

A Systematic Literature Review on Massive Open Online Course for Language Learning

Ghazali Zainuddin¹, Mohd Shahrul Nizam Danuri², Adnan Mat Ali¹, Mohammad Imran Ahmad¹, Nor Effendy Ahmad Sokri³, Mohammad Najib Jaffar⁴, Siti Rosilawati Ramlan⁴, Khairu Barieyah Anshar¹, Irwan Mahazir Ismail⁵, Harwati Hashim^{6*}

¹Faculty of Islamic Civilisation Studies, Kolej Universiti Islam Antarabangsa Selangor (KUIS), Bangi, Selangor, Malaysia

³Matriculation Centre, KUIS, Bangi, Selangor, Malaysia

⁴Faculty of Major Language Studies, Universiti Sains Islam Malaysia, Bandar Baru Nilai, Malaysia

⁵Centre for Instructional Technology and Multimedia, Universiti Sains Malaysia, Penang, Malaysia

⁶Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, Malaysia

Email: *harwati@ukm.edu.my

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Abstract

Massive open online course (MOOC) is an online learning tool, especially for distance learning. It has attracted a great deal of attention by higher education institution around the globe. It also gave rise to academic discussion on MOOC impact, design and research. However, researches on MOOC's impact on language learning are still lacking. Therefore, this study aims to assess the research trend in MOOC for language learning around the globe by using the Systematic Literature Review approach from three databases within periods 2013 until 2018. Ten full assessed articles have been selected from ScienceDirect, ERIC and Research gate. The major findings show that the English language has dominated in language learning using MOOC. It is also revealed that MOOC has the potential to enhance language learning among students in other languages.

Keywords

MOOC, Language Learning, Distance Learning, Systematic Literature Review

1. Introduction

Nowadays, the Massive Open Online Course (MOOC) has emerged as a powerful platform for distance learning, especially in integrating teaching and learning activities with technology (Fariza Khalid, 2017). Since 2011, there are millions of people from around the world who have used this platform in distance learning

²Faculty of Information Sciences and Technology, KUIS, Bangi, Selangor, Malaysia

to enroll in several MOOC providers such as the edX, Cousera and Udacity. The main highlight of participating in MOOC learning is because it is free in several segments (Md. Yusoff et al., 2016; Norman et al., 2015). If charged, it is still reasonable and beyond geographical boundaries and saves time and energy (Sandeen, 2013).

Most Asian MOOC users find these courses as a way to help them gain professional certification (Lim, Wee, Teo, & Ng, 2017). Additionally, there are several benefits that institutions can gain from offering MOOCs. According to Jansen and Schuwer (2015), European institutions offer MOOCs to attract new students and create flexible learning opportunities. In line with this, many institutions offer MOOC as an opportunity to offer courses including language courses to further enhance their reputations.

Previous research has taken into account several factors in order to consider using MOOCs for learning languages. Firstly, language learning is both knowledge-based and skill-based, in the sense that it needs the combination of vocabularies and grammar and also puts into practice in the form of verbal and non-verbal functional capacities (Halliday, 1993).

Secondly, related to the first point, understanding that the objective of language learning is the use of language itself, it is rational that the learner should practice the language considerably, just like a student must play football to become a footballer or take photographs to become a photographer (Weller, 2014).

Thirdly, Martín-Monje & Bárcena (2015) added, when all factors above are evenly matched, the mind comes in that learns a language. It is best if the mind is enthusiastic and committed with its high order skills activated. Lastly, one is generally assumed to slowly lose some of the innate language acquisition abilities and acquire a more systematic cognitive form.

Therefore, the process of learning a language will be more effective if it is being done individually partly based on face-to-face, textual, or visual explanations with examples and practice, especially on areas like pronunciation and punctuation.

Some scholars believe that even though MOOC is Open Source Resources also known as Open Online Resources (OER), it is still necessary to conduct a detailed study on its use (Weller, 2014) and future direction (Nordin et al., 2016) in higher learning institutions, especially in language learning. This is confirmed by Martín-Monje & Bárcena (2015) stating that the use of MOOCs for language learning is still lacking. The existence of MOOCs for language learning has started as early as 2013 but involves learning English only.

2. Research Objective

This study attempts to explore the use of MOOCs in learning other languages that may exist to date by emphasizing the pattern and effect of learning on students and teachers. In order to realize how MOOC can significantly contribute as an effective pedagogical tool in language learning, a proper investigation of its pattern and effect needs to be carried out. This study also aims to improve the practice of MOOC as a pedagogical tool in language education by investigating trends and its effect on MOOC's effectiveness. This study applied a *systematic literature review* (see Section 3) in assessing existing MOOC literature. The key contribution of this paper is the findings from the SLR of empirical studies of MOOC in any education settings.

The SLR results integrate evidence into patterns that can be used to understand the current *state-of-the-art* of research in MOOC when applied to a higher education context. This can better inform educators wanting to incorporate MOOC into a language curriculum. Additionally, conflicting findings from the analysis are presented and gaps in the existing body of knowledge are highlighted. These suggest key areas of focus for future MOOC research. Section III describes the method used in the SLR. Section III reports the results of the SLR based on the synthesis of evidence. Section IV presents a discussion of key findings, implications, threats to the validity of this review, and future work.

3. The Review Methods

A SLR is defined as a process of identifying, assessing, and interpreting all available research evidence with the purpose to provide answers for specific research questions (Kitchenham & Charters, 2007). It is a tool that aims to produce a scientific summary of the evidence in a particular area, in contrast to "traditional" narrative review (Petticrew & Roberts, 2008). We followed the procedures of Kitchenham et al. (2009).

3.1. The Procedures

3.1.1. Research Questions

Table 1 shows the PICOC (*Population, Intervention, Comparison, Outcomes,* and *Context*) structure of our research questions. In this study included all empirical studies that investigated MOOC within an education setting. Therefore, this study could not include a specific comparison in PICOC. The primary focus of the study was to understand and identify the factors that influence the effectiveness of the MOOC practice for language learning. While the primary reason for using MOOC in industry is to gain benefits in terms of economic advantage (Dybå, Arisholm, Sjøberg, Hannay, & Shull, 2007) the type of outcomes that

Table 1. Summary of PICO	C.
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Population	Educational Institution
Intervention	Language learning
Comparison	None
Outcomes	MOOC's trends
Context	Review(s) of any empirical studies of language learning within the domain of education. No restrictions on the type of empirical study (e.g. case study) apply.

can benefit students' learning is what motivates educators (Adzhar et al. 2017; Mcdowell, Werner, Bullock, & Fernald, 2003): this study organized the measurement of MOOC's effectiveness into four broad categories: academic performance, technical productivity, program or design quality, and satisfaction. Therefore, the SLR aims to answer the following primary research question (RQ):

What evidence is there any MOOC studies conducted in any education settings that investigated MOOC's trends for language learning?

3.1.2. Identification of Relevant Literature

The study used strategies to construct the search strings was as follows (Mendes, 2005; Kitchenham et al., 2009):

- Derive major terms used in the review questions (i.e. based on the population, intervention, outcome, and context);
- List the keywords mentioned in the articles (primary studies) that the authors already knew about;
- Search for synonyms and alternative words. This study has also consulted a subject librarian to seek further advice in the proper use of the terms;
- Use the Boolean OR to incorporate alternative spellings and synonyms;
- Use the Boolean AND to link the major terms from population, intervention, and outcome.

The complete search string initially used for the searching of the literature was as follows: (*MOOC OR Massive Open Online Course*) AND (Language OR Second Language OR Foreign Language) AND (Learning OR teaching) AND (trends OR pattern).

Petticrew and Robert (2008) highlight that the two major issues in conducting SLR search are the sensitivity and specificity of the search. The sensitivity refers to a search that retrieves a high number of relevant studies. Specificity causes the search to retrieve a minimum number of irrelevant studies. In the preliminary search, a very small number of articles had been retrieved when using the complete search string defined above. The keywords "MOOC" OR "language learning" which resulted in a higher number of studies retrieved from various online databases. The primary search process involved the use of 3 online databases: ScienceDirect, ERIC, and Research gate. The authors' experience in literature search supports the suggestion by Kitchenham & Charters (2007) that it is important for language researchers to identify a list of relevant online databases to facilitate the search process.

Upon completion of the primary search phase, the identification of relevant literature continued with the secondary search phase. During this search phase, all the references in the papers identified from the primary sources were reviewed. If a paper was found to be suitable, it was added to the existing list of studies qualified for the synthesis.

3.2. Selection of Studies

The inclusion criteria aimed to only include MOOC empirical studies that tar-

geted language education and that used MOOC as a practice defined by the XP creators in 1999 (Beck & Gamma, 2000). As such, the literature search only covered studies published within the period of 2013 to 2018. The detailed inclusion criteria comprised 1) studies that investigated factors affecting the effectiveness of MOOC for language learning; and 2) studies that measured the effectiveness of MOOC for language learning. The main exclusion criterion comprised MOOC papers not targeted at language learning. In addition the following criteria were also applied: 1) papers presenting claims by the author(s) with no supporting evidence; 2) papers describing development practices other than MOOC, such as test-first programming, refactoring etc; 3) papers that only described tools (i.e. software or hardware) that could support MOOC; 4) papers involving MOOC but solving other disciplines; 5) papers that solely investigated distributed MOOC.

3.3. Data Extraction and Study Quality Assessment

To facilitate the data extraction process a form was designed used to gather evidence relating to our research questions and to measure the quality of the primary studies. When designing the studies' quality checklist we reused some of the questions proposed in the literature (Leedy & Ormrod, 2013; Petticrew & Roberts, 2008; Fink, 2019; Greenhalgh, 2010). The checklist comprised nine general questions (see Table 2) to measure the quality of both quantitative and qualitative studies according to the following ratio scale: Yes = 1 point; No = 0 points; Partially = 0.5 point. The resulting total quality score for each study ranged between 0 (very poor) and 9 (very good).

One of the authors (Adnan) was responsible for reading and completing the extraction form for each of the primary studies. In order to validate the data extraction process, a random sample comprising 20% of the total number of primary studies had their data extracted by the first and second authors and then compared in a review meeting. Whenever the data extracted differed, where differences never surpassed more than 10% - 15%, such differences were discussed until consensus was reached. This study did not measure inter-rater agreement since the review aimed to reach an absolute consensus on the sample used (Brereton, Kitchenham, Budgen, Turner, & Khalil, 2007). For the remaining 80% primary studies hopefully the lessons learnt from the review meeting would minimize the bias with their data extraction. If information in a study was unclear, author(s) will be contacted for clarification.

3.4. Selecting Articles

After identifying the keyword search (search string), researchers began the process of finding articles in the ScienceDirect database, ERIC and Research gate. The results of the process are described in Table 2.

Below are ten articles that have been selected through this process. The articles are set out in Table 3.

Table 2. Search results.

	STAGES						
SOUDCES	Α	В	С				D
SOOKCES	Steps						
	1	2	3	4	5	6	7
ScienceDirect	36	10	8	7	3	2	2
ERIC	13	7	7	4	4	4	3
Research gate	17	10	6	6	6	5	5
Total	66	27	21	17	13	11	10

Table 3. Details of selected articles.

ID	Author	Source	Articles' title
М1	Patricia Ventura, Elena Barcena & Elena Martin-Monje (Ventura, Bárcena, & Martín-Monje, 2014)	ScienceDirect	Analysis of The Impact Of Social Feedback on Written production and Student Engagements in Language Moocs.
M2	Ruben Chacon-Beltran (Chacón-Beltrán, 2014)	ScienceDirect-	Massive Online Open Courses and Language Learning: the Case for a Beginners' English Course
М3	Erin D. Reilly, Kyle M. Williams, Rose E. Stafford, Stephanie B. Corliss, Jannet C. Walkow & Donna K. Kidwell (Reilly et al., 2016)	ERIC	Global Times Call for Global Measures: Investigating Automated Essay Scoring in Linguistically-Diverse MOOCs
M4	Airton Zancanaro & Maria Jose Carvalho de Souza Domingues (Zancanaro & Domingues, 2018)	ERIC	Massive Open Online Courses (Mooc) For Teaching Portuguese For Foreigners: A Case Study
М5	Betsy Gilliland, Ai Oyama & Pamela Stacey (Gilliland, Oyama, & Stacey, 2018)	ERIC	Second Language Writing in a MOOC: Affordances and Missed Opportunities
M6	Roxana Marinescu & Mariana Nicolae (Marinescu & Nicolae, 2014)	Research Gate	MOOCs: Challenges and Opportunities for Romanian Universities
M7	Steven White, Manuel Leon-urrutia, Kate Borthwick & Su White. (White, Leon Urrutia, Borthwick, & White, 2015)	Research Gate	Massive Open Online Course Mentoring for a Connected Community of Practice of Language Teachers
M8	Ana Ibanex Moreno & John Traxler (Ibáñez Moreno & Traxler, 2016)	Research Gate	MALL-Based MOOCs for Language Teachers: Challenges and Opportunities
М9	Anastasios A. Economides & Maria A. Perifanou (Economides & Perifanou, 2018)	Research Gate	Dimensions Of Openness In MOOCS & OERS
M10	Nuraihan Mat Daud, Afiza Mohamad Ali, Nor Shidrah Mat Daud, Jowati Juhary & Raihanah M. M (Daud, Ali, Daud, Juhary, & Raihanah, 2018)	Research Gate	A MOOC for Literature Integrated Language Classroom: Pedagogical Suggestions for the Development of Higher Order Thinking Skills (HOTS)

4. Finding and Discussion

Data is taken from articles previously assessed. Researchers focus on MOOC's pattern and effect on language learning. Data are filtered and ten articles are selected from ScienceDirect, ERIC and Research Gate databases. There are two studies done in Spain and the United Kingdom. While one study is done in the United States, Malaysia, Hawaii and Romania. English Language has dominated the usage of MOOCs while Portuguese became the minority language referred to in the M4 study. To date, the MOOC article related to other languages such as Arabic and Malay has yet to be found in this database. Also, qualitative design is the choice of most researchers.

The score for each study is shown in **Table 4**. Each study has summed up its score points and translated in percentages to facilitate data interpretation. It is placed in the final column of the table (% Max S). **Table 4** shows the percentage rate given to each article based on the Kitchenham and Charters procedures (Kitchenham & Charters, 2007) and using the article's rating methods that initiated by Azhar, Mendes and Riddle (2012) as below:

Table 4 shows that most studies score between 6 and 9. Therefore, all articles go beyond the 50% level and are maintained in this systematic review process. M5 articles and M7 articles get the highest score of 9 out of the total score of 9. That is equal to 100% because they meet the evaluation criteria. Whereas M1 articles and M4 articles got the lowest score of 6 out of 9 equal to 66.7%. Through this step, all 10 articles have gone through a quality assessment process.

5. Conclusion

In accordance with the technology explosion, the implementation of MOOC concept in language learning especially among students at all levels of learning and education is strongly encouraged. More after, in this digital era generation, changes and innovation are easily accepted.

ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Total	% Max S
M1	1	0.5	1	0.5	1	0	0	1	1	6	66.7
M2	1	1	1	1	1	1	0	1	1	8	88.9
М3	1	0.5	1	1	1	1	1	1	0.5	8	88.9
M4	0.5	0.5	1	1	1	0	0	1	1	6	66.7
M5	1	1	1	1	1	1	1	1	1	9	100
M6	1	1	1	1	1	0.5	0.5	1	1	8	88.9
M7	1	1	1	1	1	1	1	1	1	9	100
M8	1	1	1	1	1	0	0	1	1	7	77.8
М9	1	0.5	1	1	1	0	0	1	1	6.5	72.2
M10	1	1	1	1	1	0	0	1	1	7	77.8

Table 4. Score and percentage rates for each article.

The findings show that the use and research of MOOCs focusing on other languages such as Arabic and Malay are still lacking. Hence, the use of MOOCs in language learning among students, educators and instructors should be enhanced.

This study also found that qualitative study is the main choice of researchers. This study suggests that a quantitative study should be made to see the acceptance of students and teachers towards MOOC and its effectiveness as a learning platform.

It can also see the effectiveness of MOOCs in the pursuit of language learning and teaching process. Language teachers at all levels are encouraged to realize the importance of MOOCs as one of the latest learning tools. The active participation of language teachers in using MOOCs in the learning and teaching process can provide added value to students.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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