# A Systematic Review of Language MOOCs: Research Design, Evidence, and Implications

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**Abstract:** This study conducts a systematic literature review to investigate Language MOOC (LMOOC), a newly-emerged research field, and aims to explore two aspects of LMOOC: the effectiveness of LMOOCs and factors influencing language learning in LMOOCs. This study reviews 24 empirical studies from the Web of Science. After analyzing and integrating research findings, this paper mainly draws two conclusions: (1) as for the learning outcomes, LMOOCs can improve learners' overall language proficiency, oral competence, vocabulary knowledge, and capability to apply the learned knowledge to an unknown situation; besides, the fact that most learners take a positive attitude towards LMOOC also demonstrates the excellent learning outcomes of LMOOC; (2) to facilitate and prevent the language learning in LMOOC, five factors should be considered: participants' autonomy, course organization, intrinsic motivation and external conditions of participants, cultural and contextual support of course content, language and technological ability. The research design and implications of LMOOCs are also discussed in this study.

**Keywords:** Language MOOC, effectiveness, influencing factors

## Introduction

With the development of MOOC, Language MOOC (or LMOOC) has become an emergent and hot topic in language teaching and learning in recent years. LMOOC is a large-scaled language learning resource available online, which provides explicitly free education

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for participants who want to learn foreign languages (Bárcena & Martín-Monje, 2014). From the definition, four standard features of LMOOC are revealed: unlimited capacity, unrestricted access, web-based curriculum, and second language learning. Features of LMOOC also include diversified subject materials and activities, authentic language input and exposure, as well as high-demand autonomy (Ding & Shen, 2019).

With these features, five reasons can be made to support the development of LMOOC. Firstly, LMOOC provides the opportunity for people who lack fixed time to learn a second language in the traditional classroom (Mac Lochlainn et al., 2020). Secondly, the superior language teaching resource is offered for free to satisfy learners' personalized needs (Miyazoe, 2017). Thirdly, LMOOC revolutionizes the traditional language teaching process and makes the student-centered mode possible. Fourthly, LMOOC can offer students a continuous learning opportunity and a completed course system to learn languages, which need long and sustainable effort (Zygmunt, 2016). Finally, with the pure language environment, native-speaking teachers of LMOOC have the innate advantages to instruct learners to speak and write. The main strengths of LMOOCs are the fact that they make quality language learning resources available for free and that they redefine teacher and learner roles, making the learning process more student-centred. Therefore, LMOOC has unique advantages in teaching languages.

There are some challenges to the development of LMOOC. Some authors have noted that using MOOC platforms may make language learning a less enjoyable and productive experience, especially in encouraging oral production. In addition, the fact that language learning is skill based and entails a great deal of practice and interaction does not make it easy for learners trying to complete an LMOOC.

**Research Aim and Objective**

Massive Open Online Course (MOOC) has become a popular learning mode in recent years. According to Chiappe & Amaral (2021), most studies about MOOC focus on Open Educational Practices, the design of MOOCs, the generation of engagement, dropout and connectivism. According to Mac Lochlainn (2020), there are few studies about Language MOOC, and the research of MOOCs for languages is closely relevant to the language users and the course (Liu et al., 2021), even if Language MOOC is an emerging area which deserves more investigation (Ding & Shen, 2019).

Accordingly, the deeper and more diverse researches of the current Language MOOCs are rare, so it is valuable to study LMOOCs. Specifically, the majority of researches about MOOC in the linguistics and education industry focus on the language use in MOOC and the impact of language on participants' achievements in MOOC. For convenience and popularity, MOOC is usually delivered in English, which will prevent learners with limited English proficiency from learning the specialized courses in MOOC. As a result, it will cause a high dropout rate. Researchers like Barak et al. (2016) find this phenomenon, and conduct researches to explore the difference in students' performance in the same course delivered in different languages and investigate the effects. Other researchers devote themselves to figuring out the impact of MOOC on improving students' language ability. In a literature review of language MOOC (Sallam et al., 2020), it is pointed out that language MOOC is a new research industry and few CALL (computer assisted language learning) journals publish papers about LMOOC; besides, most publications are conference papers.

Previous literature reviews about LMOOC are dedicated to revealing the frontier research achievements and finding out the dominating research trends. Some popular research themes about LMOOC

from 2012 to 2018 are summarized by researchers, including the conceptualization of Language MOOC, the language teaching model besides the xMOOC/cMOOC dichotomy, the teaching design of language MOOC, the importance of social learning, the learners' motivation and experience, the new role of the teacher (Sallam et al., 2020).

In the Introduction, it is obvious that MOOC has great potential to be used in teaching foreign language, but there are few researches about it and the research about LMOOC also lacks of diversity. Thereby, it is necessary for researchers to find out the limitations of MOOC, make good use of them, and conduct more meaningful researches (Hidalgo & Abril, 2020). Despite few researches on Language MOOC, there are many unique advantages of LMOOC proposed by some researchers. More importantly, the LMOOC is a relatively new issue, so it is of great importance to draw a research conclusion on this issue.

With all these concerns, the study is aimed to review the recent papers, focusing on the research findings and designs of Language MOOC, to better understand the research results of LMOOC and answer the two main questions about LMOOC below:

1. What indicators and evidence have been used to measure the learning outcomes of LMOOCs?

2. What factors have been reported to facilitate and prevent language learning in LMOOCs?

**Research Method**

This study adopts systematic literature review to answer the two research questions mentioned above. Literature review, known as the critical review essay, is a systematic way to collect and integrate the related researches which are conducted before (Snyder, 2019). It refers to the searching, analysis and summary of a large number of documents (Knopf, 2006). A literature review is dedicated to assisting researchers in understanding the current situations of a certain academic field, and in finding out the research gaps and limitations (Evans & Kowanko, 2000). In this way, further research can be promoted on the basis of current research.

In regard to how to conduct a systematic literature review, Kitchenham (2004) puts forward five procedures: identifying research questions, selecting primary studies that will be reviewed, making assessment of these primary studies, extracting data from studies and synthesizing data. At the same time, Jennex (2015) points out that it is essential for researchers to carry out a strict search process in the systematic literature review.

According to Stracke & Trisolini (2021), systematic literature reviews and meta-analyses are significant in the educational field, as the comprehensible validations and reviews are of great shortage. Since there are few researches about LMOOC at present, besides, LMOOC is a newly emerging research field and lacks of diverse theme. Therefore, it is quite necessary to understand the current research conditions and analyze the study outcomes to find out the research gaps and research limitations about LMOOC, so as to conduct further related research and improve the current Language MOOC.

Considering the necessity and availability, this paper takes systematic literature review as the research method by using the replicable search strategy. In addition, this study follows the rigorous search process mentioned above to collect and synthesize works about Language MOOC within the scope of linguistics and language education.

**Data Collection Process**

Inspired by initial reading on the topic of LMOOCs, a two-round searching strategy is developed in the Web of Science for any empirical study on LMOOCs in the last 15 years. For the first round, there

are four groups of keywords. The first group includes "engagement, language, MOOC"; the second group "engage, language, MOOC"; the third group "learn, language, MOOC"; and the fourth group "learner, language, MOOC". After an elementary search, a total of 71 articles are left from 2005 to 2020 in the range of the Social Sciences Citation Index (SSCI). Specifically, there are 11 articles in the first group, 4 in the second group, 46 in the third group, and 30 in the fourth group. Then, the exclusion process starts. An initial assessment of the search results suggests that a large number of researches are related to the field of computer science and computer programming. Therefore, the categories related to education and linguistics are selected in the Web of Science. After selecting the category of "Educational Research", "Linguistics" and "Language Linguistics" in the Web of Science, 8 articles are left in the first group; 3 articles are remained in the second group; 36 articles are left in the third group; 24 articles are remained in the fourth group. From the search processes mentioned above, there are altogether 71 articles: 8 articles in the first group, 3 in the second group, 36 in the third group and 24 in the fourth group. 38 articles are identified by excluding the duplicate and overlapping part. Among the 38 articles, 24 are found unrelated to the key topic of Language MOOC through reading and analyzing their titles and abstracts. Besides, one article is written in Spanish, and one literature review is excluded after the document type is considered. At last, there are 11 articles remaining in the first round.

However, it is obvious that 11 articles are not enough to present the actual conditions of Language MOOC. More articles should be searched on the basis of the results in the first round. In order to review articles about LMOOC from a comprehensive perspective, the second round is initiated. Similarly, the second round also adopts the same four groups of keywords: "engagement, language, MOOC" as the first group; "engage, language, MOOC" as the second group; "learn, language, MOOC" as the third group, and "learner, language, MOOC" as the fourth group. The keywords of each group are paralleled and are in no particular order. The only difference in the searching process is that articles of the second round are all collected in the Emerging Sources Citation Index. Because the Language MOOC has become a new trend of academic research in recent years, the time range is set from 2005 to 2020, lasting 15 years. After setting the keywords, time scope and the ESCI index, there are 9 articles in the first group, 13 in the second group, 72 in the third group and 31 in the fourth group. However, through reading titles and abstracts, just a few articles are associated with Language MOOC. Most articles are related to the side effects of MOOC in improving learners' language ability, and some just focus on the programming language of MOOC. Under such conditions, selecting categories is reasonably necessary. In "Educational Research" and "Language Linguistics" categories, there are 7 articles in the first group. In the second group, 9 articles are left by selecting the "Educational Research" category. As for the third group, after choosing the related three categories ("Educational Research", "Language Linguistics", and "Linguistics"), 57 articles remain from the original 72 articles. In the fourth group, there are 26 articles after selecting the "Educational Research", "Language Linguistics", and "Linguistics" categories. After all of the data from the four groups are put together, there are 99 articles. In these articles, 38 articles are duplicated, so 61 articles are remained after excluding the duplication. Among the 61 articles, 9 articles are not in English, including seven in Spanish, one in Russian, and one in Turkish. In addition, regarding the manuscript type, three literature reviews and one editorial material are removed. After excluding the language and document type, there are 48 articles left. At last, by reading titles and abstracts, it is found that 35 articles are not relevant to Language MOOC.

Therefore, 13 articles are left for the following literature review.

All in all, 11 articles from the first round and 13 from the second round are found through three search steps: Firstly, choose the database and search four groups of keywords, then set the publication time span of the last 15 years from 2005 to 2020, select the Social Sciences Citation Index and Emerging Sources Citation Index of Web of Science and choose categories in linguistics and education. There are two reasons to select the Social Sciences Citation Index and Emerging Sources Citation Index of Web of Science: (1) the high-quality journals are accessed in the two indexes; (2) most papers in the two indexes have accurate and reliable data. In this way, the original research result is received. Secondly, the final papers are decided by excluding the following conditions: duplication, improper form of document type, non-English written language, and irrelevant articles about Language MOOC. Thirdly, research papers of the two rounds are calculated. Based on the searching results of the first and second rounds, it is found that there are 24 articles that are connected with the learning of Language MOOC.

**Analysis of Publications**

According to the analysis of publications, there are seven main conclusions. First of all, with regard to publication years, the time span of research is from 2014 to 2020, which proves that the research interest in LMOOC is on the uptrend. Secondly, China and Spain are the two main countries that study LMOOC, and several Portuguese researchers are also concerned about LMOOC. Thirdly, the mixed method, which combines both qualitative method and the quantitative method, is preferred by most researchers. Besides, the qualitative research design is also popular. Fourthly, the effects of Language MOOC and participants' perception of Language MOOC are the most frequently measured outcomes of these publications. Fifth, researches about LMOOC involve various student grades and occupations, and undergraduate students are the primary target audience of LMOOC. Sixth, the researchers pay more attention to English as a foreign language, and other courses

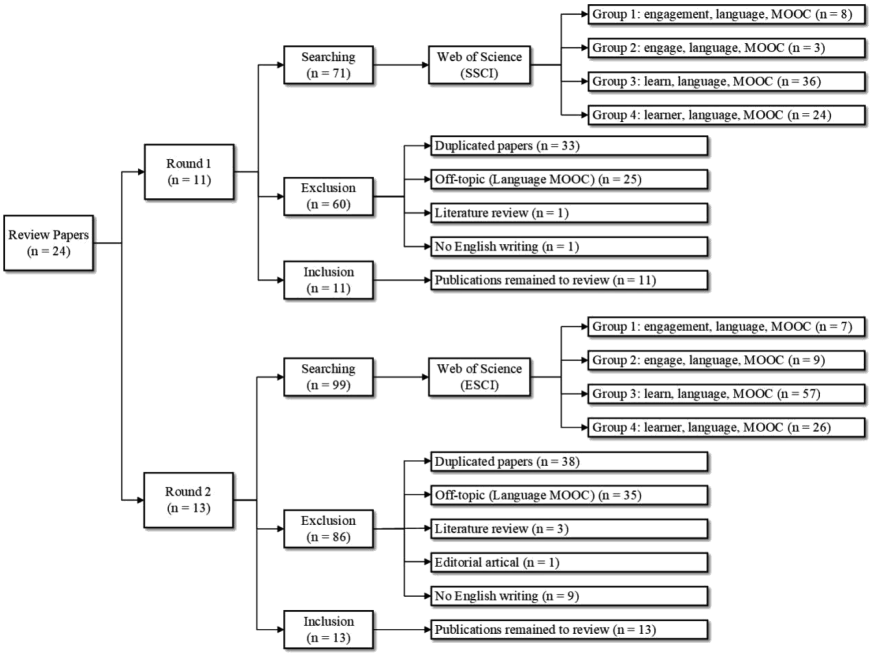


Figure 1 Flowchart for the selection process

are relatively less concerned. Lastly, the MOOCs platform (extension of edx) is the most frequently used MOOC platform in these publications, and other famous platforms are also used by researchers, such as FutureLearn, Moodle, edx and Coursera.

**Table 1 Publication years**

| Years | Frequency | Percent |
|---|---|---|
| 2014 | 2 | 8.3 |
| 2015 | 0 | 0 |
| 2016 | 1 | 4.2 |
| 2017 | 4 | 16.7 |
| 2018 | 5 | 20.8 |
| 2019 | 5 | 20.8 |
| 2020 | 7 | 29.2 |
| Total | 24 | 100 |

**Table 2 Distributions of the studies by countries**

| Countries | Frequency | Percent |
|---|---|---|
| China | 6 | 25 |
| Spain | 5 | 20.8 |
| Portugal | 3 | 12.5 |
| Ireland | 2 | 8.3 |
| U.S. | 2 | 8.3 |
| U.K. | 2 | 8.3 |
| Iran | 1 | 4.2 |
| Egypt | 1 | 4.2 |
| Ukraine | 1 | 4.2 |
| Japan | 1 | 4.2 |
| Total | 24 | 100 |

**Table 3 Research designs**

| Research designs | Frequency | Percent |
|---|---|---|
| Mixed-method | 13 | 54.2 |
| Qualitative | 8 | 33.3 |
| Quantitative | 3 | 12.5 |
| Total | 24 | 100 |

**Table 4 Research outcomes measured of these publications**

| Outcomes measured | Frequency | Percent |
|---|---|---|
| LMOOC's effectiveness | 10 | 22.8 |
| Experience perception | 6 | 13.6 |
| Influencing factors of LMOOC | 4 | 9.1 |
| Learner types | 4 | 9.1 |
| Engagement condition | 2 | 4.5 |
| Self-determined learners | 2 | 4.5 |
| Self-directed learning readiness | 2 | 4.5 |
| Learners' autonomous degree | 2 | 4.5 |
| Capability of applying knowledge | 2 | 4.5 |
| Favored activities | 2 | 4.5 |
| LMOOC's availability in teaching languages | 1 | 2.3 |
| Motivation | 1 | 2.3 |
| Predictor of completion/success | 1 | 2.3 |
| Teaching potential | 1 | 2.3 |
| Learners' autonomy strategies | 1 | 2.3 |
| Favored types of learning objects | 1 | 2.3 |
| Social justice | 1 | 2.3 |
| Recommendations | 1 | 2.3 |
| Total | 44 | 100 |

**Table 5 Participants' grades and occupations**

| Grade/Occupation | Frequency | Percent |
|---|---|---|
| No limitation | 10 | 41.7 |
| Undergraduate | 8 | 33.3 |
| Postgraduate | 2 | 8.3 |
| Teacher | 1 | 4.2 |
| Border guard | 1 | 4.2 |
| No participants | 2 | 8.3 |
| Total | 24 | 100 |

**Table 6 Language courses**

| Language courses | Frequency | Percent |
|---|---|---|
| English as a foreign language | 14 | 58.4 |
| Italian as a foreign language | 3 | 12.5 |
| Irish as a foreign language | 2 | 8.3 |
| Spanish as a foreign language | 2 | 8.3 |
| Chinese as a foreign language | 2 | 8.3 |

| Language courses | Frequency | Percent |
|---|---|---|
| Japanese as a foreign language | 1 | 4.2 |
| Total | 24 | 100 |

**Table 7 MOOC platforms**

| Platform | Frequency | Percent |
|---|---|---|
| MOOCs (edx expansion) | 5 | 20.7 |
| FutureLearn | 4 | 16.7 |
| edx | 3 | 12.5 |
| Moodle | 3 | 12.5 |
| Coursera | 2 | 8.3 |
| iCourse | 1 | 4.2 |
| MiriadaX | 1 | 4.2 |
| UNED-Abierta | 1 | 4.2 |
| Distance learning center of SBGS (in Ukrainian) | 1 | 4.2 |
| Not clear | 3 | 12.5 |
| Total | 24 | 100 |

## Analysis of Research Results

### The Answer to Research Question One

For the first question, three main pieces of evidence are concluded to prove the effective learning outcomes of LMOOC: (1) it is found that participants' overall language proficiency, oral competence and vocabulary knowledge are improved through LMOOCs; (2) learners' capability to use the learned knowledge into the unknown situations is developed in LMOOC; (3) majority of participants hold positive and satisfied attitudes toward Language MOOC, because LMOOC not only makes learners feel their progress of language competence and improve their knowledge management but also decreases learners' anxiety to express their opinions and increase their sense of achievements and responsibility.

*Improved Overall Language Proficiency*

The research results indicated that LMOOC improved language learners' overall language ability. Mellati & Khademi (2020) examined whether using LMOOC could promote learners' learning of the Iranian English language. The researchers compared the pre-test and post-test scores of three groups. Based on the results of overall scores, the researchers found out that the groups which used LMOOC performed better, and their English competence improved significantly. Besides, Manning et al. (2014) discussed the possibilities and potentials of MOOC in language education by analyzing students' weekly learning logs and face-to-face interviews. Through the analysis, it was found that all participants had an obvious improvement in their IELTS scores. In another study, Chacón-Beltrán (2017) applied the pre-test and post-test to compare participants' progress in LMOOC. The researcher first compared the participants' pre-test and post-test scores and then divided them into two groups to analyze the difference on the basis of their pre-test scores. It was confirmed that learners with different language proficiency levels could benefit from the LMOOC. Lemeshko et al. (2020) examined the effects of English MOOC. The initial assessment test was made to check participants' English communication skills, and then the final assessment test was conducted to make a comparison with the pre-test. As the results showed, the border guards' average scores went up.

*Improved Oral Competence*

The research results exhibited that LMOOC contributed to learners' oral proficiency. Wang et al. (2018) focused on testing the effectiveness of LMOOC in improving students' oral competence. The mid-term and final-term oral tests in the form of presentations were conducted. Based on the results of subjective and objective assessments, it was found that the Flipped-LMOOC group outperformed the other group in vocabulary knowledge, grammar and accuracy. Furthermore, Wang et al. (2018) indicated a distinct correlation between flipped MOOC and students' oral proficiency. That is to say, LMOOC elevated learners' pronunciation and oral competence.

In another study, Estebas-Vilaplana & Solans (2020) assessed whether LMOOC's improved Spanish speakers' English pronunciation. Participants chose LMOOC voluntarily, and the others were taught in a regular way. The final scores of the MOOC group and the non-MOOC group were compared. The test examined three parts by software "e-oral", including phonetics, prosody and fluency. The research results demonstrated that students with LMOOC all passed the oral exam, and the pass rate and proportion of high-mark students significantly surpassed the other group without LMOOC. Thereby, LMOOC indeed had a positive impact on students' oral competence.

*Improved Vocabulary Knowledge*

One research result demonstrated that LMOOC improved learners' vocabulary knowledge. Chacón-Beltrán (2018) explored the effects of LMOOC in teaching English vocabulary by adopting the adapted X_Lex vocabulary test and survey before and after LMOOC (The participants were required to click Yes or No to mark whether they knew the words). Besides, the post-questionnaire was also used. By comparing test scores and survey results before and after LMOOC, as predicted, learners' vocabulary knowledge increased by 35%, and learners used more vocabulary strategies before and after LMOOC. Most learners believed that they mastered most of the new vocabulary and could even use the vocabulary knowledge to do the short text reading. Therefore, it was evident that LMOOC improved learners' vocabulary knowledge.

*Development of Capability*

The findings of some studies showed that LMOOC promoted the development of capability. Capability indicated that students master the new knowledge in class and have the ability to use the knowledge outside of the class situation (Stephenson, 1994). Learners with capability could exert the language knowledge that they have learned by watching and listening to foreign news. Agonacs et al. (2019) examined students' perception of their development of capability after LMOOC by using open-ended questionnaire. Evidence in the questionnaire proved that learners had applied newly acquired knowledge in unknown situations, like reading books and watching TV series. Furthermore, Agonács et al. (2019) explored learners' traces of capability development. CEFR, a self-evaluation tool, defined the categories of knowledge application, including understanding (listening, reading), speaking and writing. Based on CEFR (Common European Framework of Reference for Languages), the researchers found that students represented more traces of capability development in understanding categories (listening and reading).

*The Positive Perception from Participants*

Overall speaking, learners had a positive perception of LMOOC. Wang (2019) investigated learners' perceptions for his newly designed MOOC platform. It was found that LMOOC satisfied most requirements of learners. Liang & Pang (2019) adopted a questionnaire to study learners' perceptions. The results indicated that most students expressed satisfaction with LMOOC because it improved learners' English proficiency, knowledge management ability, and collaborative ability and enhanced their sense of achievement. Mellati & Khademi (2020) checked learners' attitudes by finding frequent words in semi-interview. LMOOC provided learners with learning opportunities, increased learning motivation in cooperation, decreased learners' anxiety and increased confidence (Mellati & Khademi, 2020).

Wang et al. (2018) used a 5-point Likert scale questionnaire and semi-interview and proved that learners had positive attitudes because LMOOC developed their zone of proximal development. By analyzing learners' comments, Chacón-Beltrán (2017) noted that learners had positive attitudes towards LMOOC because learners could share learning materials online. Xu et al. (2020) investigated learners'

perception of LMOOC on the newly designed SRL-guided PLE-IELTS platform. According to the Distance Education Learning Environments Survey (DELES), students showed great satisfaction with LMOOC because they built a sense of belonging and responsibility in LMOOC. Fang (2018) explored participants' satisfaction with the Japanese MOOC by a self-designed questionnaire based on ten influencing factors. According to the results, Learners considered LMOOC as an effective way to learn Japanese and promote professional development.

### The Answer to Research Question Two

For the second question, five factors were reported to influence learners' learning outcomes in LMOOC. Firstly, the limited degree of autonomy deceased participants' learning effectiveness. Self-efficacy and self-reflection are the two strongest predictors of self-directed learning readiness in LMOOC. Secondly, a flexible curriculum, multiple learning activities and proper organization of activities facilitated participants' learning outcomes. Thirdly, intrinsic motivation (interest in the content and cultural identity) promoted learners' engagement in LMOOC. The external conditions, including higher educational background, enough time and stable income, also promoted learners' engagement in LMOOC. Fourthly, cultural and contextual support in LMOOC prompted participants' language learning. Fifthly, the limited language competence and technological ability hindered the engagement of LMOOC.

*Autonomy*

Learners with a higher degree of autonomy had higher engagement and better learning outcomes in LMOOC. Guided by the Heutagogy theory, Agonács et al. (2019) generalized four characteristics of self-determined learners and applied four instruments to measure learners' degree of autonomy (Self-Directed Learning Readiness Scale, Self-Reflection and Insight Scale, the New general self-efficacy scale and Internet skills scale). The results showed that only a small portion of learners reached the self-determined high level in LMOOC. Agonács et al. (2020) further discussed the distribution of highly-determined learners by questionnaire through the Qualtrics survey software. The researchers pointed out that only a few participants (4.31%) were highly-determined learners, participants who scored four points or above on each scale were counted as learners with high autonomy. The strongest predictors of autonomy in LMOOC were made by multiple linear regression, including self-efficacy and insight (Agonács et al., 2019) (Self-efficacy refers to learners' confidence in dealing with problems in the unknown situation; self-reflection and insight represents learners' reflection on learning content and method). Agonács et al. (2020) adopted the Pearson correlation to demonstrate the positive correlations between learners' autonomy and self-efficacy, self-reflection and insight, as well as information navigation internet skill.

Similarly, Ding & Shen (2019) referred the model of Benson (2011) to analyze the learner's degree of autonomy, including three dimensions: situational, behavioral and psychological dimensions. The situational dimension was related to learners' ability to control the learning content; the behavioral dimension reflected learners' ability to put studies into practice, including target setting, schedule arrangement and methods selection; the psychological dimension refers to learners' concentration of attention, dynamic motivation as well as steady emotion. The scores based on the three dimensions were evaluated during the four interviews. Finally, the researchers pointed out that there were few highly autonomous learners in LMOOC and EFL learners' autonomy in LMOOC was complicated because of the great individual difference and dimensional differences. Based on previous research, Ding & Shen (2019) further explored Chinese EFL learners' self-control strategies in LMOOC by analyzing the three dimensions of

autonomy in the interview. The learning strategies were proposed: (1) the general metacognitive strategies for the situational dimension and behavioral dimension; (2) the attention management of metacognitive strategies for the attention control; (3) the motivation control strategies for the motivation control; (4) the control strategies for the emotion control. Then the researchers pointed out that the effects of autonomous strategies varied from person to person.

In addition, a study unfolded that LMOOC promoted learners' development of autonomy and improved learners' higher engagement in LMOOC. Minh (2017) tested the relationship between teachers' and students' autonomy. Using the online survey, language education majors were asked to consider the relationship between teachers' autonomy and learners' autonomy. The group interview and individual interview were applied after they finished the blended MOOC. It was found that these students started to know how to guide their future students to cultivate autonomy when they experienced the blended MOOC by themselves. It was a transition relationship. Therefore, the researcher put forward that students who majored in language education should be trained by integrating MOOC into the traditional classroom because language teachers who developed self-autonomy in their school days could better guide their students to cultivate autonomy and finally promote students' engagement in Language MOOC. Therefore, the blended MOOC was an approach to developing learners' autonomy. Moreover, the researcher proposed two recommendations for the blended MOOC to develop teachers' autonomy: (1) there should be a period for students to adapt to the blended LMOOC; (2) the relationship between the teachers' autonomy and learners' autonomy should be further explained in the course, so students who majored in language education could have the consciousness to develop their autonomy during the learning period.

*Course Organization*

The results of a study indicated that the advanced course organization promoted the effectiveness of LMOOC. Fang (2018) set up an assessment model to evaluate LMOOC. Ten influencing factors were summarized as two categories: (1) course content (correctness, scientific, usefulness, extensibility); (2) course organization (course flexibility, presentation of learning activities, organization of learning activities, effectiveness of learning activities, assessment method, assessment subject). Ten experts gave marks for the ten factors on account of their importance. Next, the priority weight was received by using the Analytic software Yaahp to analyze the marks of the ten factors. From weights, it could be seen that course organization was the most important part of LMOOC. The three aspects of course organization (flexibility of courses, presentation and organization of learning activities) were the main factors influencing the effectiveness of LMOOC (Fang, 2018).

In addition, the findings of several studies elaborated that sensory activities like watching grammatical videos improved learners' engagement in LMOOC. Martín et al. (2018) examined language learners' favorite learning objects in LMOOCs. Learning objects refer to the reusable digital or non-digital entity during technology-supported learning. A platform recorded the learning tracks of every participant, including the use of learning objects and the interactive activities in the discussion forum. The researchers then used Microsoft Excel software to count the frequency of each learning object and analyzed the data by descriptive analysis. It was found that the frequency of video access ranked the highest among all learning objects; the download of articles was the second highest. In addition, the researcher indicated that gender was not the factor influencing the statistics of frequency for the use of learning objects, but the age group between 41 to 50 was more likely to download the articles.

In addition, another research proved the critical role of sensory activities. Martín-Monje et al. (2018) summarized the most remarkable learner types to investigate learners' learning behavior in LMOOC. By monitoring participants' learning tracks According to the categories of MOOC engagement style of Anderson et al., Martín-Monje et al. (2018) proposed five types of engagement style in study: "viewer", "solver", "all-rounder", "collector" and "bystanders". Finally, the researchers pointed out that "viewers" was the most remarkable learner type of LMOOC. Two other studies also confirmed that sensory activities were learners' favored activities. Agonács et.al (2019) investigated the most useful activities of LMOOC by enquiring about students' learning experiences in the open-ended questionnaire. According to the self-assessment tool of CEFR, the researchers indicated that sensory activities like watching videos and the integration activities such as watching videos with written words were favored by learners. In addition, the activity that focused on certain competence training, such as text reading aimed at improving learners' lexical competence, was also popular among learners. Therefore, according to the results, more sensory activities should be designed in the learning process of LMOOC to promote the learners' engagement.

*Intrinsic Motivation and External Conditions*

The results of two studies indicated that positive intrinsic motivation and adequate external conditions promoted the engagement of LMOOC. In a qualitative study, Mac Lochlainn et al. (2020) investigated the factors contributing to learners' active participation in LMOOC. The researchers discussed learners' interactive comments in the forum and analyzed their demographic information. According to the results, two main influencing factors were concluded: intrinsic learning motivation and external conditions. Firstly, learners' positive intrinsic learning motivation promoted engagement. The learning motivation includes learners' interest in the content and the desire to prove their cultural identity. Secondly, the educational background, age, and economic strength also influenced the engagement of LMOOC. For example, participants mainly came from English-speaking countries like America that had the origins of Irish culture.

In another paper, Mac Lochlainn et al. (2020) further explored learners' motivation in engaging Irish LMOOC. The researchers collected data from the discussion forum and the weekly comments before and after LMOOC, and then used the Leximancer, the qualitative content analysis software, to automatically generate the concept clusters of comments. The researchers also interviewed participants to further find out learners' motivation for engagement. From the results, learners' primary motivation was their interest in the Irish culture, previous experience and cultural identity.

*Cultural and Contextual Support*

A study showed that cultural and contextual elements promoted the engagement of LMOOC. Fuchs (2020) investigated students' opinions on the cultural and contextual elements of LMOOC. The survey was conducted before and after the course, and then the participants were required to write the weekly logs. The weekly journal was borrowed from Egbert et al. (2007) to ask participants to write down their opinions about LMOOC. In the pre-survey, personal demographic information and perceptions for MOOC were inquired about. In the post-survey, questions like learning perceptions for LMOOC and recommendations were asked. Finally, define and label the codes through In vivo codes, which was a label to name the same phenomenon or similar opinions (Manning, 2017). According to the results, the items related to "culture" and "cultural" were mainly positive indicators, which proved that most students were satisfied with the cultural support in LMOOCs. However, the term "context" and

"contextualize(d)" received almost the same positive and negative indicators because some students thought that grammar teaching and vocabulary teaching were divorced from the real context. The lack of contextual elements hindered learners' engagement with LMOOC. In summary, both the cultural and contextual elements were essential factors in promoting students' engagement of Language MOOC.

*Language Proficiency and ITC Ability*

The findings of a study indicated that limited language competence and unfamiliar technological ability prevented learners' language learning in LMOOC. García Alonso & Samy (2018) examined the learners' understanding and motivation for LMOOC. The researchers used ICT (Internet Communication Technology) as the resource of MOOC. A questionnaire was employed to know students' understanding of MOOC, the ability to use ICT for learning language courses in MOOC as well as the motivation to engage in LMOOC. From the results, the researchers pointed out that learners' motivations included acquiring a new language, especially the grammar, vocabulary and pronunciation, and the interest in the language. It was also pointed out that some learners lacked the operational skill to manipulate the platform of LMOOC and could not follow the guidance because of limited language competence. In a word, the intrinsic motivation, such as competence development and interest in language, attracted learners to engage in the Language MOOC. Still, the limited language competence and operation ability of ICT prevented learners' engagement in LMOOC.

**Recommendation**

Twenty-four articles are reviewed to explore the current research situation of LMOOCs , and two dimensions are revealed in terms of LMOOCs: the factors affecting the learning effects and the teaching effectiveness of LMOOCs. According to the conclusions, some relevant suggestions for language education are made. First of all, efforts should be made to promote the application of MOOC in teaching languages. Secondly, teachers should develop learners' autonomy and capability in LMOOC. Thirdly, adding more audio-visual content and sensory activities is recommended. Besides, it is also helpful to strengthen the cultural and contextual elements in LMOOC. In addition, the presentation and organization of


Figure 2 Analysis of results

activities in LMOOCs should be considered. Based on conclusions and research designs, suggestions are also raised. Firstly, further study is expected to explore the effectiveness of LMOOC in writing, listening and reading. Secondly, more quantitative data should be used to study LMOOC. Thirdly, researchers are supposed to find more practical strategies to promote learners' engagement and achievement in LMOOC.

However, this systematic literature review also has some limitations. First, the literature review only studies the research paper from 2005 to 2020, therefore, future research should expand the time scope to obtain more information. Moreover, only two high-quality databases are searched and reviewed in the study, therefore, the number of reviewed researches is relatively small.

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