

Book Review

User-Centered Design Strategies for Massive Open Online Courses (MOOCs)

Reviewed by Pei-Di Shen, Institute of General Education, Ming Chuan University, Taipei, Taiwan

Reviewed by Yi-Chun Chiang, Institute of General Education, Ming Chuan University, Taipei, Taiwan

Reviewed by Hui-Wen Tang, Teacher Education Center, Ming Chuan University, Taipei, Taiwan

Reviewed by Chia-Wen Tsai, Department of Information Management, Ming Chuan University, Taipei, Taiwan

User-Centered Design Strategies for Massive Open Online Courses (MOOCs)

Ricardo Mendoza-Gonzalez

© 2016 by IGI Global

323 pp.

\$175.00

ISBN: 9781466697430

Technological advances accompanied by a rapidly changing context have created both the ability and need for organizations to operate across distances (Caya, Mortensen & Pinsonneault, 2013). Nowadays, technologies are widely used in education. When in a learning environment, technology must have a well-structured model with predefined rules and objectives connected with specific learning activities (Capuano, Miranda, Ritrovato, Mangione & Pierri, 2013). However, creating a course is a demanding and challenging process that presupposes the scientific knowledge and various technical skills for effectively delivering content (Kerkiri & Papadakis, 2012). In recent years, the evolution of pedagogy is supported by a robust body of new information technologies. Today, a variety of open access educational resources have been developed, especially in the higher education domain, which has become an important resource base for teachers and learners (Adams, Liyanagunawardena, Rassool, & Williams, 2013; Liyanagunawardena, Williams & Adams, 2013). In addition to such new education technologies, the Internet is also regarded as both an important and popular tool that has been used in the field of education. Online platforms enable quite different learning experiences, as learning space is not constrained by bricks and walls anymore. The new technologies not only provide different educational topics, messages and exchange of information, but also represent diversity of perspectives, opinions, suggestions and backgrounds.

Due to the above reasons, educators started to design and develop online learning platforms, which further evolved to a new instruction approach called “Massive Open Online Courses (MOOCs)”. MOOCs have been adopted in primarily in developed countries and developing countries, and mainly

focus on higher education subjects. Today, some researchers have started to investigate how to effectively and properly use MOOCs to support teaching and learning. That may be the reason why Ricardo Mendoza-Gonzalez, a professor at the Instituto Tecnológico de Aguascalientes (Mexico) edited and wrote this book, which is deeply concerned with how to use MOOCs effectively and transform them into effective tools for the general public. The book aims to introduce the history of online platforms, explore students' interaction, focus on multiple learning styles, and also discuss parents' security requirements regarding web filtering for courses for children.

The book is organized in a logical way. In addition to the foreword and preface, there are sixteen chapters with real and up-to-date examples covering seven main topics including: (1) design interfaces, (2) digital competence, (3) gamification, (4) security requirements, (5) social learning, (6) student interaction, and (7) virtual worlds. The book comprises five sections, namely:

Section 1 - Fostering social learning with MOOCs: Perspectives and MOOCs applications oriented to promote social learning among people.

Section 2 - Designing interactions for MOOCs: Strategies, studies and methods to define starting points for well-designed MOOC interactions.

Section 3 - Inclusive MOOCs: Exploring some alternatives to design inclusive MOOCs for diverse users.

Section 4 - Evaluation strategies for MOOCs: Describing some proposals for student evaluation in MOOCs.

Section 5 - Future trends and applications: Analyzing some future venues to enhance interaction and applications of MOOCs.

At the start, the book provides a brief introduction of the origin and development process of MOOCs in the preface and Chapter 1. The history of MOOCs can be traced back to 2008. This idea originally emanated from George Siemens and Stephen Downes, when they created an online course "Connectivism & Connected Knowledge". This course was initially regarded as an alternative learning strategy, and offered people free registration and access to MOOC content, which attempted to provide open-online learning experiences for a small group of people. Since then, many well-known universities have developed MOOCs, including Harvard, Massachusetts Institute of Technology (MIT), Stanford, University of California in Berkeley, University of California, University of Pennsylvania, and University of Michigan, etc. In the same time period, the online learning platforms 'edX' and 'Coursera' were presented to the public. These platforms offer plentiful free resources, which cover a multitude of subjects, such as art & culture, biology & life sciences, business & management, chemistry, education & teacher training, food & nutrition, history, language, law, math, music, philosophy & ethics, science, and so on. Today, more and more users and learners from all around the world, attracted by the richness and variety of courses, actively register accounts for participating in MOOCs.

The first three chapters in the book introduce the variety of technologies and pedagogical approaches that can be employed in MOOCs to facilitate students' collaboration and interaction through this platform, building Section 1. This Section details the history of MOOCs, and discusses why prestigious institutions such as MIT, Harvard and Stanford started to create MOOCs for students as a learning approach to provide students more choices and channels to help them access educational resources. However, one of the challenges is that participation in a MOOC is voluntary, so how to retain students is a critical issue. Therefore, creating high quality and attractive courses is a high-priority target for educators to entice learners to be involved in the courses. In view of this, the authors provide many principles, tools and technologies (e.g. collaborative technologies, communication tools, writing tools, presentation tools, social networking tools, and brainstorming tools) that have been adopted to facilitate the processes and implementation of MOOCs. Besides, this book mentions that developed countries in Europe, Asia, and North America, etc. have been working hard to reduce the digital divide. Mexico and many other Latin American countries have also devoted their efforts to

this endeavor. Thus, the authors present a study conducted to explore the strategy of how a Mexican government program reduced the digital divide in Aguascalientes. However, since MOOCs are based on the concept of “one size fits all” teaching approach, which means the pedagogical approach of MOOCs tends to lack personalization, and does not accommodate individual needs, personal support and preferences, the authors suggest adopting appropriate teaching method and addressing multiple learning styles to make such courses suitable for more individuals.

Section 2 comprises four chapters, mainly focuses on the development of MOOCs by highlighting the web filtering systems, and exploring the world famous online learning platforms, and is presented from Chapters 4 to 7. The authors discuss the most popular MOOCs platforms, such as edX, Coursera, and Udacity. This Section also highlights the need for setting up and using web filtering systems for children when using MOOCs. The authors point out that interaction is the key factor to facilitate successful learning. User interfaces in MOOCs include video-lectures display, slides, forums, quizzes and plenty of other resources, through which users can synchronously communicate with tutors or discuss with peers. Nevertheless, the debate on the very low completion rates, the lack of academic rigor, and lower development of higher order thinking skills in MOOCs are mentioned as well. In order to support design of successful MOOCs, the authors introduce a successful case study from Australia. In this case, it is found that the elements of development of student expectations, interaction, and complexity are helpful for increasing students’ learning motivation and engagement. Thus, following steps such as constructing interactive systems, providing immediate feedback to users, and encouraging forum participation in online courses are important for ensuring good learning experiences.

Section 3 focuses on the particular needs for all kinds of learners, and is arranged from Chapters 8 to 10; it expounds on the theme that everyone is equal and has the right to education. Students with physical disabilities are no exception. Even though the original intention of MOOCs was to facilitate learning at the undergraduate and secondary levels, now it also offers learning opportunities to foreign students, elderly people, children, and even students with disabilities. The authors also indicate the possible tools, such as audible markers, to help those with disabilities learn in MOOCs.

Section 4 comprises two chapters, presents evaluation approaches for MOOCs and also describes assessments tool used to analyze students’ learning performance, and proposes a new platform called SPLASHED, which is presented in Chapters 11 and 12. The book introduces an exam preparation system designed to generate exams using propositional logic. It is found that there is no significant difference between problems prepared by a human examiner and problems generated by this system. The authors also describe a learning platform called “EPLASAM” (Elastic Platform for Large-scale Assessment of Software Assignments for MOOCs), and then illustrate the goals, motivations, challenges, and ways to solve related problems.

The four chapters (Chapter 13 to Chapter 16) in Section 5 concentrate on modelling the interaction role in MOOCs, integrating new interactive elements, combining AR approach with MOOCs, and reaping benefits from using MOOCs in areas traditionally reserved for therapy. The authors present the combinations of MOOCs with contemporary popular technologies such as Virtual Worlds, Gamification and Augmented Reality (AR), and demonstrate the guidelines for designing interfaces in MOOCs. In addition, user experience when implementing MOOCs is also discussed. For example, the advantages of using virtual worlds in education are that this could reduce drop-out rate, and provide learners with a spectacular sense of actually being there. As we know, interaction is the key factor when conducting MOOCs and online courses, so AR has been used as an innovative educational technology to help users learn and gain knowledge through interaction, to achieve better learning performance.

Comprehensive information on MOOCs is presented in this book, which addresses a variety of purposes, including the process of designing and developing MOOCs as well as strategies for users in adopting them, solving security problems, and even how to provide MOOCs to users with disabilities. It guides readers with effective methods for using the online learning platforms to acquire knowledge, and provides effective applications of online resources. It is worth noting that the targeted readers are

not limited to teachers and students, but such a comprehensive discussion should be of interest to the general public, parents, researchers and educators in various disciplines, including the humanities, social sciences and other sciences.

However, in terms of improvements, it would be more useful for readers if the authors could provide a more detailed description about different platforms' characteristics and functions, then highlight some relationships among various topics. For instance, a comparison or discussion of linkages between "Finding the Design Basic for MOOCs: Analyzing the UIs of edX, Coursera, and Udacity" described in Chapter 5 and "An Elastic Platform for Large-scale Assessment of Software Assignments for MOOCs (EPLASAM)" presented in Chapter 12 would be very useful.

Moreover, there are some topics that could be included in future editions of this book to benefit readers more:

1. **How to promote student engagement in MOOCs courses outside their major area of study:** Now that MOOCs comprises abundant online course offerings, it is suggested that lecturers and course setting developers should promote every learner to not only participate in the subjects they are interested in, but also get involved in courses that are outside their majors;
2. **Further discuss whether the fees for MOOCs are suitable or not:** Although MOOCs have lots of advantages such as free access and provision of free online resources covering plenty of subjects, users need to register for participating in the courses. In addition, if users desire a certificate for completing a MOOCs course, they may have to pay for it, which leads to MOOCs being criticized for being commercial;
3. **Explore how to overcome unfavorable conditions and promote MOOCs to the entire world:** It seems that most MOOCs users are from developed countries and are well-educated. Not all countries have high and stable penetration rate of electricity supply, computers and Internet. For example, this book does not mention the adoption of MOOCs in Africa, which means that readers will not be able to consider if such developing economies may or may not benefit from applications or implementations of MOOCs at the present stage;
4. **Include more instructors' perspectives:** This book seldom mentions teacher's viewpoints. We believe that many readers may be interested in the teaching preparation process the MOOCs' authors undergo, how they design MOOCs courses, what pedagogies they use in MOOCs course? We suggest that the authors can interview some teachers to explain their assessment standards, and also share their instructional processes;
5. **Analyze users' learning motivation and their ability of self-regulated learning:** It is worth noting that there is an unanswered question about the learning attitude and performance of those students who lack learning motivation, engagement and enthusiasm or cannot implement self-regulated learning well. Thus, the next edition of this book should devote more attention to how enhance students' self-regulation, learning motivation, and maintain MOOCs retention rates.

Proposing these suggestions for further improvements is not intended to detract from the fact that this book is an important work in its own right, in that it makes an immensely valuable contribution to the use of the MOOCs.

Faculty members and education staff, in particular special education teachers, higher education professors, institutional planners, and university organizers, will find that User-Centered Design Strategies for Massive Open Online Courses (MOOCs) is a valuable source of strategies when it comes to adopting MOOCs approach. The book illustrates in detail the history of MOOCs, along with their features, design, and challenges, and provides suggestions for educators. The greatest value of this book is that the authors present clear-cut explanations and specific examples with figures to explicitly and successfully transfer their perspectives to readers. All in all, we are convinced of the usefulness of this book, and hope it can guide future teachers, researchers and educators who plan to design and provide MOOCs.

REFERENCES

- Adams, A. A., Liyanagunawardena, T. R., Rassool, N., & Williams, S. (2013). Use of open educational resources in higher education. *British Journal of Educational Technology*, 44(5), E149–E150. doi:10.1111/bjet.12014
- Capuano, N., Miranda, S., Ritrovato, P., Mangione, G. R., & Pierri, A. (2013). Design and execution of dynamic collaborative learning experiences. *International Journal of e-Collaboration*, 9(1), 26–41. doi:10.4018/jec.2013010103
- Caya, O., Mortensen, M., & Pinsonneault, A. (2013). Virtual teams demystified: An integrative framework for understanding virtual teams. *International Journal of e-Collaboration*, 9(2), 1–33. doi:10.4018/jec.2013040101
- Kerkiri, T. A., & Papadakis, S. (2012). Learning outcomes design authoring tool: The educator is not alone! *International Journal of e-Collaboration*, 8(4), 22–34. doi:10.4018/jec.2012100103
- Liyanagunawardena, T., Williams, S., & Adams, A. (2013). MOOCs: A systematic study of the published literature 20082012. *International Review of Research in Open and Distance Learning*, 14(3), 202–227. doi:10.19173/irrodl.v14i3.1455

Pei-Di Shen now works as Dean of Institute of General Education and professor of Graduate School of Education, Ming Chuan University, Taipei, Taiwan. Professor Shen is one of the Editors-in-Chief of International Journal of Online Pedagogy and Course Design. Her primary interest areas are E-learning, Knowledge Management, Virtual Community, and Management Information Systems. Her research focus is distance delivery in higher education.

Hui-Wen Tang now works as Director and professor of the Teacher Education Center, Ming Chuan University, Taipei, Taiwan. Her primary interest areas are Cross-cultural studies, Emotional intelligence, Organizational theories, and Management/leadership theories.

Chia-Wen Tsai is a Professor in the Department of Information Management, Ming Chuan University. Dr. Tsai is one of the Editors-in-Chief of International Journal of Online Pedagogy and Course Design, and International Journal of Technology and Human Interaction. He is also the Associate Editor of Cyberpsychology, Behavior, and Social Networking. He is interested in online teaching methods and knowledge management.