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Smartphones and Syntax: A Quantitative Study on Harnessing the Role of Mobile-Assisted Language Learning in the Digital Classroom and Applications for Language Learning

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Abstract

This study offers a comprehensive examination of the perceptions of prospective English language teachers toward the application of mobile-assisted language learning (MALL) in the language learning process. This investigation primarily delves into the respondents' perceptions of utilizing mobile learning in the 21st century language learning/teaching process, and further discusses the various applications and advantages that mobile learning has for both teachers and learners. A total of 200 participants were included in the study; 146 (73.0%) were females, 54 (27.0%) were males, and all were pursuing language major courses in education, namely: a bachelor of secondary education (BSED) major in English, and a bachelor of elementary education (BEED) degree. Age 22 represented 22.0% of the total population. The investigation also revealed that the respondents significantly believed that mobile technologies are more effective than traditional methods (57.0%), and that the language learning process should be supported by mobile-learning applications (67.5%).

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1. Introduction

Within the new frontier of education, technology has been a pivotal part of the language learning process, since it offers efficiency and accessibility to learners who are technologically equipped with mobile devices and devices. As we continue to revolutionize the learning process, the concept of utilizing technology to create a more sustainable and effective learning environment takes place; a process of attaining a language that is few clicks away through the use of applications or programs that are present in each learner's handheld devices.

The increasing rate of integrating technology in language learning is clearly visible now and then. One of the technologies used is the mobile-assisted language learning (MALL). MALL refers to the use of gadgets such as phones and tablets to learn and be proficient in language. The aim of this study was to determine the perceptions of prospective English language teachers toward MALL. The applications of MALL in language learning will also be explored by conducting a quantitative analysis. Mobile assisted language learning has risen in popularity and helped students in terms of language proficiency [1]. Furthermore, the current curriculum in various educational systems is not vast with regard to language learning. Although language learning is limited and more common than not, the subject of language learning is not integrated into any discipline; hence, exposure to and immersion in a foreign language, primarily English, are hindered. The incorporation of MALL in the language learning process, ensures that students are exposed to language, even when mobile devices are used, which is effective for learners who have little to no access to language modules in their respective schools [2].

However, there are certain limitations and challenges concerning the implementation of MALL inside the classroom setting. Concerns such as accessibility, slow internet connections, outdated and lagging phones, high costs of owning a mobile phone, and lack of technological skills in utilizing a mobile phone. These challenges have an effect on the perceptions and attitudes of both teachers and school administrators regarding considering MALL as a new alternative to language learning [3]. The significance of this investigation lies in its ability to impart understanding to curriculum developers, policy makers and teachers on how to effectively integrate mobile-assisted language learning in education to help students achieve English language proficiency. Understanding their perceptions in this investigation will contribute to a wider understanding of the potential and drawbacks of MALL. This knowledge can serve as a way to conduct future research and will lead to further development of MALL in language learning. Finally, this study contributes to the pool of related knowledge and the literature, specifically on language learning.

Research questions

This investigation seeks to address the following research questions:

1. What are the overall perceptions of prospective English language teachers toward the efficiency of utilizing mobile devices?
2. What are the overall perceptions of prospective English language teachers toward the suitability and advantages of incorporating mobile applications or online platforms
3. What are the overall perceptions of prospective English language teachers toward the how mobile applications support the language learning process?
4. Is there a significant difference in the overall perception of mobile-assisted language learning when data are grouped with respect to gender?

2. Methodology

2.1 Research design

This study employs a descriptive quantitative cross-sectional research design to investigate the overall perceptions of prospective English language teachers concerning the application of MALL in the context of education. The descriptive design is chosen for its ability to systematically describe phenomena or communities [4]. Moreover, it is also descriptive since it aims to describe prospective language teachers' perceptions through the gathered information. Furthermore, data collection involved a one-shot data gathering procedure using a survey questionnaire adopted from [5] and reviewed by [6] making it a cross-sectional study, [7]. Additionally, the study adopts a quantitative design as

it intends to quantify and measure a phenomenon or phenomena, such as the overall perception of prospective English language teachers toward mobile-assisted language learning (MALL). Moreover, a quantitative research design entails the collection of quantifiable data that can be subjected to statistical analysis [8].

2.2 Respondents

The research investigation utilized a random sampling procedure, to choose the participants. Prospective English language teachers who were enrolled in the current semester at the College of Teacher Education at Western Mindanao State University, used language majors as the inclusive sample with the common criterion of taking up language specializations. Overall, 210 students were contacted; however, only 200 participants (95.23% response rate) agreed to participate in the study, resulting in the total number of respondents. The respondents ranged from 1st to 4th year prospective English language teachers enrolled in Bachelor of Elementary Education (BEED) and Bachelor of Secondary Education (BSED) major in English, with 2nd year students representing the largest sample of responses (34.0%). Furthermore, the majority of the responses were from females (73.0%). Age of 22 represented 22.0% of the overall population, and age 24 represented the least number of participants (6.5%). Which confirms previous studies that educational courses are dominated by the female gender, and that these individuals represent more than 70% of the overall population [9][10].

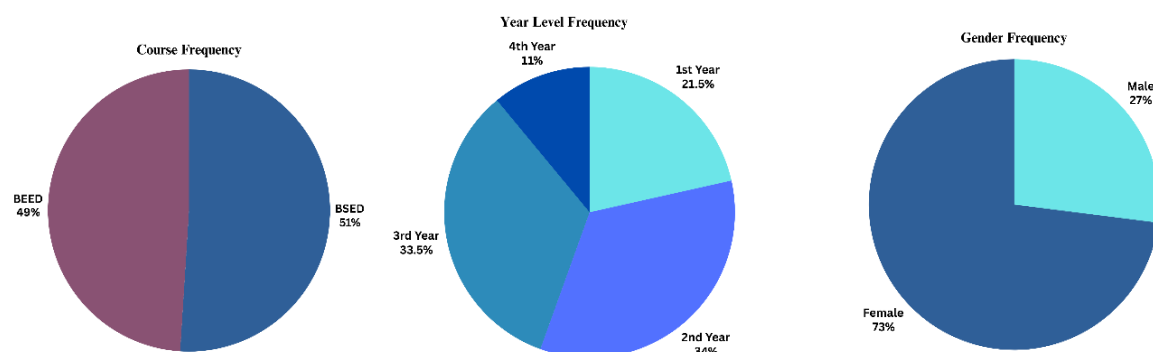


Figure 1. Demographic Distribution Chart

2.3 Research Instrument

This investigation utilized a research instrument adopted from [5] and the design was reviewed and validated through previous studies [6] to determine the overall perceptions of prospective English language teachers toward the application of mobile-assisted language learning (MALL) in the language learning process. The questionnaire first included demographic information, regarding the respondent's age, course, year and gender. Furthermore, the 26-item survey consists of three (3) sections based on a 5-point Likert scale. The three sections contain identical scaling frames for analysis.

2.4 Data Analysis Procedure

The Shapiro–Wilk test was utilized to test the normality of the distribution of the data. Since the p values generated for this study are greater than the alpha level, which is 0.05, therefore presenting normal distribution of data and exhibit a good reliability score for interpretation of the .776 Cronbach's alpha. This further indicates that parametric statistics are suitable for use [11]. Furthermore, the perceptions were analyzed across gender; thus, significant differences or p values were identified utilizing the statistical technique of Independent Sample t-test to test differences among variables.

4. Results and Discussion

This investigation primarily involved in investigating the perceptions of prospective English language teachers towards the application of mobile-assisted language learning (MALL) in the context of the language learning

process. Furthermore, the study revealed significant findings and results by utilizing descriptive and inferential statistics to systematically identify the overall perceptions of the target respondents. Moreover, the tables present the data distribution for analysis and interpretation.

The first section consists of eight (8) items that explore the framework of A-MTF, which stands for Aim-Mobile Technologies. This framework primarily focuses on the efficiency of utilizing mobile devices, such as smartphones and tablets, to facilitate effective language learning and academic instruction.

Table 1. A-MTF (Aim Mobile Technologies Fit)

Item	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		SD	Mean
	(5)		(4)		(3)		(2)		(1)			
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)		
1	M-learning tools remove the limitation of time and space											
	30	15.0	162	81.0	5	2.5	3	1.5	0	0	.477	4.10
2	Mobile-based language learning applications create effective learning-teaching environments											
	118	59.0	62	31.0	14	7.0	6	3.0	0	0	.756	4.46
3	Applications such as Messenger, Skype, Facebook and Twitter provide opportunities to use authentic language without the limitation of time and space.											
	54	27.0	132	66.0	8	4.0	6	3.0	0	0	.635	4.17
4	An effective learning environment could be provided by sending lecture notes, words and their pronunciations via M-learning tools such as e-mail, MMS or SMS.											
	60	30.0	125	62.5	9	4.5	6	3.0	0	0	.655	4.20
5	M-learning technology is an effective method in exact transmission of knowledge in learning activities.											
	86	43.0	106	53.0	5	2.5	3	1.5	0	0	.613	4.38
6	Utilization of m-learning technologies increases students' motivation towards language learning.											
	67	33.5	120	60.0	12	6.0	1	0.5	0	0	.589	4.27
7	M-learning systems increase the quality of lessons.											
	75	37.5	115	57.5	8	4.0	2	1.0	0	0	.589	4.32
8	M-learning technologies can be used as a supplement to language learning and teaching at all levels of education											
	74	37.0	115	57.5	7	3.5	3	1.5	1	0.5	.654	4.29
Overall	-	-	-	-	-	-	-	-	-	-	.621	4.27

As indicated in Table 1, the results showed positive perceptions regarding the application of mobile learning in the language learning process. For item 1, 81.0% ($M = 4.10$) of the prospective English language teachers significantly agreed that m-learning tools remove the limitations of time and space, as mobile devices offer both convenience and efficiency in regarding to accessing of information and data. The applications provide convenience as information can be easily acquired and disseminated, removing potential limitations such as reading numerous texts from books through traditional means, and relying on teachers to receive essential knowledge on language. Item 6 revealed that 60.0% ($M = 4.27$) of the overall population agree that utilizing m-learning tools significantly increased their motivation in the language learning process, as students are more inclined in the manipulation of mobile devices for learning. It reduces additional costs, such as buying books and saves ample time, as information can be downloaded and acquired; thus, increasing individuals' motivation to learn by decreasing limitations in the language learning process.

Additionally, for item 4, 62.5% ($M = 4.20$) of the respondents confirmed the efficiency of utilizing mobile devices for language learning, as teachers can conveniently disseminate lectures and crucial notes to students with a few clicks through their phones, emails, SMS and MMS. This method of convenience provides a modernized outlook for acquiring and receiving information, that is both cost and time-efficient [12]. As education continues to be intertwined with technology and mobile devices, the integration of mobile learning continues to be a pivotal approach for ushering in a more effective and excellent means of acquiring a language [10].

The second section contains nine (9) items and integrates the same scaling frame. This framework focuses on AB, – Appropriateness of Branch, which examines the suitability and advantages of incorporating mobile applications or online platforms to facilitate the language learning process.

Table 2. AB – Appropriateness of Branch

Item	Strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)		SD	Mean
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)		
1	I can use M-learning applications in order to help my students to get motivated to participate in language learning activities.											
	43	21.5	145	72.5	8	4.0	4	2.0	0	0	.564	4.14
2	M-learning applications facilitate language learning and teaching.											
	98	49.0	94	47.0	7	3.5	1	0.5	0	0	.591	4.45
3	M-learning applications serve a good method in the target language learning and teaching.											
	78	39.0	112	56.0	7	3.5	2	1.0	1	0.5	.640	4.32
4	Thanks to mobile technologies, I can have a prompt access to the language teaching/learning materials that I need.											
	60	30.0	125	62.5	9	4.5	6	3.0	0	0	.655	4.20
5	M-learning applications are reliable for personal use.											
	86	43.0	106	53.0	5	2.5	3	1.5	0	0	.613	4.38
6	M-learning application is a good method for the interaction, which is necessary in language classes											
	67	33.5	120	60.0	12	6.0	3	1.5	0	0	.609	4.36
7	M-learning applications are convenient to share some useful language teaching tasks with my colleagues.											
	66	33.0	124	62.0	8	4.0	2	1.0	0	0	.582	4.27
8	I would like to supplement my classes in future with M- learning method.											
	68	34.0	123	61.5	7	3.5	3	2.0	0	0	.579	4.29
9	M-learning applications provide a convenient environment to have discussions about language learning and teaching topics.											
	73	36.5	118	59.0	3	1.5	5	2.5	1	0.5	.668	4.29
Overall	-	-	-	-	-	-	-	-	-	-	.611	4.28

As indicated in Table 2, the results showed positive perceptions regarding the appropriate application of mobile learning in the language learning process. For item 1, 72% ($M = 4.14$) of prospective English language teachers significantly supported the notion that M-learning applications can help students be motivated to participate in language learning activities. These findings are consistent with a study showing that M-learning holds the greatest promise for use in education and can promote English learning apps as a useful complement to language learning [13]. In item 4, 60% ($M=4.31$) of the population presented a positive outlook that mobile technologies provide access to the language teaching/learning materials needed. This highlights a significant notion that mobile learning devices are preferred due to their efficiency and convenience in accessing vital information. These mobile devices are able to instantaneously connect to the internet, acquire crucial information and provide effective communication for students who require guidance from teachers and tutors.

Correspondingly, item 7 revealed that 62% ($M=4.27$) of the participants agreed that M-learning applications are convenient for sharing some useful language teaching tasks with their colleagues. MALL applications enable students to practice the target language via real-world and relevant tasks, promoting learners' cognitive processes and enhancing their self-confidence and motivation [14]. In item 8, 61.5% ($M=4.29$) of the sample agreed that they would like to supplement the M-learning method in the future. A paper presented M-learning as the next generation of e-learning, emphasizing easy access that can enhance learning opportunities when applied in a classroom setting. On the same note, on item 9, 59% ($M=4.29$) of the respondents agreed that M-learning applications provide a convenient environment for discussion about language learning and teaching topics.

The third section also consists of nine (9) items that focus on classifying various mobile learning applications and programs to determine which formats are best suited for language learning and teaching. Correspondingly, the

framework evaluates how mobile applications support the language learning process and provide authentic learning experiences to students/learners.

Table 3. FMA and TSAC (Forms of M-learning Application & Tools' Sufficient Adequacy of Communication)

Item	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		SD	Mean	
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)			
1	Language learning and teaching process should be supported with mobile-learning applications.												
	53	26.5	135	67.5	6	3.0	6	3.0	0	0	.622	4.18	
2	M-learning applications can be used to supplement the traditional education												
	93	46.5	95	47.5	7	3.5	5	2.5	0	0	.677	4.38	
3	Mobile language learning applications can generate real-world, communicative tasks for language learners.												
	68	34.0	126	63.0	4	2.0	2	1.0	0	0	.558	4.30	
4	Teacher-student communication is facilitated by means of m-learning tools.												
	61	30.5	127	63.5	7	3.5	5	2.5	0	0	.627	4.22	
5	Communication is possible in chat programs by means of mobile technologies.												
	79	39.5	107	53.5	8	4.0	5	2.5	1	0.5	.706	4.29	
6	Course materials can be sent to students via MMS.												
	59	29.5	133	66.5	4	2.0	4	2.0	0	0	.584	4.24	
7	Student-student communication is facilitated by means of M-learning tools.												
	78	38.0	117	58.5	6	3.0	1	0.5	0	0	.609	4.33	
8	Learners can access the instructional websites with mobile technologies												
	76	38.0	117	58.5	6	3.0	1	0.5	0	0	.562	4.34	
9	Students can have more effective communication with mobile technologies than traditional methods.												
	72	36.0	114	57.0	8	4.0	5	2.5	1	0.5	.695	4.26	
Overall	-	-	-	-	-	-	-	-	-	-	.626	4.28	

As presented in Table 3, the results portray positive responses, regarding the significance of mobile learning in facilitating effective communication of information and dissemination of learning materials for language learning. For item 1, 67.5% ($M = 4.18$) of the participants generally agreed that the language learning/teaching process should be supported through mobile-learning applications; due to the efficient nature of mobile devices in acquiring crucial information needed for language learning, such as learning materials that offer new and authentic learning experiences for students. Moreover, it saves the time of both teachers and students, as information and lessons can be accessed with a few clicks on their respective mobile devices. Potential limitations such as time restrictions and unnecessary costs in exchange for information should be removed [3].

Information is accessible for both learners and teachers, and facilitates self-directed and independent learning [14]. Moreover, in item 3, 63.0% ($M = 4.30$) of the overall population agreed that mobile learning applications can generate real-world, communicative tasks for language learners. This is where mobile applications provide new and authentic tasks for learners who are not found within traditional textbooks and lectures. It offers updated and improved activities that are timely and relevant in 21st century education. In parallel, 57.0% ($M = 4.26$) of the respondents agreed that students can communicate more effectively with mobile technologies than with traditional methods.

In the modernized era, learners can access learning materials and courses that are not offered within the present curriculum, can acquire information from different credible sources and can interact with other nationalities to further enhance their language skills [15]. Overall, the majority of the language teachers had positive perceptions ($M = 4.28$) of how MALL provides effective communication in acquiring and delivering significant information to learners, which is crucial in the language process.

Table 4. Independent Sample T-test of Variables across Gender

Items	Independent Variable	Dependent Variable (Gender)	Mean	SD	p value	t value	Interpretation
1	A-MTF (Aim Mobile Technologies Fit)	Male Female	4.27 4.28	0.324 0.298	0.194	1.32	Not Significant
2	AB – Appropriateness of Branch	Male Female	4.34 4.27	0.223 0.280	0.106	1.66	
3	FMA and TSAC (Forms of M-learning Application & Tools' Sufficient Adequacy of Communication)	Male Female	4.35 4.25	0.207 0.326	0.061	1.91	
Overall	-	-	-	-	-	-	

As shown in Table 6 the results and the responses after being clustered based on gender (male and female), showed no significant difference. To simplify, the results show that gender has a neutral effect pertaining on the individual responses of prospective English language teachers in the present study. Moreover, it can be inferred that regardless of gender, the respondents have overall positive perceptions of MALL in the context of the language learning process. The presented Table offers insights into the survey results conducted across three distinct categories, dissected by gender. Notably, Category 1, labelled "A-MTF (Aim Mobile Technologies Fit)" was the category with the highest p-value ($p=0.194$). In category 2, "AB – Appropriateness of Branch" had the second highest p-value ($p=0.106$). Finally, in category 3, labelled "FMA and TSAC (Forms of M-learning Application & Tools' Sufficient Adequacy of Communication)" achieved the lowest p-value ($p=0.061$). Therefore, these findings collectively imply that there is no statistically significant difference in the overall responses of male and female prospective English teachers regarding their perceptions of the aim of mobile technologies [12].

5. Conclusions and Recommendations

This investigation revealed critical and crucial results on the perceptions of prospective English language teachers toward the application of mobile-assisted language learning (MALL) in the context of the language learning process. As portrayed, the need for technologically competent and skilled teachers in the language learning/teaching process is apparent. The majority of the respondents positively identified the numerous advantages and merits that mobile learning could provide to learners when it was incorporated into the learning process. It offers access to various sources of information, promotes self-directed and independent learning, provides students with the flexibility to learn at their own pace, and eases the financial burden of both teachers and learners as it is cost-effective. The study's recognition of mobile learning as a contemporary supplement to traditional methods highlights a paradigm shift in educational strategies. The acknowledgment of mobile technology's potential to enrich language education not as a replacement but as an enhancement signifies a pedagogical evolution. This perspective reflects a balanced approach to education, recognizing the strengths of both traditional and tech-enabled methodologies, and ensuring a more comprehensive and adaptable educational ecosystem [16]. The study's recognition of the plethora of advantages that MALL offers learners is pivotal. Additionally, the financial benefits of mobile learning cannot be overstated. The cost-effectiveness inherent in MALL not only reduces the financial burden on both teachers and students but also equalizes access to quality educational resources. Mobile devices eliminate the need for costly textbooks and extra materials, helping students learn more fairly and providing better access to excellent education [17]. Effective communication is enhanced through the incorporation of mobile learning technologies, as such communication transcends beyond the limitations of simply transferring information. Course materials and tasks can be disseminated, containing multimedia and voice records, to support and guide learners [18] [19] [20].

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