey study of Coursera, edX, and Udacity participants found that 32% of respondents self-identified as "being" or "having been" a teacher. Of this group, 16% satisfactorily completed their courses, twice the rate of average MOOC participants (Chuang, 2016). Instructors often want to learn more about subjects they already teach, but they also want to learn new skills to help them improve their teaching practices.

Methods

The current research focused on developing a hybrid MOOC for a variety of learners. Specifically, the development process for this MOOC will be discussed including its origins and evolution.

Developing #EmTechMOOC for Lifelong Learning

#EmTechMOOC is an open-access resource targeted to the needs of all learners across the globe, including students, faculty, and current and career-seeking professionals. #EmTechMOOC falls into the category of a hybrid MOOC. The course involves connectivity similar to a cMOOC, activities are discovery-based and student-centered, and although the course follows a defined structure, participant success is highly dependent on how the learner shapes their learning environment. A learner can choose to be highly involved in the course conversations and interact with the learning community within the discussion forums, or a participant can alternately choose to complete course requirements independently and with minimal interaction. Given that this type of MOOC allows a learner to engage in the course at their own pace,

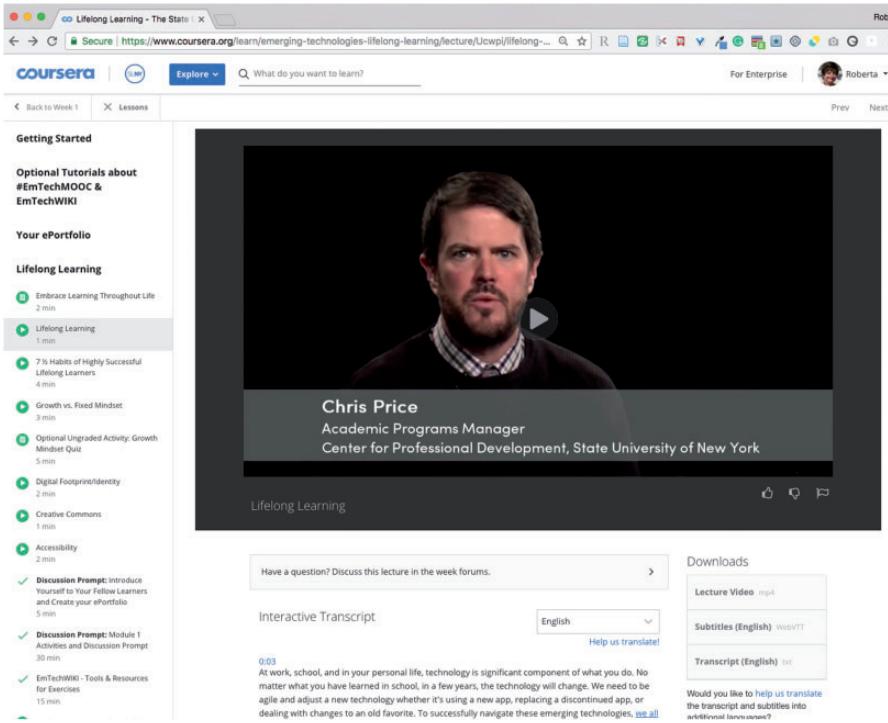

Figure 1. Screenshot of #EmTechMOOC on the Coursera platform.

this platform is a viable potential solution to offer professional and personal development in 21st Century Skills for educators and students.

The goal of #EmTechMOOC is to encourage lifelong learning and help participants identify the value and implications of using established and emerging technology tools for personal and professional growth. Through #EmTechMOOC, participants gain strategies to develop lifelong learning habits to keep pace with technological changes. The MOOC helps participants develop an increased comfort level with technologies and knowledge about how to more easily locate, find, and adapt to new technologies as they evolve.

The EmTech project consists of two associated parts: #EmTechMOOC and EmTechWIKI. The MOOC learning activities provide accessible, curated information, and application exercises. The MOOC, hosted on the Coursera platform, provides a supportive environment for dialogue and sharing among participants (see Figure 1). In the MOOC, participants share reflections about their learning and provide collegial support within the Coursera discussion forums. EmTechWIKI is a socially curated discovery engine used to explore tools, tutorials, and resources (see Figure 2). Participants use EmTechWIKI to

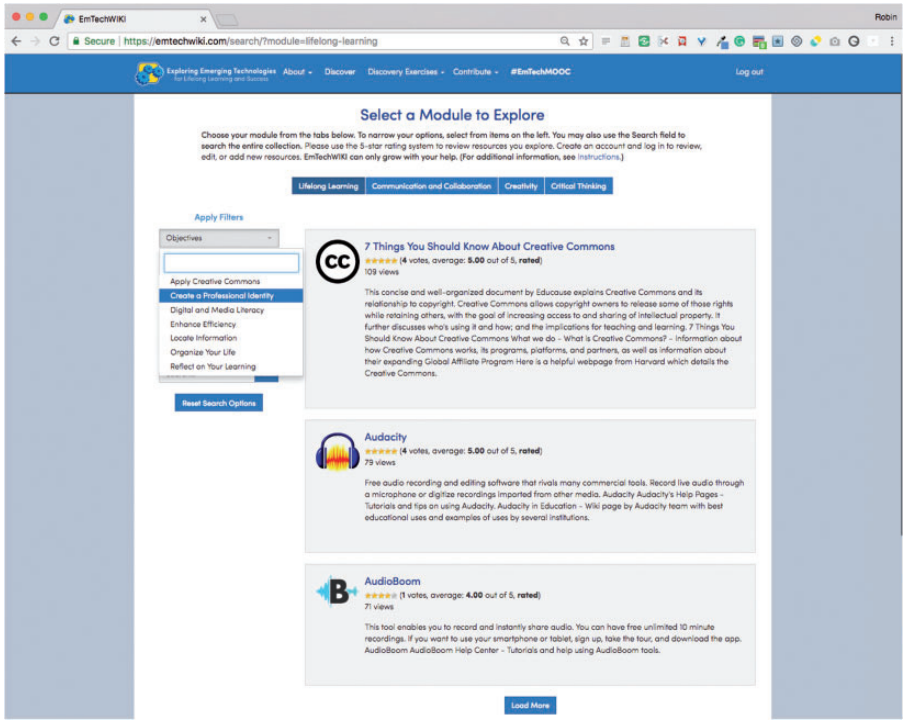

Figure 2. Screenshot of the EmTechWIKI website.

complete the MOOC's Discovery Exercises, where they select personally relevant learning objectives as well as explore tools and resources to achieve those learning objectives. The WIKI is used together with #EmTechMOOC, or it can also be a stand-alone resource. Anyone is welcome to add or edit WIKI resources.

The MOOC learning environment is structured around 5-week-long modules. #EmTechMOOC revolves around the cornerstone of lifelong learning and the 4Cs of 21st Century Skills: Communication, Collaboration, Creativity, and Critical Thinking. Through Discovery Exercises that include hands-on activities within each module, participants learn about a variety of emerging technologies that can be used to build 21st Century Skills. Throughout the modules, participants build personal ePortfolios to display the artifacts they create through the Discovery Exercises to showcase their accomplishments.

In the first module, lifelong learning is stressed as a habit that is necessary to keep pace with the evolution of technology. The importance of being a lifelong learner is reiterated throughout the entire MOOC. Participants watch videos in the first module which explain various aspects that are necessary for a lifelong

learner, including having a growth mindset, understanding creative commons, and prioritizing accessibility.

The concepts covered in the subsequent modules focus on the 4Cs of 21st-century learners. Participants watch relevant videos in each module, and the module's activities are built around objectives specific to that module. For instance, in the second module about communication and collaboration, participants focus their response to the Discovery Exercises around objectives, such as "Build Connections" or "Communication with Others." Participants go on to choose tools and resources to help meet that particular objective. Once an objective is identified, participants are encouraged to explore a variety of technology tool categories that could help them achieve their objectives, such as audio, blogs and wikis, collaborative spaces, ePortfolios, gamification, mobile apps, open educational resources, photos and images, presentations, productivity tools, resource libraries, simulations, social media, video, and accessibility. Throughout the MOOC, participants independently explore project resources and exchange ideas with fellow participants about how emerging technologies can be used to enhance 21st Century Skills.

The culminating activity in each module involves creating a digital artifact as evidence of their learning to include in their ePortfolio. Participants reflect upon their learning and add the artifact that they explored or created to their ePortfolio. They are also encouraged to engage in conversation to receive feedback and support from peers and colleagues in the course discussion forums. The final module provides an opportunity for participants to summarize and reflect on their learning journey. Participants complete the course requirements to earn digital badges and a Coursera Certificate of Completion.

Origins of #EmTechMOOC

#EmTechMOOC is an offshoot of the SUNY Tools of Engagement Project (TOEP), which was developed in 2012 as an on-demand professional development model among faculty across SUNY campuses. This self-directed professional development opportunity encouraged faculty to expand tech-infused pedagogy to their teaching and research. Topics addressed through TOEP include flipped learning, online learning, audio, blogs and wikis, collaborative spaces, ePortfolios, gamification, mobile apps, open educational resources, photos and images, presentations, productivity tools, resource libraries, simulations, social media, video, and accessibility. Faculty shared reflections about their learning within an online community provided through the Google+ social network platform.

The principal investigators of the intracampus TOEP team anticipated two outcomes related to the adoption of emerging educational technology tools. The first outcome was that after acquiring more in-depth knowledge about how to use these tools, faculty will become more adept at embedding 21st

Century Skills into their teaching and meeting the expectations of their students. The second outcome was that faculty will acquire skills and strategies to use emerging technologies to diversify assessment of student learning, going beyond traditional strategies. The fifth and final cohort of TOEP completed their experience during the 2016–2017 academic year. TOEP still exists as a stand-alone website and learners can explore emerging online technologies. However, visitors are now encouraged to enroll in the newly redesigned #EmTechMOOC learning opportunity instead.

Why TOEP was Recreated as a MOOC

The most compelling reason to create #EmTechMOOC was to expand the audience and devise a way for the project to sustain itself financially. TOEP was only available to faculty at certain institutions who paid to participate in the project. TOEP content mainly focused on how emerging technologies are used to enhance teaching practices. The new MOOC learning opportunity is instead designed to benefit a much wider audience, including all learners.

The concept that drove the development of TOEP began as professional development for librarians, it was then converted to a student assignment, and then transformed for faculty/staff. The core of what TOEP and #EmTechMOOC teach is essential to almost everyone in today's society. The materials from TOEP were often shared by faculty with their students. However, the language was still faculty-focused, and it was not the best fit when it was shared directly with students. Another reason is that after 5 years, the successful TOEP initiative needed to be refreshed to take into account what we learned through our continual assessment process.

The Coursera platform was selected for #EmTechMOOC due to the current SUNY/Coursera partnership agreement and SUNY's investment in MOOCs as an effective platform to promote learning. Only a small selection of top-rated higher education institutions are Coursera partners who can publish courses on the Coursera MOOC platform. The SUNY agreement with Coursera makes this platform a highly desirable commodity.

Another objective is to break away from the traditional xMOOC passive-learning format that Coursera is known for. Discovery-learning proved successful in TOEP, and a similar model applies to the design of #EmTechMOOC. Learning from and with colleagues is desirable, in comparison to learning only from a content expert. In #EmTechMOOC, it is even more worthwhile to develop a community of learners who recognize the need to be lifelong learners to keep up with technology changes.

A MOOC is a more cost-effective solution and can scale across an entire institution. The prior funding model of having campuses purchase membership was challenging to maintain. #EmTechMOOC is offered as a freely available learning opportunity that is accessible to anyone. Anyone from a SUNY

institution is also able to earn a free Coursera Certificate of Completion. When compared to traditional one-on-one training, or campus-based workshops, this single initiative can efficiently serve all 64 SUNY campuses and many campuses and organizations worldwide.

A challenge that was faced was to keep the continually evolving technology resources up-to-date. To address the evolving nature of the technology tools, a WIKI has been developed to take advantage of crowdsourcing. The expansive collection of external resources can easily be added to or updated by anyone.

TOEP's evolution to #EmTechMOOC attempted to address feedback received from TOEP participants through pre- and postsurveys. The most significant change we made in #EmTechMOOC is that participants now first identify an objective they are trying to achieve (i.e., create a professional identity, build teams, increase digital literacy/fluency) and then they are guided to explore an emerging technology that would be suitable to help them meet their objectives. In contrast, participants in TOEP immediately selected a technology tool without considering which objective they were attempting to meet with that technology. In keeping with backwards design practices, #EmTechMooc participants start by identifying objectives and then they use filtering and search processes to further narrow down the selection of potential tools or resources to explore, in order to select the best tools to help them meet that objective.

Results and Lessons Learned

Pilot Postsurvey Results

Formative and summative evaluation of the #EmTechMOOC was crucial to the evolution of the course. In January 2018, the MOOC was rolled out to a select number of individuals to pilot the program. The purpose of the pilot was to provide valuable insight before rolling out the course to the general population. A total of 18 participants, out of the 121 who registered, completed the pilot postsurvey. Participants were provided with mainly Likert-type scales to describe their overall experience, the aspects they found beneficial, and areas of the MOOC that they would change. Overall, the results were positive. When asked if they were satisfied with the experience, 10 out of the 18 participants responded with agree or strongly agree. When asked about their satisfaction regarding the content of the MOOC, 10 out of the 18 participants responded with answers of agree or strongly agree. Over 80% of the participants expressed that #EmTechMOOC presented them with a wide variety of emerging technology, and over 59% of participants stated that their work in this MOOC enhanced their learning of these emerging technological strategies.

Participants stated that the most valuable tools of the MOOC were the use of the digital portfolios, videos, the EmTechWIKI, and digital badges. The positive

attitudes regarding digital portfolios are of note, as 47% of the participants stated that they had yet to use this strategy for their academic or professional purposes. One of the participants noted that creating an ePortfolio was the most valuable component of their MOOC experience.

The use of videos to explain emerging technologies and expectations was another successful component of the MOOC. One participant commented on the quality of the videos by stating "The whole #EmTechMOOC experience was valuable. If anything, I found the videos to be engaging, informative, and personable." Many of the pilot participants found the badges to be a motivating factor for the MOOC and 65% of the participants responded with agree or strongly agree when asked if receiving badges added value to their overall experience. One participant stated

> I think the digital badges are effective. The digital badges provided an incentive or encouragement, as well as a reward, to complete the task . . . the digital badges are positive reinforcement for anyone who has accomplished an activity or task in this MOOC.

An essential part of this project was to ensure participants had something to refer to after the course was over, the tool to provide this continuity was the EmTechWIKI. When asked if people intended to use the wiki after the course was over, the majority (70%) of participants agreed or strongly agreed with this statement.

Another important aspect of completing this survey was to determine the aspects of the EmTechWIKI that participants were not satisfied with so that the MOOC team could improve the user experience for the complete rollout phase. Participants tended to agree that using the discussion forums and navigating between two different web platforms detracted from the usability of #EmTechMOOC. Forty-two percent of participants stated that the community discussions were a valuable aspect of their experience. One participant stated that they did not have enough time to engage in the discussion forum while another said that "not being able to see people's posts before I posted my own was a little disorienting." A separate response was, "I don't have the time to make good use of long and complex discussions."

Another response used to improve the rollout of the MOOC was participants' concerns about navigating the course as well as needing to use two separate web-based platforms to access all materials. One participant stated "all the instructions have to be more specific and easy to understand," while another reported "I got confused initially between the location of a google doc and the actual wiki," and another commented "don't offer any documentation for the course outside of the course site. Host your documents and everything in the course instead of drawing users into a google doc."

Changes Between Pilot and Full Coursera Rollout

Based on the suggestions provided by pilot users, changes were made to enhance the learning and user experience for individuals who enrolled in our full Coursera MOOC experience. Significant improvements were made to instructions and programming to promote easy navigation and reduce confusion. Videos were developed with explicit instructions geared toward site navigation to help users understand the Coursera platform and how to navigate and search using EmTechWIKI. A new forum titled "#EmTechMOOC Tips and How-To Resources" also provides additional guidance. Finally, we attempted to reduce the necessity to navigate between two separate web systems to access information and complete MOOC modules.

Although participants in the pilot project indicated that the usability of the Coursera discussion forums were a hindrance to their MOOC experience, we were unable to change the navigation and functionality of the forum. The options and settings available in the Coursera platform are limited and did not allow us to make meaningful changes to this aspect of the user experience.

Full Coursera Rollout MOOC Survey Results

Due to technical issues in distributing the postsurvey to participants, the total number of completed surveys were 15. The majority of the participants were female (53%), identified as being Caucasian (73%), and were college educated (93%), with the majority of participants having a masters or doctoral degree (80%). Three out of the 15 participants live outside the United States in Chile, Mexico, and Vietnam. The time that it took people to participate in the course ranged between 1–5 h (40%) and 5–10 h (40%), with only one participant taking over 10 h to complete the course.

Overall, the survey respondents responded favorably when asked questions about their experience participating in the #EmTechMOOC. First, the majority (83%) of participants felt that the #EmTechMOOC had improved their digital or media literacy. In addition, 86% of participants stated that their participation helped them gain additional strategies that would enhance their lifelong learning habits. Also, for 72% of the survey participants being a part of the #EmTechMOOC positively influenced their feelings about technology including their perceived comfort level, motivation, fears, frustration, and concerns. Similar to the pilot survey results, most (80%) respondents felt that they would return to the EmTech WIKI site after the MOOC was over. Overall, the majority of participants (73%) said they would recommend this course to a friend or colleague.

Fourteen out of the 15 participants stated that they planned on putting the new emerging technology skills to use, and many stated they would either use

this for personal use or in the classroom. Specifically, participants provided the following examples about the ways they would use the emerging technologies they learned: (a) enhance instructional methods, (b) streamline work tasks, (c) use ePortfolios with students, and (d) for online instruction. Participants also provided examples of the aspects that were most valuable for their #EmTechMOOC experience. These included (a) accessing new technologies, (b) learning how people use technological strategies differently, (c) understanding ePortfolios, and (d) using creative commons licensing.

Finally, participants were asked aspects they would have liked to change about their #EmTechMOOC experience. Typically, participants mentioned difficulty with the discussion platform, Coursera navigation, and using search features. Many of these aspects were not under the control of the investigators for this project and should be considered for further iterations of this MOOC. Also, some participants expressed some difficulty with the final peer-review activity due to timing constraints. Changes to this activity are currently being considered to enhance the user experience.

As of the end of the third session on June 30, 2018, there were a total of 4,428 visitors, 2,178 learners enrolled in the course, with a total of 33 people completing the entire course. The average median retention rate of MOOC completion rates is about 6.5% (Alraimi et al., 2015; Jordan, 2014; Oakley, 2016; Perna et al., 2014). As with most MOOCs, there is a significant difference between the number of learners who enroll and the number of those who complete the entire MOOC. Although completion is an accepted measure of MOOC success, it is useful to consider the perspective that completion is not always the goal

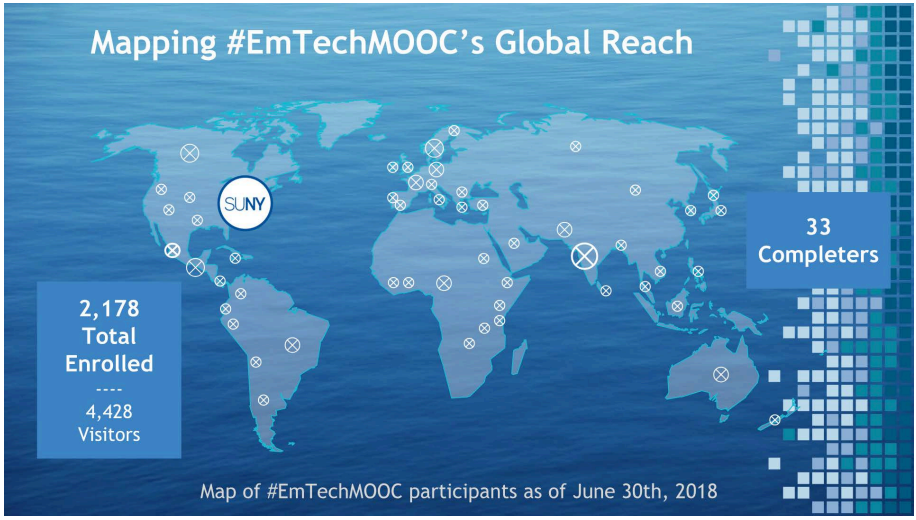

Figure 3. Map of #EmTechMOOC participants as of June 30, 2018.

(Henderikx et al., 2017). Some people explore a MOOC with interest in a specific subtopic and come away satisfied. With #EmTechMOOC, some participants might be interested in acquiring new tools for dealing with critical thinking, for example, but they may not have the time or the inclination at this moment to explore the other course content. Future research needs to be performed to explore whether or not the learning of these participants' is considered as successful and if #EmTechMOOC has helped them achieve their goals.

#EmTechMOOC has achieved an extensive reach which can be seen in the map below which has been generated through the Coursera analytics. The majority of participants are from North America (45%), Asia (25%), Europe (18%), and Africa (5.9%) (see Figure 3). This MOOC is U.S.-centric with 29% of enrollments as compared to other MOOCs in Coursera that average about 23% of enrollments.

Conclusion

#EmTechMOOC is still in its early days of inception. Its enrollment continues to grow, and the team continues to gather results and make changes to reflect participant feedback. Similar to previous research, our MOOC included mostly instructors/professors wanting to increase their knowledge about effective teaching and learning strategies (Chuang, 2016; Krause & Lowe, 2014). This is potentially due to the marketing strategy employed. To date, most advertisement and outreach for #EmTechMOOC occurred within instructor and staff-based communities within the SUNY system and other academic environments. Also, our MOOC experienced a significant attrition rate with only a small proportion of individuals completing the MOOC in total. Although few participants finished the entire MOOC, the participants who did complete the MOOC stated they had mostly positive experiences. This is important to note as participant feedback has been mostly absent from studies examining MOOC effectiveness (Jordan, 2014).

Two of the primary objectives of the current research were to investigate if a MOOC could be developed to support professionals in learning and developing 21st Century Skills. The authors of this research believe that this was achieved based on the feedback from the participants. Participants provided feedback which elucidated a largely successful user experience, and by participating in the MOOC, participants increased their perceived comfort level with digital and media literacy. As our technological landscape is always changing, appropriate competency in digital and media literacy is crucial for individuals to stay up to date with the demands for many of today's professions. Halasek et al. (2014) stated that participation in a MOOC allows individuals such as teachers and professors to contemplate the teaching and learning strategies they use in their daily work. Consistent with Halasek et al.'s (2014) assertions, our participants found aspects such as learning

how to use new technologies, building instructional methods, and simplifying work tasks to be most beneficial. Interestingly, many participants found instruction regarding the use of ePortfolios to be most valuable. Participants also stated that they were likely to use ePortfolios for future instruction. The increased use of ePortfolios may also benefit educators to help them understand the needs of students, some of which who are now required to create an ePortfolio for graduation requirements.

Based on the findings of our postsurvey, participants enjoyed the MOOC content, instruction provided via Coursera, resources on emerging technologies, and receiving digital badges and the Coursera Certificates of Completion. These findings were crucial for completing our final objective which was to develop a set of recommendations for individuals to consider when designing online development opportunities similar to the one described here. As we continue developing our MOOC, as well as for others that are developed, it is essential to keep the abovementioned features in mind during the design and development phase. When these features are carefully considered, participant interest, engagement, motivation, and completion are potentially greater. One drawback of our current MOOC platform is the design, navigation, and implementation of discussion boards. Having active participation and collaboration among MOOC participants is critical and directly relates to all of the 4Cs of 21st Century Skills. Without a platform that encourages learner-to-learner engagement, communication, collaboration, creativity, and critical thinking are not leveraged to their fullest potential. A platform that more effectively encourages engagement with other learners would be beneficial in future iterations of this MOOC.

The current MOOC project showed early evidence to support a positive learning environment and outcomes for participants. Limitations of this work include a small sample size of individuals who complete the course. Future work should continue to develop the MOOC platform, specifically the discussion forums, to enhance collaboration and critical thinking among participants. Many of our participants stated that they would use the technologies that are shared through the MOOC. Future work should follow-up with participants to see if they have implemented new strategies in their daily personal and professional lives. #EmTechMOOC should also be more actively marketed to undergraduate and graduate students to determine if their involvement in this type of learning opportunity would enhance the skills needed to be competitive in today's job market.

Declaration of Conflicting Interests

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