Original Article

Investigating Foreign Language Reading Anxiety in Mobile Assisted Language Learning (MALL): Does Using Electronic Dictionary Help?

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Abstract

Recent developments in mobile technologies are exerting considerable influence on the students' daily lives and their educational practices. In this regard, mobile assisted reading in language education is gaining increased attention. Within these lines on inquiry, the current study investigated foreign language reading anxiety in mobile learning environment. The study was quantitative in terms of research method by collecting data from two measurements whose reliability and validity were checked with experts. The data were collected from 50 Iranian EFL learners who were selected via convenience sampling and were divided into control and experimental groups. The instruments involved (1) the foreign language reading anxiety scale and (2) and IELTS reading test. The participants in the control group were given the reading materials on paper and used traditional materials, while the control group used mobile devices to read the assigned texts. Both groups participated in reading comprehension tests before and after the treatment. The findings revealed that mobile assisted reading in English contributed significantly to anxiety reduction among the learners, nevertheless, its impacts on comprehension were insignificant. The findings have some implications for teaching EFL reading, and contributes to growing body of knowledge in mobile assisted reading.

Introduction

Recently, As one of the mostly studied emotion-related concepts in second language acquisition (SLA) research, 'foreign language learning anxiety' (FLLA) refers to "a distinct complex of self-perceptions, beliefs, feelings and behaviors related to classroom language learning arising from the uniqueness of the language learning process" [20]. When second or foreign language learners are expected to use their developing languages, they experience feelings of fear and apprehension [1]; [13]; [45], and these feelings are present in a variety of classroom activities including listening and speaking as well as testing situations [20]. FLLA is one of the most important affective factors which correlates negatively with students' performance in the classroom [20]; [28]; [39], and previous research in this area indicated that speaking-oriented activities are associated with higher levels of anxiety among language learners [54]. Whether it improves or impairs the performance of language learners, FLLA has been differentiated into facilitating and debilitating types [3]; [5], and [44] claims that the facilitating anxiety gears the learners emotionally and motivates them to face with new learning tasks, while the debilitating anxiety motivates them to avoid new tasks. FLLA is also related to some psychological factors including shyness, self-perception, competitiveness, and social anxiety [18].

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Over the last decades, various aspects of FLLA has been investigated in different contexts and learning situations, and a substantial body of published literature in this area suggests that anxiety can negatively influence the experience of learning a new language in numerous ways [4]; [13]; [14]; [20]; [21]; [23]; [38]; [46]; [47]; [53]. [21] claimed that the question of how anxiety impedes language learning is still unresolved. However, it has been argued in the literature that FLLA "harms learners' performance in many ways, both indirectly through worry and self-doubt, and directly by reducing class participation and creating overt avoidance of the language" [50]. According to [26]

[27], anxiety inhibits learners' ability to process language input and as a result short-circuits the process of language acquisition, and [32] posit that anxious people engage themselves in self-directed derogatory cognition, rather than focusing on the task at hand. A number of studies also indicated that FLLA can be the cause of some problems in language learning process [33], [34], [35], [36], [37], and reducing anxiety seems to increase learner motivation [20]; [54].

In recent years, the FLLA has been investigated in different learning contexts [2]; [6]; [19]; [48]; [49] , and also a new trend has appeared which studies specific aspects of foreign language learning anxiety such as translation anxiety [51], foreign language speaking anxiety [17]; [41]; [52], writing anxiety [9], listening anxiety [7]; [55], pronunciation anxiety [25], and reading anxiety [43]; [56]. In this regard, [43] investigated the possibility of anxiety in response to a foreign or second language reading and identified unfamiliar writing system and unfamiliar culture as two main aspects of foreign language reading anxiety (FLRA) among students. Further evidence for the existence of FLRA have been provided by research in the field of neuroscience [22] and this type of anxiety has been found in reading in various languages with different writing systems.

Recently, in line with various developments in mobile technologies, mobile assisted language learning attracted increased attention [8]; [10]; [11]; [12]; [24]; [29], [30] . Within this line of inquiry, research on affordances of MALL for developing L2 reading provided evidence for the positive impacts of these technologies and their potential to supplement traditional materials [15]. Nevertheless, despite this growing interest into mobile-assisted reading in second language learning and teaching, the study of foreign language reading anxiety associated with such platforms remained neglected. The current study aims to contribute to this line of research and fills part of this gap by investigating FLRA as experienced by Iranian language learners in mobile assisted L2 reading. The following research questions were addressed:

1- Does reading on mobile/tablet devices with instant access to electronic dictionaries reduce FLRA?

2- Does reduced anxiety in mobile/tablet environment lead to higher scores in reading tests?

Method
Context and Participants

The context of the present study was a private language school in Iran, which followed its own tailored curriculum and syllabus, and had the policies of staged advancement of students to higher levels based on teachers' assessment and students' final exam scores. Moreover, the school allowed using various digital technologies including overhead projectors, mobile phones, and PowerPoint presentation. In terms of research method, this setting provided a suitable opportunity for quantitatively exploring the students' anxiety because it could unpack how this context helps or hinders the students' technological growth in terms of reading anxiety, which was the purpose sought in this study.

The participants of this study were 50 Iranian EFL learners in a private language learning institute in Tehran, Iran, selected based on convenience sampling procedures. All participants were in intermediate level (based on the placement test administered by the language institute) and their ages ranged from 19 to 25 (M = 21). Participants were assigned to experimental (N =

27) or control (N = 23) groups based on their ownership of tablet PCs/smart-phones and also by their preferences for receiving reading materials in electronic or printed forms. The subjects were taught by two teachers (one teacher teaching IELTS speaking and writing, and the other teaching reading and listening) mainly working in private language learning institutes, each with an experience of over 5 years in English language teaching to adults. None of the participants had ever been to an English-speaking country; and most of them were to take the IELTS exam within a year or two. The participant data for current study was collected during the summer of 2019.

Instruments

This study adopted a quantitative research method in exploring foreign language reading anxiety among the Iranian EFL students. To this end, two research instruments were used:

Foreign language reading anxiety scale: the foreign language reading anxiety scale (FLRAS) originally developed by [43] was adapted for the current study. The words, French, Russian, and Japanese in the original scale were substituted for the word English and then the scale was translated into Persian and used to obtain participants' data. It was also checked by an experienced translator to check the accuracy of the statements. Participants were asked to indicate their agreement or disagreement with the statements on FLRAS based on a 5-point Likert-type scale from 5 (strongly agree) to 1 (strongly disagree). The negatively worded items in the FLRAS were reverse coded, and after analyzing the reliability of translated scale using IBM SPSS software version 23, two items from original scale (items number 10 and 20) were deleted. For the remaining 18 items, Cronbach's α analysis of scale reliability was .89 (Table 1), which indicated that the scale was a reliable measure of English reading anxiety. Moreover, the scale was, in terms of validity, checked with two experts (PhD in Applied Linguistics) who ascertained the suitability of the scale for the purposes of the study.

Table 1. Reliability Statistics for Persian version of FLRAS

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.891	.896	18

IELTS reading test: in order to find out any differences between the participants in experimental and control groups regarding their reading abilities before and after the treatment, all participants were tested using two sample IELTS academic reading tests from Barron's IELTS Practice Exams [31]. Again, the same experts checked the validity of the test and verified its suitability for the study.

Procedure

Before assigning the participants to different reading conditions, the IELTS academic reading test was administered to all participants. Following this, during the ten weeks of treatment, all participants received the same training for IELTS preparation in the private language learning institute. However, for their extra classroom activities which was part of their overall training and evaluation, they were asked to read 20 articles (two articles every week) on a variety of topics chosen from science and technology section of the New York Times website and to hand in a summary as homework to their teacher the next session. Participants were told that the aim of these out-of-class reading tasks was to increase their vocabulary and reading fluency. Participants in the control group received assigned readings as printed on paper, and for the experimental group, PDF version of same articles and links to online version were provided mostly using locally popular social media networks (i.e. Telegram, WhatsApp). Both the experimental and

control groups received required and essential training on using a learner's dictionary and also on installing and using those dictionaries on tablets and smartphones. Experimental group however, received additional instruction on using installed or online dictionaries while reading on tablets or smartphone devices. In this regard, they were trained to select the word they don't know its meaning or pronunciation while reading (figure 1), then choosing the shared option and then tapping on the dictionary icon to see the meaning and pronunciation of the selected word (figure 2). After 10 weeks, the Persian version of foreign language reading anxiety scale (FLRAS) was administered for all participants, which was followed by another IELTS reading test.
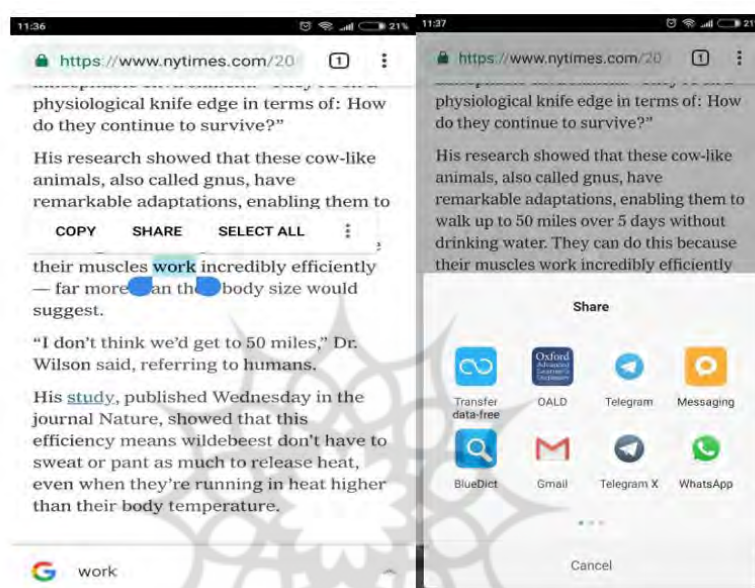

Figure 1. Screenshot of selecting a word while reading on smartphone/tablet and looking it up in available dictionaries

Data analysis

The data was analyzed for both descriptive and inferential statistical results. In this regard, using IBM SPSS software version 25, descriptive statistics including mean values and standard deviations were calculated for the scores obtained by the participants in pre- and post-tests. In order to see if the observed differences were statistically significant, an independent samples t-test [42] was used after checking the normality of the data.

Results

The results of descriptive statistics are provided in table 1. Regarding the reading scores on the pre-test, the mean values for the scores obtained by the participants in the control group was 29.65 (SD = 2.14), and for the experimental group was 29.33 (SD = 2.15). On the reading post-test which was administered 10 weeks later, the mean value for the control group was 32.65 (SD = 1.82), and for the experimental group was 31.85 (SD = 2.18). As for reading anxiety which was measured at the end the treatment, the mean value for the level of anxiety reported by the participants in the control group was 78.61 (SD = 3.82), and for the experimental group was 66 (SD = 3.28). The findings indicated that the level of reading anxiety was higher in the control group who used the traditional materials.

Table 1. Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Reading Score Pre-test	Control	23	29.65	2.145	.447
	Experimental	27	29.33	2.148	.413
Reading Score Post-test	Control	23	32.65	1.824	.380
	Experimental	27	31.85	2.179	.419
FL Reading Anxiety	Control	23	78.61	3.823	.797
	Experimental	27	66.00	3.282	.632

In order to see if the observed differences in the reading scores and the level of anxiety among the two groups are significant, independent samples t-tests were conducted to compare the scores on pre-test, post-test, and level of FLRA (Table 2). The results indicated that there was no significant difference in pre-test scores for the control (M = 29.65, SD = 2.14) and the experimental (M = 29.33, SD = 2.15; t (48) = 0.52, p =0.603, two-tailed); and also for the post-test scores for the control (M = 32.65, SD = 1.82) and the experimental (M = 31.85, SD = 2.18; t (48) = 1.39, p =0.17, two-tailed) groups. As a result, there was no significant difference in participants' reading ability. Nevertheless, the results indicated that there was a significant difference in the levels of FLRA for the control (M = 78.61, SD = 3.82) and the experimental (M = 66.00, SD = 3.25; t (48) = 12.55, p =0.000, two-tailed).

Table 1. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Reading Score Pre-test	Equal variances assumed	.081	.778	.523	48	.603	.319	.609	-.906	1.544
	Equal variances not assumed			.523	46.768	.603	.319	.609	-.907	1.544
Reading Score Post-test	Equal variances assumed	1.513	.225	1.394	48	.170	.800	.574	-.354	1.955
	Equal variances not assumed			1.414	47.991	.164	.800	.566	-.338	1.939
FL Reading Anxiety	Equal variances assumed	2.228	.142	12.553	48	.000	12.609	1.004	10.589	14.628
	Equal variances not assumed			12.399	43.715	.000	12.609	1.017	10.559	14.659

Discussion

This study aimed to examine the reading ability of Iranian EFL learners and whether participating in a mobile-driven course influenced their reading anxiety. The results of reading ability pre-test and post-test showed that the participants did not differ in their reading ability. This finding shows that either using traditional or mobile-driven technologies does not function as a strong predictor of differences in individuals' reading ability. These findings are in contrast to earlier studies (e.g., [1]; [16] in which it has been reported that using digital technologies is likely to reduce the students' reading anxiety and positively contribute to their reading ability. However, this finding might be due to the point that the students have not embraced mibile phones in reading adequately, which points to the necessity of focusing more on reading through digital technologies by the schools.

The analyses also indicated that the participants' reading ability increased in the post-test compared to their own pre-test scores. This finding is in line with [15] who reported on the effectiveness of training in the students' reading ability. It seems that working extensively on the same ability either using traditional or technology-driven routes positively influences the students' ability [13], which happended to the students of this study in a prolonged manner. In this regard, for the control group, working on the texts and extracting the vocabularies and structures seems to have posiitvely influenced their ability to enhance their reading comprehension. For the experiemntal group, using the links to the PDF files and the online websites seems to have enabled them to engage in personalized understandings of how to comprehend the texts.

Results of the study also indicated that the students' FLRA for the control group and experiemntal group differed in their post-tests in that the experimental group scored a lower level of anxiety. This finding is in line with the definition of anxiety as "a distinct complex of self-perceptions, beliefs, feelings and behaviors related to classroom language learning arising from the uniqueness of the language learning process" [20]. Moreover, it aligns with [5] and [16] in that training the students can positively shape their anxiety experiences. In this sense, as the experimental group could work on the texts at their convenience and when they desired, they could experience less levels of anxiety.

The above finding could also relate to the use of mobiles. As the students could use mobiles as a personalized media [8]; [10]; [11], they had access to the texts easily and across different contexts. Thus, they could devote more time to their reading and when they felt it necessary to have such a reading. [54] argues that when the students feel less pressure, they can engage in more effective learning and it seems that mobiles provide such a condition for the students to function more effectively when they want to read texts. Moreover, students can use different affordances such as dictionaries to help their comprehension. As mobiles provide such affordances, students can resort to such advancements to facilitate their understanding.

It seems that using mobiles helps the students feel less facilitative stress as compared to debilitative stress. In this regard, as students need to understand different structures, lexical items, and discoursal constructions, they can use online dictionaries and connections with other students to develop their understanding of texts. This is in line with [18] who argues that students should use available resources effectively to increase their facilitative stress. Thus, experiencing debilitative stress is to a large extent related to the students' efforts to do activities that are more likely to bring them positive outcomes and engagement in novel activities. this engagement can lessen their stress, especially in reading which is highly dependent on the students' personal understanding of texts, their mechanical features, and their overall meanings.

Conclusion

This study investigated the use of mobile technologies in reading comprehension and reading anxiety. The results of the study indicated that while the students' reading ability increased after

the treatment, the experimental groups' reading anxiety decreased. These findings show that mobiles are effective in reducing students' stress by their ability in helping the students with engaging in personal reading and devoting more time to it in their spare time.

The findings of the study can be helpful for IELTS teachers who can use mobiles in their classes. As the reading module of the IELTS exam is much likely to take time, teachers can use mobiles to help the learners improve their reading abilities and comprehension. In addition to this, nowadays, many students use mobile phones and they are already in a world full of texts of various types and in different languages. Thus, teachers can use mobiles to direct the students through exposing them to how to use mobiles in reading comprehension.

The results of the study can also be helpful for the students. They can use mobiles to enhance their reading skills by checking online dictionaries, using tolls such as Grammarly, thesauruses, and online media to negotiate and develop their reading comprehension. This also helps them improve their vocabulary and grammar accuracy. More specifically, they can function better in the IELTS exam if they develop their knowledge of different skills and sub-skills as they have already developed a knowledge base about different language components.

This study had some limitations like other studies. First, there were few students in this study. Thus, the generalizability of the findings might be at question. More research with more participants should be done to substantiate the findings of the study. Second, there were only two groups of control and experimental in this study. More research with more groups provides a better understanding of how students using different mobile technologies use mobiles in reading and how they differ. Third, it would be helpful to run a delayed post-test to see whether the effects of the mobile technology have remained after some time or not. Future researchers are suggested to conduct this delayed stage.

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