A REVIEW OF RESEARCH IN MOBILE ASSISTED COLLABORATIVE LANGUAGE LEARNING

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Abstract: The article reviewed a selection of research in the field of foreign language teaching into mobile assisted collaborative language learning (Collaborative MALL) – the practice of applying mobile technologies, e.g., applications on mobile phones and laptops, in language teaching context. This review aimed to examine: (1) popular theoretical frameworks previous collaborative MALL research was based upon; (2) merits of applying collaborative MALL in language classroom; (3) strengths and shortcomings of previous studies' research design and (4) implications for future research as well as for language teaching practice. The findings indicated that three common pedagogical approaches in collaborative MALL studies were game-based, task-based and seamless learning. The confirmed educational affordances of collaborative MALL systems involved facilitating language learners' collaborative learning process, personalizing learning experience, improving linguistic achievement and enhancing learning motivation/ autonomy. Previous research was additionally found to have strong theoretical frameworks, well-designed mobile applications, and examination of both learners' linguistic improvement and their attitudes towards the technology implementation. However, several methodological weaknesses in previous studies were also identified, e.g., lacking control group in experimental design, insufficient information about the language test format and unclear grading process. Further research with more rigorous research design is warranted to explore the efficacy of collaborative MALL in augmenting learners' linguistic accomplishments with new mobile applications and in different educational contexts.

Keywords: collaborative learning, mobile assisted collaborative language learning, mobile learning, foreign language learning, pedagogical approaches

1. Introduction

In today's digital age, technology has become an integral part of our daily life. With respect to language learning context, both language teachers and learners can benefit from the advancement of information technology. In recent decades, the number of mobile phone users has increased dramatically, particularly in developing countries. Mobile devices, including but not limited to mobile phones, smartphones and tablets, have become useful educational tools, holding great potentiality for language learning activities. This has led to a growth in the number of research publications examining the application of technology in language teaching and learning, the so-called mobile assisted language learning (MALL).

In recent years, another emerging trend in MALL research has been mobile assisted collaborative language learning (Collaborative MALL) (Kukulska-Hulme & Viberg, 2018). Collaborative learning can be considered a knowledge-constructing process

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(Miyake & Kirschner, 2014), normally requiring language learners to collaborate with other peers to accomplish a learning task (Kukulska-Hulme & Viberg, 2018). Information technology allows us to create educational mobile applications that afford language learners with opportunities to practice the target language and work together to co-construct knowledge both inside and outside the classrooms (Kukulska-Hulme & Viberg, 2018).

While MALL studies focus more on the general educational benefit of mobile technology, collaborative MALL research further emphasizes the significance of interaction among language learners. Interaction has long been recognized as an important condition for language acquisition (Benati & Angelovskva, 2016). Two major ways that interaction can facilitate language learning process involve the modified input and feedback (Gass & Mackey, 2005). By communicating with other people, learners can notice new linguistic features, e.g., when clarifying the information. Receiving corrective feedback and practicing the target language are beneficial for the language learning process (Benati & Angelovska, 2016). This helps learners to recognize their mistakes (when receiving feedback) and examine the linguistic knowledge or skills they have learned.

Although there have been a plethora of studies examining the application of mobile devices in foreign language education, much fewer empirical studies have focused on designing collaborative learning tasks assisted by mobile applications for enhancing EFL (English as a Foreign Language) learners' language skills. It is thus essential to conduct a review to refine our understanding of collaborative MALL research. This article reviews a selection of research papers in collaborative MALL area published from 2010-2018 for several purposes. First, it aims to inform readers of the popular theoretical frameworks employed in previous collaborative MALL studies. Second, this review also discusses the educational benefits of cooperative learning with MALL assistance in foreign language education. Finally, reflections on the merits and drawbacks of previous studies, including research design, implications for future research, and pedagogical practice are also provided in this review paper.

2. Methodology

In this section, the process of procuring collaborative MALL papers is reported as well as the method for reviewing the obtained papers.

Concerning the research paper collection process, various journal databases were utilized to search for related studies, namely Google Scholar, Google, Eric, Scopus, and Web of Science. During the searching process, a variety of keywords were employed, e.g., "mobile assisted collaborative language learning", "mobile assisted language learning", "MALL studies", "collaborative MALL", "mobile collaborative learning systems", "mobile applications for language learning".

Several criteria were applied for the journal papers to be included in the current literature review:

- Being empirical studies, i.e., the researchers apply the mobile tools in teaching English

- Utilizing mobile applications to teaching English (e.g., apps on smartphones or personal digital assistant device)

- Involving collaborative learning activities, i.e., participants in the studies interact and cooperate with each other to accomplish the learning tasks.

- Being published between 2010 and 2018. This was to keep this literature review updated with newest trends in applying mobile applications, thus being more meaningful and relevant to its readers.

The papers which satisfied the abovementioned criteria were selected for the review process. Concerning the analysis process, the procured papers were firstly read through for general information. In the next stage, the papers were examined critically for their theoretical frameworks, research designs and results. The reviewing process was conducted in a cyclical manner, rather than in a fixed order, i.e., the author of this review had to read different parts of the collected papers flexibly and repeatedly. Emerging themes were grouped together during the reviewing process. For example, after reading the results of different studies, a common theme may be "language achievement", i.e., collaborative MALL application was consistently found to improve EFL learners' language accomplishments.

3. Results

3.1. Popular theoretical frameworks in research in mobile assisted collaborative language learning

Three popular theoretical frameworks employed in previous Collaborative MALL research involved game-based, task-based and seamless learning. This section will highlight several key features relating to each of the three.

3.1.1. Game-based learning

In game-based learning, learners normally follow the game rules to accomplish preset educational goals. Through playing games, learners can engage in authentic situations with meaningful interaction in the target language. In addition, learning by playing games can also reduce anxiety, enhance motivation and allow learners to connect what they learn with real-world experience. In Hwang, Shih, Ma, Shadiev and Chen's study (2016), high school students played "Jigsaw" and interactive games to learn vocabulary in addition to traditional flashcard method. Likewise, Lin (2014) employed an online extensive reading system which afforded students games-playing opportunities to stimulate their reading. Participants in Lan, Sung and Chang's study (2013) played educational games such as unscrambling paragraphs for an English text.

Liu and Chu (2010) experimented a game-based learning procedure to improve students' listening and speaking skills. In the first stage, students played a self-learning game in which they used their mobile devices to access different virtual places and then completed different learning tasks, e.g., visiting a library to watch a movie or practice a conversation. In the next stage of the game-based procedure, participants played treasure hunt game, visiting different places on their campus, scaning the given code at the location and completing the given task, e.g., recording their speaking. After accomplishing the first mission, they would be granted a virtual coin with hints leading to the next location. Compared to the control group students, who used print materials and listened to the audios on Mp3 players, students in the game-based learning group scored significantly higher on their language skill tests. In terms of affective factors, participants were reported to a have higher level of confidence in using the target language and were more satisfied with their learning experience.

Game-based mobile assisted collaborative language teaching can be employed as an effective approach to create enjoyable context-aware learning activities for EFL learners.

3.1.2. Task-based language learning

In task-based learning approach, students are assigned tasks or projects to accomplish, usually with flexibility in terms of time and location. Lin (2014) assigned reading tasks to her participants via an online extensive reading system, encouraging the study students to read as much as possible anywhere and anytime on their tablets. In Lan, Sung and Chang's study (2013), elementary school students were instructed to read an English text, learn new words and subsequently share what they had read with other friends. Hwang, Chen, Shadiev, Huang and Chen's mobile system (2014) improved EFL sixth-graders' writing skill by allowing them to collect information for their writing missions at lunch time and around the school campus. Task-based language learning with scaffoldings (e.g., Hwang et al, 2014) afforded learners the flexibility and more autonomy in their learning, thus enhancing their learning motivation (Lin, 2014).

Shadiev, Hwang, Huang and Liu (2018) asked 26 junior high school students to collaborate and complete three language learning tasks through a Collaborative MALL application. In the first task, called "Give direction", students were requested to individually draw a map from the school to another place of his/her own choice, take a photo of it, write down the directions and then orally describe how to arrive at the place. In the second "mission", students needed to write and talk about the weather where they lived before commenting on other work asynchronously. In the final task, participants had to present

their favorite job common in their surrounding areas and describe themselves as a potential candidate for that profession. Unlike the second task where students commented on each other's work asynchronously, in this stage, they interacted synchronously, i.e., face to face, with their partners, commenting and suggesting improvements for other student's work. The high school students in the study greatly appreciated the task-based learning experience as it allowed them to collaborate and support one another, which facilitated their language learning progress.

3.1.3. Seamless learning

Seamless learning commonly refers to contextualized language teaching approach with the use of authentic materials. Shadiev, Hwang, Huang and Liu (2018) asked students to take pictures of places, weather and professions where they lived and talked about those photos. High school students in the afore-mentioned study appreciated the authenticity of the lesson as it might also be useful in the future when they needed to talk about their places. Participants also commented on the fact that tasks in the textbook were oftentimes neither much meaningful nor related to their life. Seeing the real photos was reported to facilitate the students' imagination and expression of their opinions about the photo in English.

Previous research employing seamless learning emphasized its personalized learning quality, i.e., learners could self-direct their learning tasks. To increase the authenticity of the writing tasks, Hwang et al's study (2014) enabled their students to take photos from their real-life environment to add to their own writing. Similarly, in Hwang et al's study (2016), high school students utilized their own imagination and personal real-life experience to create their own vocabulary flashcards. Lin

(2014) helped to personalize students' reading experience by permitting students to choose the reading materials in accordance with their own interest. Bringing the authenticity, flexibility and personalized learning into classrooms could favorably facilitate EFL learners' language acquisition.

In short, there is no clear cut in the boundary of the afore-mentioned approaches and researchers can always apply more than one theory in designing mobile-assisted learning tasks to maximize the effectiveness of language learning.

3.2. The educational affordances of mobile assisted collaborative language learning

Mobile assisted collaborative language learning is increasingly utilized in language classrooms due to its educational affordances (Kukulska-Hulme & Viberg, 2018). The following paragraphs will discuss key advantages of Collaborative MALL, i.e., enhancing collaboration, flexibility, individualized learning process, linguistic abilities and motivation.

3.2.1. Collaborative learning opportunities

First, Collaborative MALL application can facilitate the collaborative language learning activities among EFL learners. For example, students in the study by Hwang et al (2016) used a game-based mobile system to practice English in pairs, e.g., reading aloud and matching lexical cards to form an English sentence. In Hwang et al (2014), students assisted each other in English writing by providing peer comments for each other's work based on criteria in a writing rubrics. Anonymity was ensured so as for the participants not to feel anxious when making comments. Likewise, Lan, Sung and Chang (2013) divided eighteen elementary school students into small groups for them to discuss

vocabulary or reading materials via an online mobile learning system.

Andujar (2016) conducted a study to examine the effect of employing mobile instant messaging app, i.e., WhatsApp, on his students' L2 (English as a Second Language) writing development. Participants were 80 Spanish students who were taking a six-month English course. They were divided into experimental and control groups, taught by the same instructor. Initial analysis for their writing pretest indicated a nonsignificant result, suggesting the similar level of participants in the two groups. The experimental group, besides taking formal classes, also participated in a group chat created on WhatsApp. Students in this group took turns to post a new topic every day for discussion. The findings revealed a significant improvement in writing accuracy for the experimental group students compared to the control group students. The former group produced more error-free vocabulary, grammatical and mechanical structures. Interactions among students via chatting activities in the WhatsApp group proved to be useful for the development of L2 writing skill of the students.

Collaborative MALL affords language learners with plenty of valuable opportunities to collaborate and interact with one another which are not commonly found in traditional grammar-translation language classrooms. These meaningful collaborations or interactions have long been supported as crucial conditions for successful language acquisition in major learning theories such as sociocultural theory (Vygotsky, 1978) and interaction hypothesis (Long, 1981).

3.2.2. Personalized language learning experience

Flexibility and individualized learning qualities, that is, allowing learners to utilize their

own interest/personal experience in language learning, are also advantageous features of collaborative MALL. Sixth-grade students in Hwang et al's study (2014) had the freedom to write about topics of their own interest. The participants could also take real-life photos from their surroundings to add to their composition. The availability of scaffolding materials in the mobile system allowed learners to actively seek for individualized linguistic support. Lin (2014) acknowledged the essential of providing students with flexibility in reading by enabling tenth graders to read the materials of their choice.

Foomani and Hedayati (2016) designed and implemented a four-phase learning procedure to help students learn English idioms. They recruited 24 Iranian students who were pursuing general English class to participate in the study. In the first stage, formal lesson was performed, teaching the participants the target English idioms. In the following stage, the students were divided into four groups and then instructed to collaborate with each other, making artifacts to illustrate the meaning of the afore-mentioned idioms. They could take photos of real-life objects and formulate their own examples to clarify the meaning of the idioms. During the third stage, the participants shared their idiom photos and example sentences online, commented and discussed with other classmates about their favorite artifacts. In the phase, students voted for the winner group who would then give a small talk about the procedure of creating the winning artifact. Data from the reflections and interviews of the learners indicated their favorable attitudes towards the collaborative mobile assisted learning design and an increase in learning autonomy. By providing opportunities for the language learners to contextualize their learning and collaborate with other peers, their attitude and self-

regulated learning can be greatly enhanced, which is crucial for language acquisition (Smith, Kuchah & Lamb, 2018).

Hsu, Hwang and Chang (2013) carried out a research utilizing a mobile-assisted system recommending reading materials based on reading preference information inputted by the students. Participants were 108 senior high school students in Taiwan who were separated into three groups, i.e., one control group and two experimental groups. While the two experimental groups studied with the support of the system equipped with reading-recommendation function, the control group did not. Both experimental groups scored significantly higher on their reading comprehension posttest compared to the control group. Reading materials of interest proved to benefit the EFL learners' reading comprehension in a significant way.

Personalizing learning experience is of great value as it allows EFL learners to utilize their personal experience to into language learning, making the learning process more meaningful to them. Once the learners' interest into the learning task is aroused, they will be more likely to put more effort into accomplishing it and subsequently gain more from the learning activity.

3.2.3. Language achievement

One of the most reported benefits from the employment of Collaborative MALL was the improvement of participants' language ability. Students' linguistic skills were significantly enhanced after a period of learning with Collaborative MALL program, e.g., enhanced verbal skill (Hwang et al, 2016), writing (Hwang et al, 2014), and reading (Lin, 2014; Lan, Sung, & Chang, 2013). Hwang et al (2016) further elaborated that their high school participants were able to improve their speaking regarding

both fluency and accuracy aspects.

Chang and Hsu (2011) created a collaborative MALL application for an intensive reading course employing PDA (Personal Digital Assistant) devices. The digital devices were equipped with language learning functions, e.g., instant translation, annotation and annotation sharing modes. Adopting an experimental design, the researchers split their participants, that is, 85 third-year undergraduates, into two groups, treatment and control group. Students in the experimental group were further heterogeneously divided into smaller groups of two, three, four and five students. They were provided with PDA devices to carry out collaborative reading. The participants read and shared annotation notes together via the system. Their reading comprehension ability was measured with comprehension tests tapping into the content of the essays they read. The study results indicated the experimental groups could significantly outperform the control group in reading comprehension achievement.

Liu and Chu (2010) examined how game-based learning influenced EFL students' language achievements and motivation. Seventh-grade students (N = 64) were split into treatment and control group. The treatment group participants were supplied with PDA devices equipped with game-based learning activities and materials. They were required to carry out different types of learning activities, including individual and collaborative ones. With respect to the collaborative learning activity, experimental students were asked to create an audio story together. To accomplish the task, the students in turn visited different places shown on their PDA devices and recorded a story for each place and then combined all the stories to make a complete one. In the end, students' learning

achievement was measured with listening and speaking tests. Survey and interview were also employed to extract the participants' attitude towards the game. The findings suggested significantly better learning outcomes for the experimental group who praised the opportunities of practicing English speaking and listening with their classmates.

In summary, it has been consistently confirmed in previous research that Collaborative MALL activities are effective in facilitating EFL learners' language acquisition. Language learners can assist each other in acquiring language skills while enjoying the learning process.

3.2.4. Learning motivation

Regarding the motivational facet, EFL learners commonly perceived collaborative MALL systems to be beneficial to their English learning, making them become motivated language learners (e.g., Hwang et al, 2016; Lin, 2014; Lan, Sung & Chang, 2013; Hwang et al, 2014).

Participants in Hsu, Hwang and Chang's study (2013) found the Collaborative MALL system, equipped with material-recommendation function, to be effective and useful for their language learning. The mobile language learning system allowed them to input their personal reading interest and subsequently, recommended suitable reading materials. Therefore, the EFL learners were kept motivated, reading books of their choice. Likewise, students in the research by Lin and Chu (2010) indicated that the game-based mobile learning system enhanced their learning motivation in terms of attention, relevance, confidence and satisfaction. After playing educational games, one of which was mobile-assisted treasure hunt on the campus, they became more focused on their learning

process and were able to connect the lesson content with their background knowledge, making them more confident and satisfied with their language learning experience.

Berns, Isla-Montes, Palomo-Duarte and Dodero (2016) conducted a study in which they created a game-based mobile learning application, named VocabTrainerA1 app, to support language learners. The study purported to investigate the learners' learning motivation, perceived usefulness and attitude towards the value of the application as well as enhancing their linguistic proficiency. The mobile application contained both individual and collaborative tasks, requiring learners to cooperate and solve a murder mystery game. Participants were distributed the Technology Acceptance Model (TAM) questionnaire and then interviewed about their attitude towards the collaborative MALL system. The study results showed that the MALL application significantly enhanced the language learners' learning motivation, and language proficiency.

In a nutshell, mobile assisted collaborative language learning can benefit language learners in various ways, four of which involve opportunities for peer collaborating, personalizing learning experience, improving linguistic abilities, and enhancing learning motivation.

3.3. Reflections on the strengths and weaknesses of the reviewed studies

In the following section, merits and drawbacks of previous studies in mobile assisted collaborative language learning will be discussed, particularly regarding the research methodology.

3.3.1. Advantages

The above-stated studies have undeniably contributed valuable knowledge to the research literature and language-teaching practice. Firstly, the design of Collaborative MALL system plays a distinctive role in the success of the technology application in EFL classrooms. Given the importance of designing process, Lan, Sung and Chang (2013) split their study into two phases, the first of which was dedicated to gathering the English teachers' suggestions for the system design. They even conducted the feedback survey two times to ensure the system had desirable features for its users. Another method to enhance the quality of the collaborative MALL application is to carefully employ previous theoretical frameworks. In both studies of Hwang et al (2016) and Hwang et al (2014), the researchers created their applications in accordance with effective pedagogical approaches, that is, communicative language teaching and situated language learning, which earned high appreciation from the students learning with the system. Finally, a great feature to be mentioned regarding these studies is that they all investigated participants' perception of the mobile technology in addition to their academic achievement, thus keeping educators informed of both the students' improvement in linguistic ability and learning attitude (e.g., Hwang et al, 2016).

3.3.2. Shortcomings

Despite the valuable contributions of the reviewed studies to the field of Collaborative Mall, several shortcomings threatening the validity and reliability of the studies can still be identified. First, the unclear grading process, regarding the graders' information (e.g., Hwang et al, 2014), grading rubrics and the inter-rater reliability (Hwang et al, 2016), may increase the probability of bias in the study results. For example, Hwang et al (2014) did not elaborate on the format of the writing test used to examine students' writing ability.

This can be considered a possible source of bias due to the fact that whether a written test was provided with contextual clues can make a difference to the results of the test-takers (Schuwirth & Van Der Vleuten, 2004).

Secondly, flawed experimental research design may reduce the credibility of the research findings. Without a control group, the participants' improvement in reading ability in Lan, Sung and Chang's study (2013) can be attributed to either the teachers' instructions *per se* or the collaborative MALL program employed. No report on the pretest scores and the fact that students allowed to retake the online reading tests many times in Lin's study (2014) may further raise concern for the reliability of the finding that students' reading ability was enhanced. This is because when the students were allowed to take the online reading tests many times, their scores could have been improved as a result of ruling out the incorrect answers chosen in the previous times, yet it did not reflect their true improvement in linguistic knowledge.

3.4. Implications

In this section, implications for research design and language teaching practice will be taken into consideration.

3.4.1. Research

As pointed out in the reflection section, future research in examining the collaborative MALL application should adopt a more rigorous research design to enhance the credibility of the research findings. In addition to utilizing an experimental design with a control group, researchers should also ensure the similar level of language proficiency among participants, which can be done through examining their pretest scores. Standardized tests should be preferred as the instruments for measuring participants' linguistic

achievements or at least, the researchers should provide details of test measures in regard to the validity and reliability aspects. In addition, regarding productive skills such as speaking and writing, more than one examiner should be involved in the grading process with inter-rater reliability provided in the research report.

Moreover, in future studies, researchers should also consider EFL students' suggestions for the Collaborative MALL application design, thus making the mobile applications more meaningful and effective in addressing EFL learners' real-life learning difficulties. With the fast-paced development of technology nowadays, more research in collaborative MALL is warranted to address the educational affordances of new mobile applications in various educational contexts, which serves to better inform relevant stakeholders in the field of language education.

3.4.2. Pedagogical practice

Given the positive research-based results in Collaborative MALL studies, English teachers should be proactive in integrating available mobile learning technology into language teaching practice. English teachers are advised to adopt the three language teaching approaches, i.e., game-based, task-based and seamless learning, in English teaching as these pedagogical approaches have been well-tested in previous studies and proved to be much effective in language education.

Specifically, to promote a learner-centered language classroom, students should be allowed more opportunities to collaborate with other students to co-construct linguistic knowledge and build up language skills (Kukulska-Hulme & Viberg, 2018). Designing game-based lessons are encouraged as they help motivate learners and make the learning experience less stressful as well as being more interactive.

Regarding task-based language teaching approach, English teachers can design major learning tasks that require students to collaborate and accomplish them together. This aims to provide more opportunities for practicing different language skills and enhancing social relationships among learners. As indicated in the reviewed studies, learning tasks can be completed outside the classroom and/or after the lesson. The flexibility in time and location of language learning tasks should also be promoted in language class to reinforce students' interest and learning autonomy. For example, by uploading the learning materials online, students can access and study the materials outside classroom without time and space constraints (Cong-Lem, in press).

Also, English instructors should make effort to personalize/individualize EFL learners' learning experience to address their individual differences in ability and interest, thus making the language learning activities more meaningful and relevant to the learners' personal life. For instance, providing language learners with a wide range of authentic materials and allowing them the flexibility of material choice serve to motivate as well as supporting EFL learners' self-regulated learning.

Collaborative MALL helps enhance not only language learners' linguistic abilities but also their affect, i.e., the learners' feelings and attitudes. This is essential for successful language learning since learners' emotion and attitude play a crucial role in determining continuous effort in their language learning process (Tseng, Liu & Nix, 2017). It is, hence, essential for language instructors to acknowledge the above-mentioned pedagogical approaches in designing language lessons in order to augment the English learners' linguistic achievement while maintaining their positive interest in foreign language learning.

4. Conclusion

The current review was conducted to examine empirical studies that investigated the educational affordances of mobile applications in collaborative foreign language learning. After reviewing major collaborative MALL studies published in high-ranking journals, it is safe to conclude that employing collaborative MALL generally brings about various advantages to modern language education. Previous studies primarily employed three pedagogical approaches, i.e., game-based, task-based and seamless language learning, as their main theoretical frameworks. These language learning theories have guided prior researchers in designing mobile applications or in employing the available ones to assist language learners in their English learning journey, making them become more competent and motivated language learners. Collaborative MALL allows a learner-centered language classroom by creating more opportunities for EFL learners to co-construct knowledge through collaboration, to utilize real-life objects and personal experience in their language learning, to improve linguistic proficiency and to strengthen learning motivation. However, as methodological drawbacks still exist in prior Collaborative MALL studies, more rigorous research is warranted to examine the educational affordances of new Collaborative MALL technologies in various educational contexts.

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Tóm tắt: Bài tổng quan nghiên cứu này thảo luận về các nghiên cứu trong lĩnh vực giảng dạy ngoại ngữ có sử dụng thiết bị công nghệ thông tin di động để tạo cho người học cơ hội cộng tác với nhau trong học tập ngoại ngữ (Mobile Assisted Collaborative Language Learning hay Collaborative MALL), ví dụ: dạy ngoại ngữ với sự hỗ trợ của ứng dụng trên điện thoại di động, máy tính bảng và máy tính xách tay. Bài báo hướng tới cung cấp kiến thức về: (1) các khung lý thuyết phổ biến trong lĩnh vực nghiên cứu Collaborative MALL; (2) hiệu quả thực tiễn của việc áp dụng Collaborative MALL trong giảng dạy ngoại ngữ; (3) điểm mạnh và thiếu sót của các nghiên cứu trước đây, đặc biệt về phương pháp nghiên cứu; và (4) định hướng nghiên cứu trong tương lai cũng như giá trị về mặt sư phạm - phương pháp giảng dạy rút ra từ các nghiên cứu Collaborative MALL. Kết quả của bài tổng quan cho thấy 3 phương pháp giảng dạy phổ biến được dùng làm lý thuyết nghiên cứu trong lĩnh vực Collaborative MALL là học ngoại ngữ dựa trên trò chơi (game-based learning), học qua hoàn thành các nhiệm vụ (task-based learning) và học dựa vào ngữ cảnh (seamless learning). Lợi ích đã được chứng minh của việc áp dụng Collaborative MALL vào giảng dạy ngoại ngữ bao gồm cải thiện năng lực ngôn ngữ, tạo điều kiện cho người học cộng tác trong quá trình học, cá nhân hóa trải nghiệm học tập, và tăng cường động lực học tập, tính tự học. Một số điểm yếu trong phương pháp nghiên cứu trước đây gồm thiếu nhóm kiểm soát (control group) trong nghiên cứu thực nghiệm (experimental design), thiếu thông tin về hình thức và quá trình đánh giá năng lực của người học. Trong tương lai, cần nhiều hơn các nghiên cứu có chất lượng để khảo sát hiệu quả của các ứng dụng mới trong việc hỗ trợ giảng dạy ngoại ngữ trong nhiều ngữ cảnh khác nhau.

Từ khóa: giảng dạy ngoại ngữ, cộng tác trong học tập, học trên thiết bị di động, công nghệ thông tin trong giảng dạy