The Trend of Mobile-assisted Language Learning from 2014 to 2018

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Abstract. In order to trace the development of mobile-assisted language learning (MALL) in recent years, this paper analyzes their characteristics and research trends for research papers published from 2014 to 2018. The studies were published in international journals listed in the Social Science Citation Index (SSCI). The goal of the study is to understand the trends, research focus, methodologies and current hot issues of publications. The results show that the publication of periodicals is on the rise. Students' perceptions of mobile learning techniques and language skills are the most common subjects of study. The most commonly used mobile technology devices are smartphones, mobile phones and personal digital assistants, while the most common target language is English as a foreign language.

Introduction

Since 1960, the advances in technology have opened the door to learning outside the classroom. The wide application of mobile technology has promoted a new wave of technology-enhanced learning. With the improvement of mobile device processing power, storage capabilities, graphics, high-speed wireless connectivity, GPRS, Bluetooth, and 4G, mobile devices have gone beyond their main features as simple the communication and entertainment tools[^2]. Technology-enhanced learning has brought many benefits to learners in terms of participation, convenience, a sense of achievement, and pleasure, and as a result, mobile learning methods have grown in popularity[^1]. The nature of mobile learning is that learners can create learning experiences that span time and space under the conditions of technology-based mobile devices (e.g., mobile phones, media players, PDAs, smartphones, tablets, etc.) and they are equipped with the features including spontaneity, informal, portable, and personalized when used[^2].

The efficient use of mobile devices in various fields contributes to improve learners’ learning levels and provides learners with possible opportunities to learn freely anytime and anywhere.

This review covers five international journals included in the Social Science Citation Index (SSCI), they are respectively Computer Assisted Language Learning (CALL), ReCALL, Computer and Education, Journal of Computer Assisted Learning (Journal of CALL) and British Journal of Educational Technology. There are 105 articles involving MALL, of which CALL has 20 articles, 5 articles on ReCALL, 9 articles from Journal of CALL, 37 articles from Computer and Education, and 34 articles from British Journal of Educational Technology. It concerns different research topics, different types of mobile devices, and different types of research. The overall purpose of this study is to interpret their characteristics and overall research trends by analyzing the articles on MALL from 2014 to 2018, to study, and to present what extent mobile devices can be used to support language learning. The research questions in this study are as follows:

1) In the study of MALL, which language learning topics are widely studied?
2) What mobile devices are commonly used in MALL research?

Literature Review

With the popularity of mobile devices, there are more and more literatures on the effectiveness of mobile learning and the exploitation of mobile learning systems or applications for helping learners to learn have been documented in some literature-based studies. These literature reviews provide a
valuable synthesis for mobile learning and prove that mobile learning is widely used in the teaching and learning of language courses. In the literature review of Duman et al\cite{2}, a more comprehensive analysis of mobile-assisted teaching is systematically analyzed based on probing into the distribution of research topics, the diversity of various mobile devices supported by many mobile platforms and functions, as well as the theoretical basis and methodology of mobile-assisted teaching research. Whereas, taken the popularization and supporting capacity of emerging mobile devices and the potential of mobile learning applications in language learning systems into consideration, it is critical to identify recent research types and trends in MALL with the aim of understanding current practice and guiding the future research in this area.

The positive effects of MALL have been confirmed in a large number of empirical studies. Xu and Peng \cite{3} explored the positive impact of oral feedback assisted by mobile devices on oral learning by means of using the social software “WeChat” on smartphones as an example. Another study proposed a kind of system that uses mobile devices to help learners perform situational writing tasks with the aim of improving their situational writing skills \cite{4}. Through experiments, Maria Jose de la Fuente \cite{5} studied the different effects of hearing input medium on learners’ attention and the understanding of language composition in listening tasks, simultaneously, and made a comparison between input-delivery medium of MALL and that of teacher-assisted language learning (IMLL). The findings showed that the overall listening comprehension level of the learners in the MALL group was significantly higher than that in the IMLL group. Lin \cite{6} investigated the impact of mobile tablets and desktop computers on the reading ability and users’ perceptions in online extensive reading project, and found that mobile tablets showed some advantages and priorities in reading results and evaluation over desktop computers. Based on the above research results, mobile devices have indeed played a positive role in the process of language learning development and involve listening, speaking, reading and writing of language. Mobile learning provides new platforms for language learning, making language learning more flexible, vivid and interesting. Unlike traditional language learning styles, MALL enables learners to independently choose, lead and participate in language learning activities based on their individual needs and interests.

**Methodology**

This paper offers a literature review of the research trends of MALL from 2014 to 2018. This approach would not only facilitate the preparation of an important research program, but would also provide a more comprehensive research database at the present time. Furthermore, it would be more advantageous in identifying the areas where research might be needed in the future. In a recent literature review, Burston\cite{7} provided a comprehensive overview of mobile-assisted language learning. Duman et al \cite{2} also conducted a systematic review in terms of the trends in mobile-assisted language learning between 2000 and 2012. There are also literature reviews that have summarized the effectiveness of the use of technology in language learning, focusing on the empirical studies that compare the use of new mobile technologies with more traditional methods or materials\cite{8}. This paper, on the basis of existing research, starting from the language project category, the diversity of mobile devices and the difference of research design, explores the development direction and general trend of MALL in the international core journals in the past five years, and aims to provide new ideas for the next study.

**Literature Collection**

This paper systematically reviews the literature related to MALL published in five international journals included in the Social Science Citation Index (SSCI) from 2014 to 2018. Search terms used in the main literature search include “mobile” and/or “mobile learning” and/or “language learning” and/or “mobile language learning” and/or “mobile-assisted language learning” and/or “mobile phone”. SSCI journals use strict evaluation criteria and are highly authoritative in many journals, so these articles extracted from such journals are often considered to have a high influence in this field. The selection of articles begins in 2014 because previous predecessors had reviewed the relative
literatures prior to 2014, and the selection of the core journal articles in the latest five years is to better grasp the latest research topics and directions.

Selection Criteria

For the sake of narrowing the scope of the papers included in this review, several criteria were established during the selection process for further selection of the papers. These standards are as follows: (1) select the papers published in SSCI journals; (2) select the papers published from 2014 to 2018; (3) papers should focus on the use of mobile devices in language learning. This study does not include the publications such as book reviews, letters, responses, reviews, and material editing. Through the screening of the above criteria, 105 international papers about MALL were selected in five journals, and the papers were selected into the following four aspects: (a) the number of articles published in periodicals and annual publications; (b) language research priorities; (c) the type of devices used; (d) methodologies. These categories provide an organizational framework for understanding and commenting the publication trends, research topics concerned, and types of technologies used in research and their methods.

Data Collection Tool

The preliminary examination of these articles shows that the compilation and classification of the papers is very necessary and useful for further analysis of the review due to the diversity of the scope of the paper, and that research focus widely involve in lots of aspects of MALL and contains the characteristics of various methodological methods. These articles are classified and reviewed by analyzing and synthesizing the selected articles and setting up a classification form.

Data Analysis

This study uses content analysis, also known as text analysis, in a quantitative research framework to describe the patterns MALL research follows. Papers are classified through tables and the results are reported using descriptive statistical methods, which will be described in the next section.

Results and Discussion

After analyzing the papers by using the forms, the collected data are analyzed and illustrated according to the research questions. The results of every research question are described sequentially.

The Number and Year of Journal Publications

Table 1 shows the number of articles published in a journal in a particular year. The journal with the most articles is Computer and Education (n = 37) and the lowest is ReCALL (n = 5). In addition, it shows that the largest number of articles are published in 2018 (n = 34) and the lowest number of articles published are in 2014 (n = 13). Furthermore, the findings demonstrate that the number of articles published in different years is not consistent. However, as can be seen from Table 1, the overall trend of publishing articles in selected journals has been on the rise over the past five years, which argues that while technology and mobile devices are widely available and develop, the educators, researchers, and language learners are increasingly aware of the benefits of mobile technology in educational learning, and contribute themselves to integrate these mobile learning devices into language learning to promote language learning and enhance language proficiency.

Table 1. The research in MALL from 2014 to 2018.

| Journal Name                        | 2014 | 2015 | 2016 | 2017 | 2018 | 合计 |
|------------------------------------|------|------|------|------|------|------|
| CALL                               | 3    | -    | 4    | 6    | 7    | 20   |
| Computers & Education              | 5    | 7    | 3    | 10   | 12   | 37   |
| ReCALL                             | 0    | 3    | -    | 1    | 1    | 5    |
| Journal of Computer Assisted Learning | 1    | 2    | 2    | 1    | 3    | 9    |
| British Journal of Educational Technology | 4    | 6    | 8    | 5    | 11   | 34   |
| Total                              | 13   | 18   | 17   | 23   | 34   | 105  |
The Distribution of Common Research Topics in MALL

The research findings show that in the last five years, mobile-assisted language learning studies have covered different topics, but perception, motivation and attitude are the most common topics, with a total of 19 studies involved. This is closely followed by comprehensive ability. It can be seen from Table 2 that there has been less research on the basic skills of language in listening, speaking, reading and writing in recent years, and more studies are inclined to study the subjective views and attitudes of teachers and learners on mobile-assisted language teaching and learning under technology-assisted environment. And the total number of journals published each year about the study topics in table 1 is not much different, which indicates MALL is always seen as a research hot issue by a quantity of researchers and educators.

Table 2. The distribution of common research topics in MALL from 2014 to 2018.

| Topic                  | 2014 | 2015 | 2016 | 2017 | 2018 | Total: |
|------------------------|------|------|------|------|------|--------|
| vocabulary             | -    | -    | -    | -    | -    | 0      |
| writing                | 1    | -    | -    | -    | 1    | 2      |
| listening              | 1    | -    | 1    | -    | 1    | 3      |
| spoken                 | -    | -    | 2    | 3    | 1    | 6      |
| reading                | 1    | -    | -    | 1    | -    | 2      |
| comprehensive ability  | 2    | 4    | 2    | 2    | 3    | 13     |
| evaluation             | 1    | -    | 1    | -    | 1    | 4      |
| Interaction/ cooperation| -   | 2    | -    | 1    | 4    | 7      |
| Perception/motivation/attitude | 4 | 9 | 3 | 4 | 3 | 19 |
| grammar                | -    | -    | 1    | 1    | -    | 1      |
| Total:                 | 10   | 15   | 10   | 13   | 14   | 57     |

The Distribution of Commonly Used Mobile Devices in MALL

The data in Table 3 shows that in any given year, mobile phones have been the most frequently used and widely used devices of all devices because of their small, flexible and portable features. There are also the most papers on mobile phones, and the heat of such research topics has continued to rise. Papers on tablets and e-readers are sporadic, but the number is far from comparable to that of mobile phones.

Most of the papers on mobile learning devices do not describe the specific mobile devices used, using only the term "mobile device" refers to the mobile devices used in language learning. Therefore, It can be seen that there are very few papers for describing these specific mobile devices in Table 3, and educational researchers can deeply explore the impact of a particular mobile device on language in future study.

Table 3. The distribution of commonly used mobile devices in MALL from 2014 to 2018.

| Mobile devices            | 2014 | 2015 | 2016 | 2017 | 2018 | 总计 |
|---------------------------|------|------|------|------|------|------|
| Mobile phone              | 2    | 10   | 4    | 5    | 7    | 28   |
| PDA                       | -    | -    | -    | -    | -    | -    |
| Tablet PC                 | 2    | -    | 1    | -    | 1    | 4    |
| Laptop                    | 1    | 1    | -    | 1    | -    | 3    |
| Electronic dictionary     | -    | -    | -    | -    | -    | -    |
| E-book reader             | 1    | 1    | -    | 1    | -    | 3    |
| Portable audio & video player | - | -    | -    | -    | -    | -    |
| Total:                    | 6    | 12   | 5    | 7    | 8    | 38   |
Conclusion

The purpose of this study is to conduct a comprehensive analysis and review of mobile-assisted language learning research, and reveal the development trends and gaps in research topics, theories and methods, as well as the learning environment, technology and multimedia, which can point out the direction for future research. The findings show that the main topics of mobile-assisted language learning research are perception, motivation, attitude and language synthesis ability, and mobile phones are regarded as main mobile-assisted language learning tools. However, there are still some shortcomings existing in methodologies of mobile-assisted language learning. The researchers can start from the methodologies of mobile-assisted language learning and conduct language learning research in the future.

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