Towards Culturally Inclusive MOOCs: A Design-based Approach

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Abstract: Massive Open Online Courses (MOOCs) have become one of the most popular ways of acquiring new knowledge and skills. One of the unique characteristics of MOOCs is their learner diversity. MOOC learners vary in age, gender, cultural background, language and discipline. This poses a great challenge for MOOC designers to create learning experiences that resonate with their diverse global audience. This paper reports instructional strategies that were applied to create culturally inclusive MOOCs. We applied a design-based approach to experiment, test, and evaluate these strategies over the course of three MOOCs on the topic of Design Thinking. The study uses in-depth qualitative interviews with international participants, pre- and post-course surveys, as well as observations from the discussion forums, in order to gain insights into learners' perspectives. As a result, the authors offer instructional strategies that may accommodate the needs of MOOC learners from diverse cultural backgrounds. Considering that MOOCs promise opportunities for life-long learning to learners around the globe, it is of utmost importance to design learning experiences that are culturally inclusive.

1 INTRODUCTION

The advent of Massive Open Online Courses (MOOCs) raised many hopes and expectations of opening education access to global learners. One of the unique characteristics of MOOCs is the diversity among participants. While a typical campus classroom may contain some international students, any given MOOC usually draws a large number of learners from all around the globe, with diverse languages, and ethnic and cultural backgrounds. On the flip side, this situation presents a great challenge for MOOC designers and instructors to create culturally inclusive learning experiences (Taheri et al., 2017).

Since the advent of distance education, there has been a significant amount of educational content created by Western universities and exported to other parts of the world via the internet. However, as Rogers et al., (2007) point out, this has led to a predominance of Western-centric instruction to learners of diverse cultural backgrounds. This trend has continued to this day, with the majority of MOOC content still being produced by educational institutes in the West (Frechette et al., 2014). Thus, if MOOC

designers wish to reach their global audience effectively beyond their own context, they need to apply instructional strategies to accommodate diverse learners' needs. In other words, they need to pay attention to cultural aspects during their instructional design process (Bonk et al., 2016).

Parrish and Linder-VanBerschot (2010) name the following challenges that instructional designers face in addressing cultural diversity in multicultural classrooms:

- Understanding the cultural differences among students and appreciating them in order to support their learning with the appropriate instruction.
- Gaining awareness about one's own cultural biases and tendencies and accepting that their way of thinking is not necessarily the "right" way.
- Understanding which student preferences and behaviors are related to cultural values and therefore not necessarily need to be challenged.
- Accepting the responsibility of instructional designers to acculturate and respect the cultural backgrounds of individual students.
- Considering that the instructional strategies and practices which are research-based are also

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culture-based, and therefore might not be appropriate at all times and may need adaptation and modification.

Considering that any given MOOC resembles a massive multicultural classroom, MOOC designers face similar if not more challenges to create effective learning experiences for their diverse learners. Despite its significance for today's connected world, the body of literature on the intersection between the instructional design of online learning and cultural differences is narrow (Bonk et al., 2016; Jung and Gunawardena, 2014; Rogers et al., 2007).

On the benefits of taking learner diversity into account, Meo (2010) suggests that a curriculum that incorporates a variety of learner needs benefits not only the "non-typical" learner, but also the "mainstream" learners can benefit from more flexible learning experiences. In addition, Chita-Tegmark et al., (2011) suggest that creating learning experiences that reflect the cultural dimensions of learner variability not only diminishes learning barriers for culturally diverse learners, but also contributes to culturally informed learning opportunities for all learners. Since MOOCs promise an opportunity for life-long learning to global learners with diverse backgrounds, it is of the utmost importance to create inclusive and culturally responsive learning experiences.

This paper reports on the efforts of a team of instructional designers in creating culturally inclusive MOOCs. The goal was to create effective and inclusive learning experiences by accounting for cultural diversity in all aspects of instructional design. We applied a design-based approach and experimented with a number of practices, evaluated them and revised them if necessary. This report is based on the results of three MOOCs on the topic of Design Thinking. For the sake of this work, we refer to these MOOCs as ProtoMOOC, MOOC#1, and MOOC#2. The courses ran on openHPI which is a well-established European MOOC platform between November 2016 and October 2018 (see openhpi.de). Learner feedback was gathered through qualitative interviews with participants, as well as survey results and observations from the forum discussions and participants' interactions.

The contribution of this work is twofold. On the one hand it adds to the relatively new discourse around MOOCs and cultural diversity and suggests practical recommendations for MOOC design, on the other hand it contributes to teaching Design Thinking, a popular problem-solving approach, at a global scale. For the purpose of this conference, we focus on the first contribution, and refrain from deeper discussions

about the latter. However, some instructional strategies that were chosen specifically due to the qualitative and explorative nature of the topic of these MOOCs will be highlighted.

In the following we will first provide a brief literature review on culture and learning. Next, the research design is described followed by instructional practices applied in each MOOC. We will present the results of learners' feedback on these practices as well as their relation to literature. And finally, we offer implications for MOOC design.

2 CULTURE AND LEARNING

Culture is a ubiquitous part of an individual experience. It defines what aspect of our environment we attend to, it influences our interaction with our surroundings, determines what behaviours we perceive appropriate in certain contexts, and shapes what we value (Nisbett et al., 2001). Some aspects of culture such as communication styles, values, learning styles, and traditions have direct implications for learning and teaching (Gay, 2001).

Chen et al., (1999) argue that cultural inclusivity is one of the essential pillars of a learning environment that is student-centered. They emphasize that considering the relationship between culture and learning, instructors need to apply and reflect critically on educational practices that address learners' needs from diverse cultural backgrounds.

Scholars have tried to understand the implication of cultural aspects on teaching and learning, often by borrowing from research in other fields and applying existing theoretical frameworks (Rogers et al., 2007). One of the first and still widely used frameworks of this kind is the Hofstede's Model of Cultural Dimensions (Hofstede, 1986). However, one of the main drawbacks of Hofstede's work is that it oversimplifies cultural differences and implies a static view on culture (Signorini et al., 2009). Moreover, the study assumes a homogenous domestic population within geographical borders, hence dismissing the nuances and diversities that exist within different nations (Gu and Maley, 2008). Goodfellow and Lamy (2009) argue that the problem with this approach to culture is that it sees individuals mainly in terms of their cultural attributes:

"The understanding of the notion of cultural differences that underpins most current research arises from a view of cultures as the manifestation in individuals of all the values, beliefs and ways of thinking and doing things that come with the membership of particular national, tribal, ethnic, civic

or religious communities. Culture, in this view, is a consequence of geographical, historical, climatic, religious, political, linguistic and other behaviour and attitude-shaping influences that are assumed to act on everyone who shares the same physical and social environment" (Goodfellow and Lamy, 2009, p.7).

We also agree with scholars such as Goodfellow and Lamy, Gunawardena, and Jung, and Signorini et al., who see culture as a complex set of values and practices that are not necessarily limited to the national level,

With regards to designing courses in both online and traditional settings, failing to accommodate the cultural sensitivities may lead to misunderstandings between instructors and students. Considering the high level of diversity among participants of any given MOOC, creating effective learning experiences with cultural diversity in mind, is a great challenge for instructional designers. As novel as MOOCs may seem, they are only the latest advance in the field of distance and open education (Mazoue, 2014). Thus, MOOC research should build on and draw from good practices in distance education. On accounting for learner's cultural diversity in developing and delivering distance education, Spronk (2004) highlights a number of good practices, such as contextualizing the learning, creating safe spaces for learning, welcoming alternatives, using media effectively, and celebrating diversity.

Instructional designers and teachers play a crucial role in designing inclusive learning experiences, both onsite and online. Rogers et al., (2007) explore the role of instructional designers in understanding and addressing cultural diversity in creating online educational content. Alongside other scholars, such as McLoughlin and Oliver (2000) and Chen and Mashhadi (1998), they argue that there needs to be more sensitivity and responsiveness to cultural differences amongst instructional designers.

Bonk et al., (2016) conducted a survey with instructors from major international MOOC platforms to gather insights into strategies and practices applied to address cultural diversity of MOOC learners. Among them are: providing text with audio or video, using visuals, refraining from using sophisticated language, and avoiding gestures and body language that might not be familiar for other nations. Finally, on the importance of considering cultural diversity for the instructional design of online courses, McLoughlin (2001) states: "Unless educators address the issue of teaching to a diverse body of students, and do so systematically, then online delivery may become just another way of dumping course content, with the assumption that all students, regardless of cultural background, can access learning resources and achieve success."

3 RESEARCH DESIGN

Anderson and Shattuck (2012) describe design-based research as a methodology that helps bridge the gap between research and practice in educational research. Wang and Hannafin (2005) characterize the methodology as both systematic yet flexible, which is a result of a collaboration between researchers and practitioners. It is an approach that applies iterative analysis, design, development and implementation to improve educational practices. Thus, scholars recommend close collaboration and partnership between researchers and practitioners throughout the whole process of identifying problems, consulting literature, designing interventions, implementing and assessing them (Anderson and Shattuck, 2012).

With this in mind, it was of benefit that the researchers were also the instructional designers for culturally inclusive MOOCs on Design Thinking.

The work was guided by the following research questions:

- How did the MOOCs perform with regard to addressing cultural diversity among learners?
- What are some of the practices that worked and what are the areas for improvement?

In order to address these questions, we applied in-depth qualitative interviews with diverse learners, pre-and post-course surveys, as well as observations from assignments and discussion forums. By analyzing learner feedback and critically reflecting on each MOOC, we were able to then improve the succeeding MOOC. In the following we will briefly describe the structure of each MOOC and the instructional practices applied. We will also report on learner feedback and the performance of each MOOC regarding cultural inclusivity.

3.1 ProtoMOOC

In November 2016, we ran the ProtoMOOC with the aim to experiment with various instructional strategies and gather learner feedback. Therefore, we recruited a limited number of international participants through various channels (120 enrolled learners). The main objective of this course was to enable learners to identify inspirations and opportunities for designing human-centered solutions. Therefore, the focus was on introducing two methods of *Qualitative Interviewing* and

Observation. Table 1 provides an overview of the structure of the ProtoMOOC.

Table 1: The structure of MOOC#1.

Week 1	Video	Introduction game	
Week 2	Video	Exercise	Peer-reviewed assignment
Week 3	Video	Exercise	Peer-reviewed assignment
Week 4	Wrap up		

In the pre-course survey of the ProtoMOOC, we asked participants to indicate their interest in taking part in follow-up interviews. Our goal was to evaluate how well the protoMOOC performed regarding cultural inclusivity and which aspects needed iteration and improvement for MOOC#1. In total, we conducted 16 interviews with course participants, nine of whom were international. Since the course was offered by a German institute, those who had lived for most of their lives outside of Germany were considered international. The interviews were conducted by three researchers and lasted between 30 and 60 minutes. The interviewees were from the following countries: Chile (1) - France (1) - Iran (2) - Russia (1) - The Netherlands (1) - Italy (1) - India (1) - Kuwait (1). The interviews were conducted via Skype or in person. Apart from the overall learning experience and the platform, some questions focused on the culturally inclusive aspects of the course. For instance, interviewees were asked whether they found any of the material offensive or culturally insensitive, how they perceived the course in terms of addressing cultural diversity, and whether there was any aspect of the course that they found unclear or confusing. And finally, we asked them to share their recommendations for future improvements.

It is worth mentioning that the interviewees had different levels of experience with Design Thinking as well as with MOOCs. For instance, one interviewee was completely new to MOOCs, whereas another interviewee had been an instructional designer of a MOOC on Design Thinking for two years. This led to fruitful feedback on different aspects of the course.

The first week was solely dedicated to learners getting familiar with the learning platform. In order to encourage cross-cultural interactions and create opportunities for individuals to bring in their own context to the course, we designed an introductory game. Participants were asked to introduce themselves by sharing a picture of three important artefacts from their daily lives in the discussion forum and explain their choices. Learners reacted positively to this exercise conducted in the first week (44 learners participated in this exercise). This activity sparked many conversations on the forum and interactions continued until the final week. All interviewees had a positive view of the first week and the introductory game.

We made sure to use simple and clear language in this MOOC. We refrained from using domain specific jargons and tried to find simple synonyms when needed. Surprisingly, the fact that the instructors were not-native but fluent English speakers contributed to the simple language of the course, something that was even viewed as positive by one interviewee.

Short lecture videos (max. 6 min.) were used not only to introduce a concept but also to show examples of application of the concept in real life. We paid close attention to visuals and examples used in the videos and made sure to incorporate images and references from around the globe (e.g. an example from South Africa and France). Bringing in narratives and individuals from different cultures helps students to understand their commonalities as well as differences among cultures (Huang, 2002). In addition, we consciously refrained from referring to characters and events that are only known to a specific part of the world.

We followed Bonk et al.'s (2016) recommendation and used visuals and images instead of long text, both in video and written content. We refrained from using content or instructional messages – including text, images and phrases – that could evoke unwanted emotional feedback from students and eventually interfere with their learning. In other words, we payed close attention to using visuals and text that are culturally appropriate. Griffin et al., (1995) point out how simple symbols can have completely different, and sometimes offensive interpretation, across cultures. Murrell (1998) also warns about the use of icons and symbols of alcohol (e.g. popping champagne) or animals as feedback response in learning material.

While exercises were solely designed for the purpose of practice – thus not graded – the two qualitative assignments in the course were peer-reviewed and graded. In designing assignments, we followed Nkuyubwatsi's (2014) recommendation and enabled learners to make their learning relevant to their own context by giving them freedom to choose project topics and share examples from their environment. The first peer-reviewed assignment asked learners to take a picture of a creative solution to a design problem (also known as *Workaround*) from their own lives. The feedback showed that giving students the freedom to choose project topics and share with their peers is a good strategy for

allowing students to contextualize their learnings. However, through our observations and learner feedback, we learned that only sharing a picture of a *Workaround* from one context, might not suffice and be confusing for peers to review, hence there is a risk of undergrading by peers. In other words, a creative and innovative solution in one context may be a common practice in another.

In the second assignment, we offered three interview topics and asked learners to pick one and to conduct an interview. The challenge was to select three topics that are relevant to different contexts. Therefore, we asked ourselves the following questions: Is this topic culturally insensitive to any group? (e.g. dating in the digital age). Can everyone relate to the topic regardless of their context? (e.g. living in a shared flat). Does this topic exclude any group? (e.g. gym membership). We discussed various potential topics through the lens of these questions, and finally picked the following three: visiting a new city, packing and preparing for a trip, and first day on a new job or at school. In this way we made sure that the topics are relevant to different cultural and professional settings (Nkuyubwatsi, 2014). For this assignment, we designed a template that was visual and helped learners to organize the tasks they were required to execute.

Finally, the diversity among the team of instructors was perceived as positive by learners. One of the instructors was from Iran while the other two were from Germany, and all three came from different disciplines. We included our own unique stories and experiences in the form of little anecdotes within the course content (e.g. in the introduction game at the beginning of the course).

3.2 MOOC#1

This MOOC was launched publicly on September 2017 with about 5000 participants. The structure and the content remained the same. We continued with the good practices from ProtoMOOC. The following describes the iterations we made based on learner feedback from ProtoMOOC.

We added subtitles to all videos and provided the option to download the text of the presented content. We also created a text summary of the content and provided additional resources for those who prefer to read more on a given topic.

Although allowing learners to contextualize their learning through identifying a local *Workaround* and sharing a picture with their peers proved to be a good practice, we learned that allocating a space in the assignment for learners to provide context and

reasoning alongside the image is important. This resulted in less confusion and better peer reviews on the assignment.

We introduced a visual time plan and changed the assignment deadlines in the course. A common practice in MOOCs – which are mostly designed in the West – is to set deadlines on the weekend (e.g. on Sundays). Whereas in several countries in the Middle East, Friday is the day of rest. This was also mentioned during the interviews with the ProtoMOOC participants. Therefore, we set the deadlines and the release date for each week's material to Thursdays. Thursday is close to the end of the week for everyone and in this way, learners can have a full weekend prior to each week's deadline.

During the wrap-up week, we recorded a video showcasing examples of learner submissions for the assignments. We made sure to select submissions from learners in different parts of the world in order to represent the diversity in the course. Finally, we asked learners to reflect on how they would apply their learnings in their professional or daily lives and share it on the forum.

In the post-course survey, we asked several questions about the MOOC#1 performance with regard to cultural inclusivity. The feedback was very positive for these questions (see Appendix)

3.3 MOOC#2

This MOOC was launched on September 2018, and had around 3500 participants. The topic of the MOOC was *Synthesis* and *Ideation*. Table 2 shows the structure of this MOOC.

Table 2: The structure of MOOC#2.

Week1	Video	Introduction game	
Week2	Video	Exercise	Peer-reviewed assignment
Week 3	Video	Exercise	
Week 4	Wrap up		

We adjusted the structure of this MOOC to allow for more learner flexibility. All content was made accessible at once, and we offered only one assignment that would cover both core topics of the course. This approach proved to work better for our learners.

To promote an environment of mutual respect among learners (Ginsberg, 2005), we introduced a short video about ethics and values that we, as instructors wished to promote. This video covered various topics, including mindfulness of diversity within the course and emphasis on valuing peer

feedback over grades. From MOOC#1 we realized that encouraging constructive feedback in peer-reviews, was an area for improvement. Moreover, different cultures have different attitudes towards feedback (Bailey et al., 1997). While direct feedback may be deemed as valuable in one culture, in another culture it may be perceived as impolite and thus discouraging. Therefore, in this video we emphasized how to provide constructive feedback along with using the evaluation rubrics. In the post-course survey, we asked participants to share their thoughts about the video. Many mentioned it helped them with providing feedback and focusing on learning rather than grade. Some also found it valuable in raising awareness about cultural sensitivity within the course. The following quotes are two examples of learners' feedback:

"This is the first time that I have seen this type of video in a MOOC. I think it's great to have considered multicultural components that can represent a MOOC".

"I find the video helpful because it reminded me of the different perceptions of critique in different nations."

Introducing this video led to less misunderstandings and complaint reports from peer-reviews. Finally, in order to offer multiple avenues to learners to interact with the content, we created two podcasts that delved deeper into the theories behind *synthesis* and *ideation* in Design Thinking.

The post-course survey data shows a positive perception of the overall performance of this MOOC with regard to cultural inclusivity (see Appendix).

4 RECOMMENDATIONS

Applying design-based research allowed us to experiment with various instructional practices and to learn from students' feedback. The approach of testing a prototype version of the MOOC#1 with a limited number of participants led to valuable learnings. In order to gain insights about learners' perspectives, we recommend testing the entire or various aspects of the learning experience (e.g. a template or an assignment) with a diverse group of learners before publishing a MOOC.

Allowing learners to feel encouraged and comfortable in sharing some aspects of their own context in the course, is a good way to create a learning community and an environment of mutual respect. Based on our experience with using

introduction games, we recommend instructors to initiate creative ways to start a MOOC. Allocating the first week to getting familiar with the learning environment and getting to know the community, is a helpful way to ensure that learners from diverse backgrounds and different levels of familiarity with MOOCs would feel welcomed.

Designing assignments that encourage learners to make meaning and construct knowledge in their own context is an important attribute of culturally responsive teaching (Kieran and Anderson, 2018). As Nkuyubwatsi (2014) points out, instructors need to make sure that not only learners relate to the course from their own context or similar settings or see the applications in respect to their professional or everyday lives, but also that learners from various cultural settings can relate to the content. This requires instructors to think beyond what they are familiar with. Our recommendation is to reach out to people from different cultural backgrounds for feedback on how well the content resonates with them, and adjust if needed.

Peer-reviewed and project-based assignments that offer learners freedom to choose the project topic they deem relevant to their context, is a good practice towards a culturally responsive learning experience (Ginsberg, 2005). However, MOOC designers need to pay attention to the risk of misinterpretations that may occur due to lack of context-relevant knowledge between peers, which may lead to poor or unfair grading in peer-reviews. Thus, designing clear rubrics and examples of their application is crucial. Moreover, allocating space within the assignment for learners to provide context and reasoning behind their choices can help to avoid such problems.

Finally, Liyanagunawardena and Adams (2014) point out the challenges of creating inclusive and dynamic discussions in MOOCs; for instance, something humorous in one context may be perceived as offensive in another. Given that in MOOCs learners from various cultures are engaging in the dialogue, the risk of misunderstandings and conflicts is higher than in a traditional classroom. Therefore, instructors need to pay careful attention to facilitating the dialogue and interactions in forums and reviews. Moreover, we recommend that instructors explicitly emphasize those behaviours and values that they wish to promote in their MOOCs, through video or text.

The instructional practices we tested in these MOOCs were informed by the literature and our experiences. We are well-experienced in teaching Design Thinking in international settings, and have either studied or worked in different countries. The instructors' background and cultural sensitivity can

be a valuable asset in designing inclusive MOOCs. Therefore, forming instructional design teams with diverse cultural backgrounds facilitates learning experiences that resonate with diverse audience.

Although some of the recommended practices may seem minor, such as changing the course deadlines from 'Western norms', they send a strong signal to the learners from diverse cultural contexts— a signal that the course is designed with them in mind and that they are welcome.

5 DISCUSSION

MOOCs have the great potential for reaching learners from all corners of the world. However, if they are to be effective, instructors need to step out from their comfort zone and equip themselves with the knowledge about cultural diversity beyond their own context. We argue that MOOC designers face a great but exciting challenge to explore creative ways to reach out to their global audience from diverse cultural backgrounds. With the ever-increasing number of MOOCs and more universities jumping onto the MOOC bandwagon, a good instruction needs to go beyond transforming an existing lecture into a compact online format.

Nkuyubwatsi (2014) points out, those who wish to democratize education and transform people's lives in developing countries need to develop an understanding of local challenges from the perspective of local people. In other words, they "need to empathise with local stakeholders". Unless MOOC designers embrace cultural diversity and try to resonate with learners beyond their own context, the bold mission of democratizing education will have no meaning. Cultural responsiveness needs to be present in all aspects of MOOC design, including planning, design, delivery and assessment. Moreover, besides the domain-related knowledge and skills, instructors need to equip themselves with culturally responsive teaching practices.

McLoughlin (2001) points out that the common view on inclusivity is 'deficit-driven' – meaning that international learners of diverse race, language and ethnic backgrounds need to be brought up to the 'normal' standards by compensating for their 'deficit'. While on the contrary, inclusivity is about embracing differences and allowing for diverse experiences to be expressed in teaching and learning (Gallini and Zhang, 1997). Our experience shows that celebrating diversity within MOOCs contributes to a rich learning experience. We recommend MOOC instructors to treat diversity as an important asset in

their instructional design process, rather than a hurdle, and to take advantage of its potential for designing innovative instructional practices. After all, inclusivity is just part of a good pedagogy.

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APPENDIX

The following two questions are examples of the questions asked in post-curse survey to evaluate the MOOCs' performance with regard to cultural inclusivity:

- How would you evaluate this course in terms of cultural inclusivity? (10:very good, 1:very poor)
- Was there any aspect of this course that you found insensitive towards your own or any other culture?

In MOOC#1, 529 learners submitted the survey. The two following graphs demonstrate the evaluations of the above-mentioned questions:
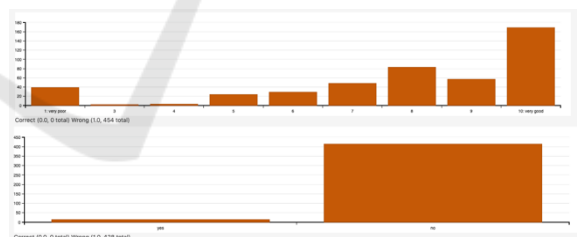
In MOOC#2, 285 learners submitted the survey. The two following graphs demonstrate the evaluations of the above-mentioned questions: