Instructor Efforts to Address Cultural Diversity in MOOC Design and Application

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Abstract:
This mixed methods study examined instructional design practices and pedagogical methods of instructors of massive open online courses (MOOCs). In particular, this study focused on how MOOC instructors address learners' cultural diversity. Based on 25 email interviews with MOOCs and open education experts, an online questionnaire was developed and delivered to over 1,000 MOOC instructors from around the world, of which 145 completed the survey. To address cultural and linguistic differences, these instructors added subtitles to video content and offered transcripts for video or audio content. In addition, they were careful with language use and hand gestures, used simplified language, slowed the pace of speech, simplified the course content and navigation, limited text by relying more on pictures, and encouraged students to translate and localize the content for their peers. Implications and future directions for MOOC instructors and instructional designers of MOOCs are offered.

Introduction

Massive open online courses (MOOCs) and open online courses are becoming increasingly popular as they allow thousands of individuals to engage in learning simultaneously (Cormier & Siemens, 2010). For instance, in 2011, Stanford professors Thrun and Novig, opened their online artificial intelligence course to anyone in the world with Internet access. This resulted in more than 160,000 learners enrolling from over 190 different countries (Ebben & Murphy, 2014; Rodriguez, 2012). Since that time, MOOCs have found their way into the mainstream. MOOCs are now hosted on myriad platforms including edX, Udacity, Udemy, FutureLearn, and Coursera (Pappano, 2012).

MOOCs tend to draw self-directed adults because these courses allow learners to achieve personal learning goals and develop new skills, and present learners with the opportunity to network (McAuley, Stewart, Siemens, & Cormier, 2010; Siemens, 2012a). Not surprisingly, the gap between the high expectations of meeting individual goals and the current status of MOOCs often forces MOOC participants to struggle to complete them (Belanger & Thornton, 2013; Christensen, Steinmetz, Alcorn, Bennett, & Woods, 2013; MOOC @ Edinburgh 2013 – Report #1, 2013). Therefore, many researchers claim that more research on the design of MOOCs is needed (McAuley et al., 2010; Ostashewski & Reid, 2012).

As the use of MOOCs has expanded, researchers have increasingly called for instructors to consider their target learners (Siemens, 2012b) and if learners' linguistic, technical skills impede learning in MOOCs (e.g., Fini, 2009; Schulze, 2014). Meanwhile, Preece, Rogers, and Helen (2007) stated that designing courses with cultural sensitivity

can enhance learners' positive and effective experience. As distance education enrollment rises, it is pivotal to understand and take into consideration learner preferences, culture, and style (Speece, 2012). Therefore, considering cultural differences and accommodating learners with different backgrounds is becoming essential to the design of high quality MOOCs. Unfortunately, however, research on the instructional design practices related to cultural diversity in online learning is limited (Jung & Gunawardena, 2014; Rogers, Graham, & Reeves, 2007; Swierczek & Bechter, 2010; Wang & Reeves, 2007).

Given that the instructor is one of the five key elements of a MOOC (Kop, 2011), this study aims to understand how instructors are designing and delivering MOOCs to address learners' cultural diversity. Mixed methods (Greene, 2007) were used to explore the practices of MOOC instructors from a variety of disciplines. An online questionnaire that was developed based on the email interviews with more than two dozen (n=25) MOOCs and open education experts was sent to over 1,000 MOOC instructors and completed by 145 of them. This study hopes to help reveal instructional design and delivery practices related to cultural sensitivity within MOOCs. Specifically, this mixed methods study will address the following two research questions:

(1) How do MOOC instructors or designers design the course to adapt to learners with different cultures and/or linguistic backgrounds?
(2) What practices do MOOCs instructors utilize to meet the needs of learners with different background?

Theoretical framework

Many scholars have discussed the emergence of the MOOC phenomenon since the term was coined by Alexander and Cormier (De Freitas, Morgan, & Gibson, 2015). As a result of the emergence of MOOCs and MOOC-like derivatives, learners across the globe have more options in choosing courses with less concern about high tuition costs. Ebben and Murphy (2014) reported that enrolled learners in MOOCs are from 194 countries, more than half of which are not from the United States.

Watson, Ho, and Raman (1994) pointed out that learners are often highly heterogeneous and that what may work successfully in one cultural context does not necessarily work in another. This raises a serious and growing issue; namely, if instructors and online learners do not understand each other, there is greater probability of misunderstandings occurring due to language barriers and differences in communication styles (Callaway, Matthew, & Felvegi, 2014). Different cultures have different communication patterns (Hofstede, 1986; McLouglin, 2006). In one study of asynchronous conferencing, Finnish learners were more reflective and theoretical, Korean learners were more social and contextually driven, and those in the United States were more action oriented and pragmatic in seeking results (Kim & Bonk, 2002). Furthermore, individual learner's learning preferences and styles may vary in different cultures (Fail, 2011; Hofstede, 1983, 1986). Thus, it is important to consider cultural diversity in online course design because courses are often developed based on personal values, preferences, expectations, and experiences (Ahn, Yoon, & Cha, 2015; Speece, 2012).

MOOCs as a type of online learning are expected to be accommodated to culture diversity. However, Subramony (2004) pointed out that there is a lack of attention to cultural diversity when instructional designers design courses, resulting in alienation of online learners. In fact, culture influences distance education in both the design and implementation stages (Seufert, 2002).

Central to course success in terms of culture sensitivity is to better understand what culture actually is. Watson, Ho, and Raman (1994) consider culture as "the beliefs, value systems, norms, mores, myths, and structural elements of a given organization, tribe, or society" (p. 45) which manifests itself in the shared ways in which a group interprets and reacts to its surroundings. However, Hofstede and Hofstede (2005) defined culture as "collective programming of the mind that distinguishes the members of one group or category of people from others" (p. 4) which explains the complexities of culture which includes attitude, goals, symbols, practices, and values.

Culture is a collection of fundamental values, and patterns of acting, feeling, and thinking (Ford & Kotzé, 2005) which impact people's communication. Culture can be classified into high or low contexts based on the amount of information a learner expresses to communicate (Hall, 1976). Learners in traditional classes mainly depend on verbal cues for communication. Thus, online learners face challenges in online learning environments, where the written word is the main media (Gobbo, Nieckoski, Rodman, & Sheppard, 2004; Speece, 2012). While video lectures are often utilized in MOOCs, the lack of intimacy is still a challenge for online learners with culture differences (Hannon & D'Netto, 2007; Morse, 2003).

Qayyum (2016) stated that culture is important because the technologies are not culturally neutral. Specifically related to instructional design (ID) models, Frechette, Layne, and Gunawardena identify four levels of cultural inclusivity of instructional design (ID) models (Qayyum, 2016), which are stated below:

Level 1: The ID model does not directly address cultural factors, but implicitly takes on the values and biases of the creators.
Level 2: The model is explicitly designed for a specific culture.
Level 3: The instructional design model is designed for different cultural contexts.
Level 4: The model is designed to create multicultural learning experiences.

When cultural sensitivity is not addressed, it might lead to misunderstanding (Callaway et al., 2014). There are various ways to address cultural issues, e.g., use a common language like English but encourage subtitling and transcripts, be considerate when using symbols, provide use easy-to-digest examples, understand time differences among participants, engage in role modeling, and build cultural awareness and sensitivity among the learners of the course (Wendler et al, 2002; Yousef et al, 2014). Even though there are some studies on online cultural sensitivity, there remains limited discussion on MOOC design for cultural diversity from instructor's perspective (Teras, 2013; Wang & Reeves, 2007).

Kop (2011) argues that instructors are one of the five primary elements (instructors, learners, topic, materials, and context) in MOOCs. However, few studies leverage instructor perspectives to better understand such personalization and cultural sensitivity (Veletsianos & Shepherson, 2016). In response, this study examined the various ways

MOOC instructors design and implement their courses to meet the needs of learners with different culture and linguistic backgrounds.

Methods

Survey methods were employed to investigate how MOOC instructors addressed cultural and linguistic diversity and ways in which learning can be more personalized. Participants are instructors and MOOC designers from universities around the world as well as educational institutions such as the World Bank Institute, American Museum of Natural History, and the Commonwealth of Learning (COL). The key data sources of this mixed method study include: (1) email interviews (n=25) with MOOCs and open education experts involving two sets of questions related to cultural sensitivity and the personalization of MOOCs (Note: This particular study focuses on the former); and (2) an online questionnaire sent to 1,000 MOOC instructors from around the world of which there were 145 respondents. The online questionnaire themes and categories were drawn from a thematic analysis of the email interviews. Further interviews will be conducted with the MOOC instructors who volunteered to be interviewed. Thematic analyses produced "emerging themes [that] become categories for analysis" (Fereday & Muir-Cochrane, 2006, p. 4) by cataloguing, summarizing, and analyzing the interview scripts. The analysis helped to specify the points of inquiry (Bogner, Littig, & Menz, 2009).

The questionnaire consisted of 30 items with 23 close ended questions and 7 open ended questions. As indicated, it was distributed to more than 1,000 instructors whose MOOCs were listed in online platforms such as Class Central, the MOOC list, Coursera, edX, FutureLearn, and Open2study. These MOOC lists included courses from Open2study, Canvas, NovoEd, Blackboard, iversity, and Kadenze. The researchers crosschecked the information of the MOOCs for duplicity and errors.

Results

Instructors (n=145) indicated varying levels of experiences with teaching MOOCs. More than half of them (n=78) have taught just one MOOC (including the one they are currently teaching). Around one third instructors (n=49) have taught two or three MOOCs. Only one tenth of them (n=17) have taught four or more MOOCs. MOOC instructors taught a wide range of subject areas. The top five subjects that MOOC instructors (n=140) taught include medical and health (n=24), education (n=20), social science (n=17), business (n=14), and computer science (n=12).

Since these MOOC instructors were from different subject areas with various backgrounds, their involvement in addressing culture and language differences in the course design not too surprisingly varied as well. One question in the survey asked about the effort that they placed on addressing the needs of individuals from different cultural backgrounds and languages in their most recent MOOC on a scale from 1 to 10 (1-3 Low; 4-7 Medium; and 8-10 High). On average, these MOOC instructors put medium levels of effort in addressing culture and linguistic differences, with a mean response of 5.4 out of 10 (n=134), 31% (42/134) high level of effort, 38% (51/134) middle level of effort, and 31% (41/134) low level.

These MOOC instructors (n=129) took different strategies to design their courses to be suitable for learners from different cultures and/or linguistic backgrounds. For instance, most MOOC instructors offered transcripts of video or audio content (66.67%)

and subtitles to video content (63.57%). They were also careful with language use and hand gestures (53.49%). Along these same lines, they simplified the language used (42.64%), and more than one-third slowed the pace of their speech (37.21%). In addition, many simplified the course content and navigation (27.13%), limited text by relying more on pictures (20.16%), encouraged participants to translate and localize the content for others (17.05%), and translated the content to different languages (10.85%) (see Figure 1). Even though linguistic diversity was mentioned in the open ended responses, only 22 of the 129 instructors stated that they encouraged their students to translate and contextualize content for peers and 14 instructors translated their course into different languages.

Besides the strategies mentioned above, providing choices to MOOC learners with different backgrounds is also important. For instance, among 122 MOOC instructors, nearly 75% of them offered optional readings or other learning materials (see Table 1). Around two thirds of them relied on selected incentives (e.g., certificates, badges, course credit) (n=78). They also provided options with course tasks and assignments (n=47), learner discussion and negotiation of content (n=43), options with different media elements (n=40), learner determined or contributed content (n=36), learner selected learning pathways (n=24), learner portfolios of course accomplishments (n=19), and choice in collaboration (n=15).

One open ended question asked about the instructional practices that were used to address different cultural backgrounds as well as technology access among learners (n=34). The responses of these 34 instructors are reported in Table 2. Multimedia presentations, optional resources, course instruction and language, feedback, collaboration, technology access, and varied communication channels were some of the approaches that instructors used to address diversity during the MOOC design stage. The top four ways related to how MOOC instructors design their courses with the consideration of students' background and technology access are by:

(1) Providing captions and transcriptions to all videos and screencasted materials. This strategy was intended to accommodate students with disability or different learning styles.
(2) Offering supplemental or optional materials.
(3) Making sure that all materials can be viewed on various devices, including computer, tablet, or smartphone. Moreover, some instructors experimented with the look of their materials on different size of smartphones.
(4) Keeping the materials at the level of a non-expert. Such an approach was intended to limit the tension and stress of MOOC learners who come from different fields, while, at the same time, not neglecting students who want to study more deeply by offering additional learning materials.

Significance

It is evident from these findings that instructors are taking strides to address issues related to cultural and linguistic diversity when designing and implementing their MOOCs. Furthermore, many MOOC instructors not only attempt to address diversity in their course resources and activities, but also collaborate with various university department and international students in preparing the learning materials. In this study, most MOOC instructors focused on strategies to address cultural and linguistic diversity

by supplementing video with text, providing text with video or audio, and being cautious with gestures. Besides such solutions, other strategies included the adaptation of instructional content for specific populations and multimedia usage were also utilized. Of course, this is just the start of a long evolution of addressing cultural diversity and personalizing MOOCs and other forms of open education.

This study showed that MOOC instructors are attempting to understand the problems of cultural differences and address this issue; however, there is no universal understanding of cultural diversity and definitive best practices at this time. Besides the thematic analysis and statistical data, real-time interviews are needed to better understand the instructors' practices and ideas of addressing cultural diversity in MOOC design.

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Appendix

Table 1: Items instructors provided in their most recent MOOC (n = 122)

Items the current MOOC covered	Percent	Count
Choice in team or collaborative partners (i.e., self-formed teams)	12.30%	15
Learner selected incentives (e.g., certificates, badges, course credit, etc., options)	63.93%	78
Learner selected learning pathways (i.e., different routes to learn the same content)	19.67%	24
Learner determined or contributed content	29.51%	36
Learner discussion and negotiation of content	35.25%	43
Learner portfolios of course accomplishments	15.57%	19
Options with course tasks and assignments	38.52%	47
Optional readings, videos, or other materials	74.59%	91
Two or more media elements to learn the same content	32.79%	40

Table 2: Approaches employed by MOOC instructors to enhance access for learners with different backgrounds and technology access.

Category	Subcategory	Count
Multimedia presentation	All videos and screencasts had caption and transcriptions.	12
	Provide pdf and word version of materials.	1
	Provide text reader/read aloud.	2
	Videos are kept to be simple and short.	2
	Have animation.	1
	Provide free textbook.	1
Optional resources	Offer supplemental or optional materials.	8
Content	Creating material that is acceptable for various cultures.	2
	Keep cultural differences in mind when designing and producing the material.	1
	Materials are designed to accommodate different learning styles.	1

|	Share personal story and life to some degree by recording lessons in and around home.	1
	Following country's compliance/regulation.	1
Language	Use simple, slow, and clear language.	3
Course instruction	The material is kept in a non-expert level.	5
	Give detailed outlines of the lesson.	1
	The course work is open, everyone can choose to work individually.	1
	Provide the background and the expectation of the course.	3
Feedback	Do not comment on language or grammar when commenting on forum posts.	1
Collaboration	Work with various university divisions (e.g., international office, student support, university expert, and language department).	2
	Pilot with international students.	1
Technology accessibility	Material can be viewed on computer, tablet or smart phone.	6
	Videos and transcripts can be downloaded to be viewed later.	3
	Simple navigation.	2
	Trying to make class activities to be browser based, not too much installation.	1
	Provide materials that use low bandwidth.	1
	Creating user-directed FAQs.	1
	Materials can be access easily.	1
	Not used flash based platform.	1
	Making the multimedia interactive apps more user friendly.	1
	The course is also available on app.	1
Communication channels	Offer multiple communication channels.	1
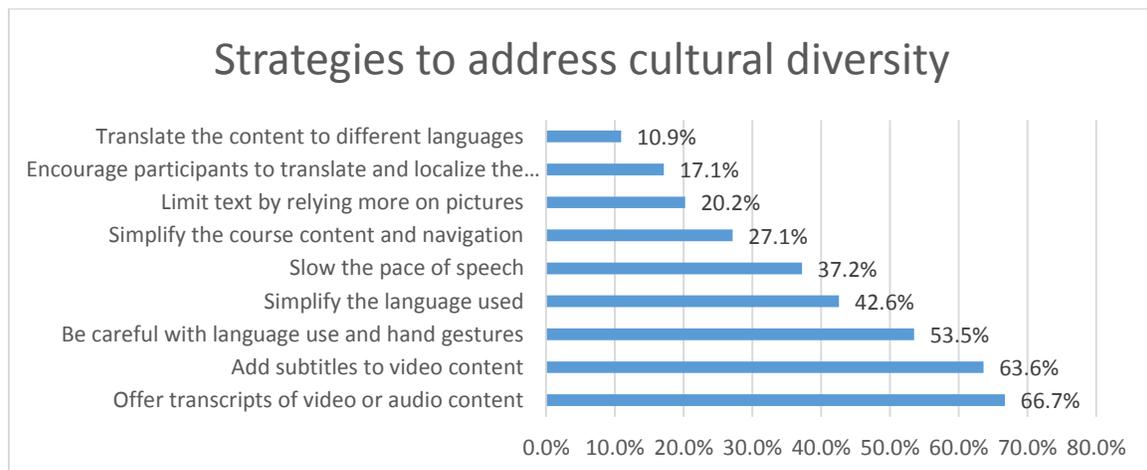
Figure 1: MOOC instructors (n=129) instructional practices to address cultural diversity