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Mobile-Assisted Language Learning Applications: Features and Characteristics from Users' Perspectives

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Mobile-Assisted Language Learning Applications: Features and Characteristics from Users' Perspectives

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Abstract

This study investigates the features of currently used mobile-based applications in language learning as perceived by 112 adult learners from different backgrounds in the Kingdom of Saudi Arabia. A quantitative approach is used, with a cross-sectional survey and open-ended questions. The results show the top useful and useless features of the applications available in the market for language learning. In addition, they show the most and the least common features as well as the missing features that learners would most like to have in language learning applications. It finds that most mobile-based applications seem to be more focused on technical and technological features at the expense of social, cultural, and individual features. Pedagogical implications for promoting self-access language learning software are also discussed.

Keywords: self-access language learning, mobile learning, mobile-assisted language learning, language learning applications, self-directed learning

Numerous dynamic applications have emerged that facilitate self-access language learning, thanks to artificial intelligence and technology. Mobile-assisted language learning (MALL) is one such innovative way to facilitate the delivery of educational content and encourage learning outside the classroom. However, MALL applications are quite varied in their instructional designs, goals, and features. Some are designed to have levels, others are only for chatting, and still others feature lessons by units with different semantic and grammatical activities. Language teachers and learners as well as designers of language learning applications might need to know the latest developments in this market and how learners perceive the features of such applications. This could help in the development and improvement of language learning applications. Such improvements should be ongoing to accommodate the changing preferences of learners. This might lead to the reconceptualization of some concepts that were taken for granted in the design of language learning applications.

Literature Review

MALL pedagogy suggests that mobile applications greatly help learners develop various English language skills and enable autonomous, self-regulated learning by allowing learners to adapt the pace and content to their needs (Puebla et al., 2021). Learners' attitudes towards the integration of mobile technology in second language (L2) learning as well as their perceptions of language learning applications have been generally positive across studies (Puebla et al., 2021). However, in their review of language learning applications, Heil et al. (2016) pointed out that current applications offer little adaptation to learners' individual needs. The current study, therefore, aims to identify the common and useful features in different MALL applications that are currently used by language learners from different backgrounds.

Using technology in language learning is connected to the theory of social constructivism (Heil et al., 2016; Niño, 2015), in which an individual constructs knowledge through active exploration, communication, observation, processing, and interpretation (Rosell-Aguilar, 2007). In the literature about the use of technology in education and learning, it has been argued that good applications and software should offer language learners real, meaningful, and authentic materials in real, meaningful, and authentic language contexts (Chapelle, 1998; Meskill, 1999; Skehan, 2003; Thorne & Payne, 2005; Warschauer & Healey, 1998). In addition, the elements of individuality, freedom of time and place, sociability, and interactions in and with different contexts are all significant elements in the MALL literature (Kukulska-Hulme & Shield, 2008).

In the MALL literature, effective MALL applications are characterised as those that have the following features:

- Accelerate all aspects, skills, and areas involved with language learning, such as reading, writing, listening, speaking, pronunciation, vocabulary, grammar, and related learning activities and using language games (Chan et al., 2011; Ducate & Lomicka, 2009; Niño, 2015)
- Allow autonomy and self-paced learning and give slower learners a platform for remediation (Ashton-Hay & Brookes, 2011; Lai & Zheng, 2018; Puebla et al., 2021; Sato et al., 2015)
- Focus on context-specific and real-world practice as well as collaboration, interaction, meaning construction, and communication with peer learners and native speakers of the

target language (Joseph & Uther, 2009; Lai & Zheng, 2018; Niño, 2015; Puebla et al., 2021).

The above statements from the MALL literature constitute the theoretical framework for this study. As stated previously, researchers pointed out that current applications offer little adaptation to learners' individual needs (Heil et al., 2016). In addition, previous studies (Heil et al., 2016; Tsai, 2016) investigated different applications without gathering data from users, or they asked the users about only one application, Duolingo. This is the gap that this study, therefore, is aiming to investigate. It aims to find out the general tendency of the prevalent features and aspects of mobile-based applications in language learning as perceived by users from different backgrounds.

Research Questions

The research questions relate to MALL applications that are currently used by adult language learners from different backgrounds in Saudi Arabia and aim to examine the following aspects of the applications:

1. What are the useful features of MALL applications available in the market?
2. What are the useless features?
3. What are the missing features?
4. What are the most common features?
5. What are the least common features?

It is argued that the findings of the above questions might help MALL designers and developers to assess their developed applications and provide language learning community with excellent applications that positively enhance self-access language learning.

Methodology

This study investigated users' perceptions of MALL applications that they were currently using. It adopted a cross-sectional survey design to collect quantitative data to ascertain what were the most prevalent features in the available applications. A cross-sectional survey can be considered when quick data about a current situation is needed. However, it has the limitation of potentially biased results if variables change over time.

Developing the Survey

In investigating MALL applications, previous studies have used questionnaires or interviews. This study investigated the features of MALL applications through a cross-sectional survey. A benefit of adopting such a quantitative research tool was that it allowed for the establishment of a catalogue of the most and least common features in the applications used for language learning through surveying many subjects. Furthermore, such an instrument enabled the researchers "to compare findings in different contexts" (Petrić & Czárl, 2003, p. 188). This research therefore did not focus on a particular application. Instead, it considered the prevalent aspects and features of designing a language learning software as perceived by users, be it one application or more than one. Such aspects and features are too many to count, and they need to be concise and categorised as much as possible. Therefore, the 34 items on the survey were divided into three categories: (1) linguistic and educational features; (2) individual, social, and cultural features; and (3) technical and technological features. The categorisation of the 34 items was based on the researcher's knowledge and discretion as obtained from the literature and the research designed by other researchers (Heil et al., 2016; Puebla et al., 2021; Tsai, 2016). Those items were either written by the researcher or borrowed and modified from two survey instruments in two previous studies: Heil et al. (2016) and Tsai (2016). The former investigated different applications without asking users and the latter asked the users about only one application, Duolingo.

Initially, the rating scale of the survey followed the Likert scale of five responses: strongly agree, agree, uncertain, disagree, or strongly disagree. However, the Qualtrics platform (the software that was used to conduct this research) recommended that possible responses be simplified to increase response quality and completion rates. Therefore, the five responses were simplified to three responses: agree, uncertain, or disagree. The first draft of the survey was sent to two assistant professors in the field for feedback. After an amendment for validity, four items were deleted. The reliability of the survey was not tested due to the preliminary nature of the investigation. This is one of the research limitations that needs to be considered for future research. The researcher then translated the survey items from English to Arabic and sent them to another colleague to check the clarity of the Arabic. A few amendments were necessary, and then the survey was ready to be used.

Data Collection and Analysis

Due to the quantitative nature of the research questions, the data collection and the data analysis were conducted through the Qualtrics platform. Qualtrics helped design and share the survey and provided data analysis and reports. Two methods of descriptive analysis were used (frequency tables and measures of central tendency and dispersion) to summarise the frequency and means of the data. In addition, an inductive content analysis was used for the results of the open-ended questions.

Participants

Adult language learners from different educational backgrounds in the Kingdom of Saudi Arabia using MALL applications were targeted for participation in this study. As stated earlier, the aim is to find out the general tendency of the prevalent features and aspects of MALL applications available in the market as perceived by different language learners who are learning languages for different purposes. One might argue that if the study group is broad, the findings might be easily manipulated. On the other side, if specific participants using specific apps are the target of the investigation, the generalization of the results and the measurement of the general tendency might be too difficult to achieve.

The web-based survey was advertised online and sent to individuals and groups of language learners via different social media platforms (WhatsApp, LinkedIn, and Telegram) in the kingdom of Saudi Arabia. The survey was also advertised by the researcher's colleagues and sent to their students in three different universities across the kingdom. A total of 485 participants responded to the survey; 373 incomplete surveys were removed after 10 days, leaving data from 112 participants for analysis.

Results

General Findings

The collected data revealed some interesting findings that were not directly related to the research questions. However, they might be useful for gaining a complete picture of the situation. Eight of the participants reported using two or three applications. This might raise an eligible critique against the survey as how the participants narrowed their mind while filling the survey. In fact, this study is concerned about measuring a general tendency of the prevalent

features of MALL applications available in the market regardless of what specific applications the participants are referring to and regardless of the participants' background. Having said that, almost all the participants were using only one application for learning a language (92.8%, n = 104). Most of them (62.5%, n = 70) spent more than 15 minutes on their MALL applications every time they used them. In addition, the most-used applications by the participants were Duolingo (19%), Google Translate (14%), YouTube (12%), and Cambly (8%). Twenty-seven other applications including Busuu, Memrise, Wallstreet, English Place, Bright, Babbel, Lela, ELSA, Cake were also used and represented 47% of application usage. In addition, 86% of the participants (n = 96) were using their MALL applications to learn English. The second most-studied language was Spanish (n = 5), followed by Arabic and Turkish (n = 4 for each).

Question 1: What Are the Most Useful Features of MALL Applications?

This question was a direct, open-ended question in the survey. The researcher classified this qualitative data into three categories as per the survey categories in order to code it and then counted the responses. The three categories were (1) linguistics and educational features; (2) individual, social, and cultural features; and (3) technical and technological features. As summarised in Table 1, most of the top useful features were in the technical and technological features category.

Table 1

Useful Features

Useful features as reported by participants	Category	Total number of responses
Simplicity and accessibility	3	27
Various audio resources (listening, dialogues, etc.)	3	20
Speaking, pronunciation, and communication with native speakers	1	18
Various visual resources (pictures, videos, movies, etc.)	3	14
Translation	3	14
Writing exercises	1	11
Grammar exercises	1	9

Learning by game mechanics	3	8
Freedom to control and chose content and time	2	7

Questions 2 and 3: What Are the Useless and Most Commonly Missing Features of MALL Applications?

Of the participants, 78.5% (n = 88) were satisfied with the MALL applications currently available. This explains why 59% (n = 66) of the participants reported that nothing was useless on the applications that they were using. Similarly, 36% (n = 40) did not report any features that were missing from the applications they were using. This is consistent with the positive perceptions and attitudes of MALL application users that have been reported in multiple studies (Castañeda & Cho, 2016; Hao et al., 2019; Loewen et al., 2019; Rosell-Aguilar, 2018). However, 12.5% (n = 11) of the participants in the current study said that the main useless features were the continuous advertisements and paid options that disturbed their attention. Some respondents questioned why payment was not one-time for lifelong use, and why they were disturbed periodically and asked to pay and renew their subscriptions. In addition, some respondents (n = 11) reported the absence of opportunities to speak with a teacher or other learners using the same application as a missing feature. Moreover, a few other respondents (n = 7) said it was impossible to work offline or take exams and quizzes for review on their applications (n = 6).

Question 4: What Are the Most Common Features in MALL Applications?

To address this research question, the table of frequency (Table 2) was used.

Table 2

Most Common Features

The top five most common features	Agree	Uncertain	Disagree	M	SD	Count
1. The app is easy to access.	101	5	6	1.15	0.49	112
	90%	5%	5%			
2. The app is easy to navigate.	93	12	6	1.22	0.53	111
	84%	11%	5%			
3. The app includes different kinds of vocabulary exercises.	77	21	14	1.44	0.70	112
	69%	19%	12%			

The top five most common features	Agree	Uncertain	Disagree	M	SD	Count
4. The app provides different visual inputs (images, videos, animations, etc.).	73 66%	25 22%	13 12%	1.46	0.69	111
5. The app includes different kinds of listening exercises.	70 62%	22 20%	20 18%	1.55	0.78	112

The results show that three of the topmost common features (1, 2, and 4) were related to technical and technological features of the MALL applications. The participants were also asked about the existence of writing, reading, listening, speaking, grammar and vocabulary on the applications that they were currently using (see the appendix). More than half of the participants reported such existence. Vocabulary exercises, however, were the dominant exercises in most of the MALL applications. This is consistent with the findings of Heil et al. (2016): 84% of the applications they reviewed focused on vocabulary items. This provides a hint about why teaching vocabulary has been the most popular topic addressed in research studies in the field of MALL applications (e.g., Burston, 2015; Duman et al., 2015). Moreover, the current study found that writing was the most underutilised skill. This also supports the findings of other studies, such as those of Heil et al. (2016) and Park and Slater (2014).

Question 5: What Are the Least Common Features in MALL Applications?

To address this research question, the following table of frequency (Table 3) was used.

Table 3

Least Common Features

The top five least common features	Agree	Uncertain	Disagree	M	SD	Count
1. The app provides one-on-one live classes.	30 27%	32 28%	50 45%	2.18	0.83	112
2. The app helps me understand the songs of the target language.	31 28%	44 39%	37 33%	2.05	0.78	112
3. The app provides different gamification elements (time limits,	42 38%	33 29%	37 33%	1.96	0.84	112

The top five least common features	Agree	Uncertain	Disagree	M	SD	Count
progress indication, cumulative point system, positive/negative reinforcements, etc.).						
4. The app provides regular notifications when I am not learning as scheduled.	43 39%	33 29%	36 32%	1.94	0.84	112
5. The app provides regular notifications when a task is not finished on time.	44 40%	33 29%	35 31%	1.92	0.84	112

Three of the least common features (2, 4, and 5) were related to individual and cultural aspects of language learning. It seems that designers and developers of MALL applications need to enhance their applications' autonomy, self-regulation tools, and cultural tools such as songs. Surprisingly, gamification elements, which are good incentives, were reported as one of the least common features in the applications. This might be attributed to the kind of the applications used. As noted above, 14% of participants were using Google Translate, and 12% were using YouTube. Such applications clearly lack any gamification elements. This introduces another significant point related to learners' knowledge about suitable MALL applications. Learners might be unfamiliar with how to choose the application that best addresses their language learning needs. Do MALL applications demand further guidance for proper use? Further research on this issue is highly recommended.

Another investigation was conducted to ascertain the top features about which the participants were uncertain. If users are unsure about the existence of some features, there are two potential explanations. Either those features do not exist, or there is something wrong with the application design that makes it difficult for users to locate the features quickly. These features are listed in Table 4. We notice that three of them (2, 4, and 5) were related to the category of individual, cultural, and social aspects of language learning.

Table 4

Most Uncertain Features

The top five uncertain features	Agree	Uncertain	Disagree	M	SD	Count
1. The app provides a help desk to answer questions.	42 37%	48 43%	22 20%	1.82	0.73	112
2. The app identifies my language problems cumulatively and offers solutions to them.	32 29%	47 42%	33 29	2.01	0.76	112
3. The app allows me to download data for personal records.	35 32%	46 42%	29 26%	1.95	0.76	110
4. The app helps me understand the news of the target language.	39 35%	44 39%	29 26%	1.91	0.77	112
5. The app allows for collaboration and communication with other users.	36 32%	43 39%	33 29%	1.97	0.78	112

Discussion and Conclusion

This quantitative study aimed to answer questions concerning language learners' perspectives on the features and characteristics of MALL applications. The main purpose of this study was to ascertain which features of the applications were useful, useless, missing, most common, and least common. Some findings emerged from the statistical analyses of the survey data that are likely to modulate the features of MALL applications and cause them to adjust their offerings. The results showed that the most useful features according to users' perceptions were those related to design and technology such as accessibility, simplicity, and availability of various audio or video resources. Those features were also the most common features in the MALL applications available on the market as reported by the participants. The least common features, however, were related to individual and cultural aspects of language learning, such as one-on-one live classes, songs of the target language, and regular notifications to help learners regulate their study. Additionally, most of the participants were uncertain about the existence of some features that could also be classified under the individual, cultural, and social aspects of

language learning category, such as identifying learners' problems, understanding news, downloading personal data and allowing for collaboration and communication with other users.

Based on the above findings, this study argues that in the low levels of personal, social, and cultural features, the most innovative techniques and the most attractive MALL applications might be inadequate. Designers and developers of MALL applications should therefore be more aware of the significance of all language learning features and be not only innovative but also comprehensive in the ways in which they handle those features. The features and aspects of MALL applications should be designed based on language learning theories and the principles of task design (Doughty & Long, 2003) and should not be overlooked by MALL developers (Kukulska-Hulme & Bull, 2009).

The current study does not permit one to draw firm conclusions about which applications are best designed. However, what is clear is that most MALL applications in the market seem to focus on technical and technological features at the expense of other important features. In addition, MALL designers should be sensitive to some features such as annual subscriptions, continuous advertisements, and paid options; these features may impede the quality, quantity, motivation, and the amount of time students spend learning. Nevertheless, more research on this topic needs to be conducted.

Vocabulary exercises were the dominant exercises in most of the applications in the current study. This might explain why research in the field of MALL applications has been heavily directed towards and concerned with vocabulary acquisition (Burston, 2015; Duman et al., 2015). Therefore, MALL designers and developers should implement all language skills and aspects of language in their applications to allow researchers to address topics other than vocabulary. As Heil et al. stated, "pedagogical approaches to app development ought also to take this into consideration when determining what content to include, and how to assess learners, especially if the intention is to teach learners language and not just to teach learners words" (Heil et al., 2016, p. 34). On the other hand, most of the studies about the effectiveness of MALL applications in improving and enhancing learners' self-regulated strategies, efficiency, and automaticity have focused on vocabulary acquisition (e.g., Fathi et al., 2018; Hao et al., 2019; Rosell-Aguilar, 2018; Zhang et al., 2011). Is this sufficient? How can such capacities and competences be enhanced only because of vocabulary learning? Language is more than

vocabulary. To enhance self-regulation, efficiency, and automaticity in language learning, learners need to experience language learning as a complete entity.

Overall, the findings of this research, while preliminary, provide the following pedagogical implications for promoting self-access language learning software that echo the suggestions of most other researchers (e.g., Ali et al., 2019; Goksel-Canbek & Mutlu, 2016; Heil et al., 2016; Joseph & Uther, 2009).

- Language learners are in need of smart learning, where artificial intelligence is at the core of all learning solutions. However, the human element manifested by the existence of a language teacher should not be neglected.
- Language learners are in need of personalised language learning experiences and individual solutions.
- Technological features should not only promote learning but also make learning that is fun and efficient for individuals and group learners.
- Real-life conversations and dialogues are highly useful for learners and, therefore should be implemented and tested for effectiveness.
- A bite-sized study feature where learners can study a little bit every day and follow a spaced repetition system should be provided to enhance retention and beat the forgetting curve.
- New language input should be combined with language that is already known and mastered.

Learning a foreign language is not easy; in fact, most people quit before meeting their learning objectives. Therefore, this research argues that the above suggestions for MALL applications can be highly useful for facilitating self-access language learning.

Notes on the Contributor

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Appendix

The Research Instrument

Dear learners,

Thank you very much for participating in this study. All information you provide will be treated as strictly confidential, and no names will be mentioned in the study. This study aims to identify the features that learners use and prefer to have in language learning applications. Your cooperation in supporting this research is highly appreciated.

General Information

1. Name the application/s that you are currently using?
2. Name the language/s that you are currently learning through a MALL application?
3. How long do you use this application for each use?
   ❒ Less than 15 minutes.❒ From 15 and 30 minutes.❒ From 31 and 60 minutes.❒ More than 60 minutes.
4. Please state the 3 main useful features in the application/s that you are currently using.
5. Please state the 3 main useless features in the application/s that you are currently using.
6. Please state 3 missing features that you wish were available in the application/s you are using.
7. In general, are you happy with the existing MALL applications? Why?

The Features in Mobile-Based Language Learning[1]

	Below are a series of statements about using mobile-based applications for language learning. Please indicate the degree to which each statement is applicable as honestly as possible.	Agree 1	Uncertain 2	Disagree 3	Mean	Std deviation	Variance	Count
	A) The linguistic and educational features							
1	The app I am using provides a placement test.	50 45%	36 32%	26 23%	1.79	0.80	0.63	112
2	The app includes different kinds of writing exercises.	54 48%	24 21%	34 31%	1.82	0.87	0.75	112
3	The app includes different kinds of reading exercises.	56 50%	36 32%	20 18%	1.68	0.76	0.58	112
4	The app includes different kinds of grammar exercises.	67 60%	24 21%	21 19%	1.59	0.79	0.62	112

[1] The percentages have been rounded to the closest value.

	Below are a series of statements about using mobile-based applications for language learning. Please indicate the degree to which each statement is applicable as honestly as possible.	Agree	Uncertain	Disagree	Mean	Std deviation	Variance	Count
		1	2	3				
5	The app includes different kinds of vocabulary exercises.	77 69%	21 19%	14 12%	1.44	0.70	0.50	112
6	The app includes different kinds of speaking and pronunciation exercises.	60 54%	33 29%	19 17%	1.63	0.76	0.57	112
7	The app includes different kinds of listening exercises.	70 62%	22 20%	20 18%	1.55	0.78	0.60	112
8	The app provides different kinds of real and authentic dialogues.	55 49%	32 29%	25 22%	1.73	0.80	0.64	112
9	The app assesses language input and provides immediate correction when necessary.	51 46%	36 32%	25 22%	1.77	0.79	0.62	112
10	The app provides different kinds of tests and quizzes.	56 50%	33 29%	23 21%	1.71	0.79	0.62	112
11	The app provides one-on-one live classes.	30 27%	32 28%	50 45%	2.18	0.83	0.68	112
	B) The individual, social, and cultural features							
12	The app helps me plan my learning journey before I start.	54 48%	32 29%	26 23%	1.75	0.81	0.65	112
13	The app allows me to select the learning activities that I like.	56 50%	32 29%	24 21%	1.71	0.80	0.63	112
14	The app identifies my language problems cumulatively and offers solutions to them.	32 29%	47 42%	33 29	2.01	0.76	0.58	112
15	The app helps me regulate myself to learn on a regular basis.	61 54%	32 29%	19 17%	1.63	0.76	0.57	112

	Below are a series of statements about using mobile-based applications for language learning. Please indicate the degree to which each statement is applicable as honestly as possible.	Agree	Uncertain	Disagree	Mean	Std deviation	Variance	Count
		1	2	3				
16	The app helps me regularly review what I have studied.	60 54%	33 29%	19 17%	1.63	0.76	0.57	112
17	The app provides regular notifications when a task is not finished on time.	44 40%	33 29%	35 31%	1.92	0.84	0.70	112
18	The app provides regular notifications when I am not learning as scheduled.	43 39%	33 29%	36 32%	1.94	0.84	0.70	112
19	The app allows for collaboration and communication with other users.	36 32%	43 39%	33 29%	1.97	0.78	0.62	112
20	The app helps me understand the songs of the target language.	31 28%	44 39%	37 33%	2.05	0.78	0.60	112
21	The app helps me understand the culture of the target language.	62 55%	38 34%	12 11%	1.55	0.68	0.46	112
22	The app helps me understand the news of the target language.	39 35%	44 39%	29 26%	1.91	0.77	0.60	112
	C) The technical and technological features							
23	The app is easy to access.	101 90%	5 5%	6 5%	1.15	0.49	0.24	112
24	The app is easy to navigate.	93 84%	12 11%	6 5%	1.22	0.53	0.28	111
25	Any word in the app is defined, pronounced, and translated at the click of a mouse.	53 48%	32 29%	26 23%	1.76	0.81	0.65	111
26	The app provides different visual inputs (images, videos, animations, etc.).	73 66%	25 22%	13 12%	1.46	0.69	0.48	111
27	The app provides different game	52 46%	29 26%	31 28%	1.81	0.84	0.71	112

	Below are a series of statements about using mobile-based applications for language learning. Please indicate the degree to which each statement is applicable as honestly as possible.	Agree	Uncertain	Disagree	Mean	Std deviation	Variance	Count
		1	2	3				
	mechanics (picking the correct answer, matching image to meaning, Cloze, etc.).							
28	The app provides different gamification elements (time limits, progress indication, cumulative point system, positive/negative reinforcements, etc.).	42 38%	33 29%	37 33%	1.96	0.84	0.70	112
29	The app provides a help desk to answer questions.	42 37%	48 43%	22 20%	1.82	0.73	0.54	112
30	The app allows me to download data for personal records.	35 32%	46 42%	29 26%	1.95	0.76	0.58	110

Thank you.