

ROLE OF STUDENT'S ACCEPTANCE OF TECHNOLOGY AND TEACHER'S SUPPORT OF MOBILE ASSISTED LANGUAGE LEARNING

Raheela Khizar
raheelakhizar620@gmail.com

MPhil Scholar, Department of English Language &
Linguistics, University of Sargodha, Pakistan.

Azhar Pervaiz

Associate Professor, Department of English Language &
Linguistics, University of Sargodha, Pakistan

Abstract

The principal aim of the study was to investigate Pakistani higher education students' perception regarding teachers' support (Behaviour support, capacity support, and affective support for teachers) exist in fostering MALL adoption. The study was designed to explore the role of student's acceptance of technology and teacher's support of MALL in Pakistani higher education. To attain this aim, quantitative research attitude and survey method were used in the study. The respondents of the study were all male and female students of university of Sargodha enrolled in English language. Convenient sampling was used to select the research participants from university of Sargodha. Total 101 participated in the study. Structured questionnaires based on a 5-point Likert scale were used. Adapted questionnaires from Hoi, and Mu (2021) were used as pertinent instruments to gather data from the participants. Descriptive stats, percentages, standard deviations, mean, frequencies were used in inspecting data and concluding the study results. This research has consistently shown a positive correlation between Teachers' support and students' perceived usefulness and perceived ease of use of MALL. The study concludes that teacher support and the Technology Acceptance Model's components are crucial for encouraging the successful implementation of MALL in Pakistani higher education.

Keywords: *Cell Phone Technology, MALL, Teachers' Support, Technology Acceptance Model.*

Corresponding Author: Raheela Khizar (MPhil scholar, Department of English Language & Linguistics, University of Sargodha , Pakistan)

Email: raheelakhizar620@gmail.com

1. Introduction

Education on a global scale has changed as a result of the widespread use of mobile technology, opening doors for adaptable, interactive, and student-driven methods of instruction. Mobile-Assisted Learning Language (MALL), which allows students to practice their linguistic abilities outside of the classroom using applications, internet platforms, and digital technologies, has proven particularly beneficial for language acquisition. The studies on the effects of incorporating cell phone technology into academic English as a foreign language (EFL) programs, students gained knowledge of terminology (Fouz-González, 2017) they felt more confident in their capacity to learn (Lin, 2014; Chang & Hsu, 2011). According to scholars such as Huang and Lin (2012), MALL is a helpful tool for language acquisition through technology. Additionally, by establishing collaborative groups and developing various learning strategies, MALL facilitates students' interactions with other students (Joseph & Uther, 2009). With the advancement of technology, using MALL features to teach English Lin, 2014 have become common in many nations.

In numerous national educational environments MALL driven apps have been examined, including Iran (Baleghizadeh & Oladrostam, 2010), Malaysia (Gabarre & Gabarre, 2010), Saudi Arabia (Al-Jarf, 2012), China (Wu, 2018), Taiwan (Lin & Yu, 2012), Russia (Titova & Danilina, 2018), Vietnam (Hoi, 2020), Turkey (Loewen et al., 2019). In a Chinese postsecondary EFL environment, Wu's (2018) study discovered that task-centered MALL-driven practices led to sophisticated and significant conversations among students. Nevertheless, Klimova's (2018) research investigation discovered that while "the usage of handheld devices and/or touchscreen devices and their applications result in beneficial effects on the instruction of English as a foreign language, particularly with regard to the improvement of learners' linguistic skills and their increased enthusiasm to study" (p. 1091), there are numerous challenges, including a lack of educative justifications, high device costs, and a lack of human interaction. In contrast to technological considerations, some theorists (e.g., Hoi, 2020; Morchid, 2019; Hsu, 2013) assert that the children's perspectives, preferences, and perceptions of MALL are psychological elements that affect its success. Thus, all-encompassing models are employed, such as the Unified Theory of Acceptance and Use of Technology (UTAUT), which unifies all the technical, social, and neurological facets of mobile learning and instruction into a single structure (Kukulska-Hulme et al., 2017; Venkatesh et al., 2003). Furthermore, these models illustrate the complex link between MALL deployment and instructional performance.

As Kukulska-Hulme (2013) also states, MALL refers to the utilization of mobile devices such as laptops, tablets, and smartphones due to their portability and ability to facilitate impromptu and customized language learning strategies. Portable devices like

computers, tablets, and even cell phones can make it easier and more efficient to access comprehensive, practical, and multi-context learning content (Kukulska-Hulme and Shields, 2008; Huang et al., 2012). Mobile assisted language learning is the process of learning and improving a second language through the use of mobile devices, such as smartphones and Android phones. Research from Asia and beyond has shown that MALL promotes self-directed learning, increases learner motivation, and offers genuine input (Stockwell and Hubbard, 2013; Kukulska-Hulme, 2020). Higher education institutions in Pakistan are gradually incorporating technology into instruction and learning, particularly in language based programs where competency is essential for both academic achievement and employability. Nevertheless, MALL adoption is still uneven. Despite the widespread usage of mobile phones, their pedagogical use for language acquisition is underutilized because of institutional, cultural, and infrastructure barriers.

Furthermore, no research has been done in Pakistan especially on MALL acceptability, despite the fact that technology acceptance frameworks like the Technology Acceptance Model (TAM) have been widely used to investigate technology uptake in education.

However, students' use of technology and teacher assistance are key factors in effectiveness of these strategies. Thus, it's critical to comprehend the variables affecting technology adoption. In learning environments that are improved by technology, teachers play a crucial role as facilitators. Their assistance influences students' motivation and readiness to embrace new learning strategies in addition to making it easier for them to access and comprehend mobile technology. Despite this, learners' perceptions on how teacher support influences their adoption of MALL have seldom been examined in Pakistani studies with the exception of few studies. In the subject of technological innovation, the TAM is a crucial paradigm that aims to describe how consumers accept and utilise technology. It was created by Fred Davis in 1989 and is predicated on Fishbein and Ajzen's (1975) theory of reasoned action (TRA). TAM has grown to be one of the fundamental concepts for comprehending how people accept and utilise technology. TAM is still a key paradigm for comprehending technological adoption regardless of these objections. It is a helpful tool for the technological academics and practitioners due to its simplicity and emphasis on the key components of perceived utility and ease of use.

By using the extended TAM and adding teacher support (affective, capacity, and behaviour) as an external construct, this study aims to close this gap by examining Pakistani higher education students' acceptance of MALL particularly from University of Sargodha.. The findings will advance theory and practice by shedding light on how learners' views of technology uptake are influenced by teacher assistance and by giving evidence-based suggestions for improving mobile technology compliance in Pakistani institutions. The aim of this study is to **extend Technology Acceptance Model (TAM)**

by incorporating teacher support (affective, capacity, and behavior) as an external factor to explain Pakistani students' acceptance of MALL. Using the expanded TAM paradigm, this study will fill this gap by examining how Pakistani students see teacher assistance in MALL uptake. By doing this, it will provide useful insights for improving technology integration in Pakistani higher education language programs in addition to making a theoretical contribution by testing TAM in a novel setting. Research objectives of this study are to:

1. explore the exploratory power of TAM in Teachers' support as an external factor in Pakistani Higher Education?
2. explore the level of higher education students' perception regarding teachers' support (Behaviour support, capacity support, and affective support for teachers) exist in fostering MALL adoption.
3. examine the influence of teachers' support (Behaviour support, capacity support, and affective support for teachers) on students' perceived usefulness and perceived ease of use of MALL.
4. determine relationships among perceived usefulness, perceived ease of use, and behavioral intention in the Pakistani context.

Whereas the research questions of the study are:

1. To what extent does the exploratory power of TAM exist in Teachers' support as an external factor in Pakistani Higher Education?
2. To what extent does higher education students' perception regarding Teachers' support exist in fostering their MALL adaption?
3. To what extent does the teacher support influence students' perceived usefulness and perceived ease of use of MALL?
4. What are the levels of relationship among perceived usefulness, perceived ease of use and behavioral intention in the Pakistani context?

2. Literature Review

The field of educational instruction has also been transformed by technology. In contemporary nations, the use of technology in educational institutions is becoming the norm. Computers, smart boards, and multimedia are a few of the popular tech tools utilized in classrooms. Although mobile phones were originally designed for communication, the development of Android technology, internet capabilities, and social networking has altered how mobile phones are used globally. Since L2 learners may readily access a vast array of language learning applications, video casting, and news sources, mobile learning offers an edge over traditional learning. According to Delambo et al. (2011), MALL allows students to actively participate in a socialising exercise through language acquisition and competency development. Furthermore, it uses a scientific learning approach to give students practical assistance in applying their information in a real-world setting (Taradi

& Taradi, 2016). Researchers as well as educators in the realm of education for the English language frequently utilize a wide range of acronyms to refer to the many teaching and learning situations, resources, and methodologies. Ideas like computer-assisted language learning (CALL) and mobile-assisted language learning (MALL), which highlight the use of digital gadgets and platforms in language instruction, demonstrate how important technology is in this field (Ahmadi, 2018; Gilakjani, 2017). Alternatively, phrases like English as a Foreign Language (EFL), English as a Second Language (ESL), and English for Speakers of Other Languages (ESOL) draw attention to the circumstances in which those who are not native speakers of English learn the language. English language education's instructional component is given more weight by related terms like Teaching English as a Second Language (TESL), Teaching English to Speakers of Other Languages (TESOL), and Teaching English as a Foreign Language (TEFL) (Margana, 2016).

Computer Assisted Language Learning appears to be one of the most popular areas of interest when it comes to digital language learning. Computer-based language teaching and learning activities are often covered under CALL (Levy, 1997). It was an excellent choice for language acquisition because of its capacity to deliver learning exercises in a way that would keep students interested in the process (Huang & Lin, 2012). According to its tenets, behaviorist principles supplemented with programmed learning dominated CALL's early years. However, it appears that today's CALL implementations combine a variety of educational ideas with technology affordances (Jarvis & Achilleos, 2013). CALL integration has been widely used, particularly in EFL situations, to integrate teaching and real-life interaction side by side (Bottino, 2004). According to its very nature, CALL must be up to date with the most recent requirements and issues that instructors and students encounter. As a result, MALL has distinguished itself with traits like adaptability, which promotes ubiquitous learning by meeting demands. MALL's usage of accessible and individual devices allows for "an ongoing or fluidity of access and engagement across multiple settings of use" Kukulska and Shield (2008). Rodriguez, Arüs, and Calle-Martinez (2013) defined the spectrum of handheld electronics as phones, PDAs, and tablets. A subset of mobile learning, or m-learning, known as mobile-assisted language learning (MALL) is generally considered to concentrate on the study and practice of second or foreign languages using mobile devices, including tablets, cell phones, personal digital assistants and, more recently, wearable technology. MALL includes a broad range of activities, such as using apps for individual instruction in vocabulary or group projects facilitated by AR technology, video conferencing, or instant messaging. MALL differs from previous CALL approaches not just because of the technology but also because of educational outcomes and learner accessibility.

In a Chinese postsecondary EFL environment, Wu's (2018) study discovered that task-centered MALL-driven practices led to sophisticated and significant conversations

among students. Nevertheless, Klimova's (2018) research investigation discovered that while "the usage of handheld devices and/or touchscreen devices and their applications result in beneficial effects on the instruction of English as a foreign language, particularly with regard to the improvement of learners' linguistic skills and their increased enthusiasm to study" (p. 1091), there are numerous challenges, including a lack of educative justifications, high device costs, and a lack of human interaction. In contrast to technological considerations, some theorists (e.g., Hoi, 2020; Morchid, 2019; Hsu, 2013) assert that the children's perspectives, preferences, and perceptions of MALL are psychological elements that affect its success. Thus, all-encompassing models are employed, such as the Unified Theory of Acceptance and Use of Technology (UTAUT), which unifies all the technical, social, and neurological facets of mobile learning and instruction into a single structure (Kukulska et al., 2017; Venkatesh et al., 2003). Furthermore, these models illustrate the complex link between MALL deployment and instructional performance.

Students' utilization and acceptance of MALL in informal as well as formal educational settings can be influenced by teachers' requirements, suggestion, instruction, and demonstration regarding particular mobile apps, online resources, and learning languages techniques (Botero et al., 2019). However, the majority of research to date has concentrated on the attitudes, perceptions, behavioral intentions, and application of particular techniques in teachers' own formal, in-class instructional techniques (Brown and Mathers, 2016). The function of instructors in linking for both formal and informal learning situations through MALL implementation has not been well studied. The formal-informal connection is important because students whose regular utilisation of handheld devices in casual learning of language environments greatly influences their learning experiences and requirements may not benefit from teachers' use of MALL in formal educational contexts (Kukulska-Hulme & Traxler, 2019). As a result, the focus of the next section is on language learners who work in a variety of settings.

Using an experimental methodology, Ali et al. (2020) conducted a research to investigate the influence of MALL on the learning of vocabulary of ESL learners. They demonstrated that MALL is an effective and significant strategy when compared to other approaches. Additionally, it demonstrated how MALL enhances vocabulary acquisition in ESL contexts. Additionally, a study by Ali et al. (2019) examined formal ESL learners' attitudes and opinions towards MALL. The study found that since Pakistani students valued this innovation in education, MALL is a beneficial shift for them and may be used in local learning environments. The use of MALL for teaching grammar and fostering grammatical comprehension is examined by Ali, Gulzar, and Anwar (2018). It was an experimental investigation. The two groups' performances demonstrated that MALL improves students' grammatical understanding. Similarly, an opinion survey conducted by

Ali, Malik, and Rehman (2016) revealed that Pakistani students really value and accept MALL. According to Pervaiz et al. (2022) MALL has become an emerging generation technological advances for community students. According to research by Naz et al. (2023), incorporating mobile technology into the classroom may greatly enhance learning results, which in turn promotes financial development and greater standards of living. Additionally, while mobile learning is student-centered and engaging, excellent teaching practices are essential to optimizing its advantages. When they can immediately use what they discover in the classroom, teachers will experience the most benefits from ongoing professional growth (Sarhandi et al., 2016). An appropriate example is Pakistan, a lower-middle-income nation in Asia. Pakistan has an environment that is ideal for learning via mobile devices, with 90% of the population using mobile phones and a thriving mobile phone sector. Pakistan is now the tenth most mobile phone-subscribing country in the world due to the sharp rise in mobile phone usage across all age groups. Because mobile technology is so widely available, Pakistan may be able to use mobile learning to enhance education. Lai (2015) found that students' use of technology for independent L2 learning was impacted by three different forms of teacher support: affiliation support, capacity support, and behavior support. Based on these results, Hoi and Mu (2021) developed an empirical framework that may explain how students' MALL involvement might be impacted by these three kinds of teacher assistance. According to this, students have "high standards for teachers' active roles in directing and facilitating their language proficiency via handheld gadgets both in and outside the classroom" (p. 891). Teacher inspiration, reassurance, and psychological assistance are all components of affective support. According to Lai (2015), the learners feel more comfortable and eager for exploring MALL when their teachers encourage them to utilise mobile gadgets. Teachers who offer resources, language applications, learning methodologies, and technological assistance are said to be offering capacity support. This assistance enhances students' proficiency with mobile technologies and aids them in navigating digital resources. Incorporating mobile activities into lectures, showcasing applications, and modelling the use of handheld gadgets in classrooms are all examples of behavioral support. Students' perceptions of the value and viability of mobile learning are strengthened by such modelling (VO & Mu, 2021).

TAM has grown to be one of the fundamental concepts for comprehending how people accept and utilise technology. TAM is still a key paradigm for comprehending technological adoption regardless of these objections. It is a helpful tool for the technological academics and practitioners due to its simplicity and emphasis on the key components of perceived utility and ease of use. TAM ensures that technical breakthroughs are not only produced but also properly utilised by offering viewpoints on the user's perspective, which aids in effective incorporation of technology in numerous

sectors. The study design and hypothesis testing were guided by the Technology Acceptance Model–TAM (Davis, 1985, 1989). In the subject of technological innovation, the Technology Acceptance Model (TAM) is a crucial paradigm that aims to describe how consumers accept and utilise a technology. It was created by Fred Davis in 1989 and is predicated on Fishbein and Ajzen's (1975) theory of reasoned action (TRA). TAM has grown to be one of the fundamental concepts for comprehending how people accept and utilise technology. TAM is still a key paradigm for comprehending technological adoption regardless of these objections. It is a helpful tool for the technological academics and practitioners due to its simplicity and emphasis on the key components of perceived utility and ease of use. TAM ensures that technical breakthroughs are not only produced but also properly utilised by offering viewpoints on the user's perspective, which aids in effective incorporation of technology in numerous sectors. The study design and hypothesis testing were guided by the Technology Acceptance Model–TAM (Davis, 1985, 1989). According to the TAM, perceived usefulness and perceived ease of use are the two main factors that influence behavioral intention. Behavioral intention is the capacity of learners to use mobile devices in the future. Perceived usefulness relates to an individual's conviction that adopting a certain technology or system might improve their job-related performance. According to Davis (1985, 1989), perceived ease of use is the apparent ease with which a person uses a technology or system.

Even though TAM has been utilized extensively throughout the world to explain MALL acceptance, there isn't enough empirical study done in Pakistani higher education, especially when it comes to teacher support as an influential factor. The majority of research conducted in Pakistan has been on how pupils generally perceive mobile learning or on infrastructure issues; the mediating function of instructors has not been well investigated. The expanded TAM framework, which incorporates teacher assistance and is applied to ESL students at Pakistani universities is validated in this study in an effort to close this gap.

3. Research Methodology

The study employed a quantitative paradigm as its research design. The efficacy of MALL was evaluated by college students using a survey on a Likert scale with five ratings. The results suggested that MALL might aid in the study of EFL students. They could feel more confident if they use mobile gadgets to learn English. Furthermore, the study indicated that MALL might help create an inviting atmosphere for English language education in Pakistani schools.

Quantitative methods with survey design was used in the study. A quantitative research technique was used to examine the importance of teacher support in Pakistani higher education as well as students' acceptance of MALL. Because it allowed the researcher to gather numerical data and conduct a methodical, objective analysis of

students' perspectives, the quantitative approach proved suitable. Through survey, university students were given a structured questionnaire based on teacher support factors and the TAM. The researcher was able to effectively collect responses from a sizable number of participants and analyse trends, degrees of agreement, and correlations between the variables. Frequencies, percentages, and average scores were among the statistical approaches in SPSS that were used to analyse the gathered data in order to produce accurate and quantifiable results on teacher support and technology adoption.

The study was comprised of two groups

1. All the male students studying in BS English at university of Sargodha
2. All the female students studying in BS English at university of Sargodha

Students studying in BS English at university of Sargodha were selected through multistage sampling.

This sampling was carried out according to the following steps

1. First of all, from all the departments of University of Sargodha, Department of English was selected purposively.
2. From 2000 students studying at graduate level, 101 (50 male and 51 female) students were selected conveniently.

To collect the data from respondents, two questionnaires were adapted; Questionnaire on TAM (Technology Acceptance Model) and Teachers' support was adapted from previous studies on MALL from Hoi, & Mu (2021). Necessary modifications were made to make it appropriate for Pakistani context. The detail of questionnaires is as follows: There were three factors in i.e. in perceived usefulness; 5 statements were included whereas in perceived ease of use; 7 statements were included. In behavioral intention; 4 statements were included. TAM were categorized according to the following criteria:

If,

Range score = 1 - 16 = Lower

Range score = 17 - 32 = Low

Range score = 33 - 48 = Moderate

Range score = 49 - 64 = High

Range score = 65 - 80 = Higher

There were three factors in teacher affective support; 2 statements were included whereas in Teacher capacity support there were also 2 statements. In teacher behavior support; 2 statements were included. To categorize the teachers' support a criterion was set. This criterion is given as follows:

If,

Range score = 1 - 6 = Lower

Range score = 7 - 12 = Low

Range score = 13 - 18 = Moderate

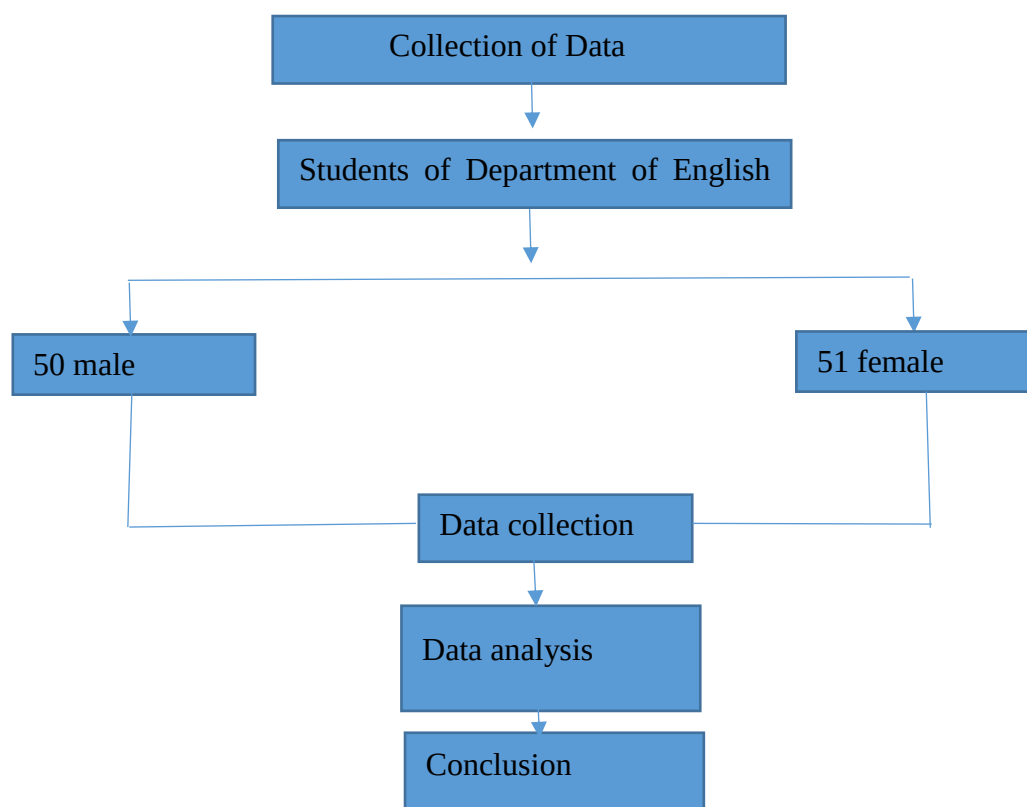
Range score = 19 - 24 = High

Range score = 25 - 30 = Higher

For this research questionnaire were rated using point 5 Likert scale (1=Strongly Disagree, 2= Disagree, 3= Undecided, 4= Agree, 5= Strongly Agree). The Likert scale was used to measure the perception regarding MALL.

Data were collected using survey questionnaires. Questionnaires for students were administered through self-visits for collecting the data. Respondents were 101 in number including 50 male students, 51 female students selected through convenient sampling. Questionnaires containing demographic information were handed over to 110 respondents available on personal basis. From which the response from the students was 91.81%, from male 49.50% and 50.49% from female. It was very challenging to gather the data from the students both male and female. According to them they had a lot of academic tasks which they have to fulfill with strict schedule. Respondents were highly cooperative. This cooperation showed their interest in fostering MALL and teacher support in higher education in Pakistan.

Regression test was used to check the impact of perceived usefulness and perceived ease of use on students' behavioral intention of students in adapting MALL and *Pearson correlation* to check Relationship between Teachers' support and perceived usefulness. Descriptive statistics, inferential statistics, correlation analysis, regression analysis and collinearity were applied.



Technology Acceptance Model levels were distributed into five levels. The range given to each level is as follows if,

Range score = 1 - 16 = Lower

Range score = 17 - 32 = Low

Range score = 33 - 48 = Moderate

Range score = 49 - 64 = High

Range score = 65 - 80 = Higher

Q: To what extent does the exploratory power of TAM exists in Teachers' support as an external factor in Pakistani Higher Education?

Table 1: Levels of Technology Acceptance Model

Level	Range score	Frequency	Percent	Mean	SD
Lower	1-16	2	2%	4.07	.73
Low	17-32	1	1%		
Moderat	33-48	8	8%		
High	49-64	66	66%	4.07	.73
Higher	65-80	24	40%		
Total		102	100%		

In this table it is showed that overall 66% students having frequency 66 showed high level towards Technology acceptance model while 40% students having frequency 24 showed higher level response with mean score=4.07 and SD=.73 towards Technology acceptance model, whereas 8% students having frequency 8 showed moderate response towards Technology acceptance model. Moreover, only 1% of the students with frequency 1 showed low level towards Technology acceptance model. This shows the trend that students showed high response towards the acceptance of technology model in incorporating the mobile assisted language learning in Pakistani higher Education system.

Table 2: Statement analysis of TAM

Statement	SA F%	AGF%	UND F%	DA F%	SDA F%	Total F%	Mean	SD
Total of Perceived Usefulness	81 16 %	291 57%	85 17%	25 5%	23 5%	505 100%	3.75	0.94
Total of perceived ease of use	103 15%	401 57%	111 16%	50 7%	27 4%	707 100%	3.75	.94
Total of	69	226	78	14	17	404	3.74	0.90

behavioral intention	17%	56%	19%	3%	4%	100%		
----------------------	-----	-----	-----	----	----	------	--	--

This table shows that overall, many (73%) of students having mean score=3.75 and SD=.94 agreed towards the factor perceived usefulness (PU) of handheld devices in learning language. This shows the trend that perceived usefulness is an important factor of Technology Acceptance Model (TAM). Overall, many (72%) of students having mean score=3.75 and SD=.94 agreed towards the factor perceived ease of use (PEU) of handheld devices in learning language. This shows the trend that perceived ease of use is an important factor of technology acceptance model (TAM). Overall, many (73%) of students having mean score=3.74 and SD=.90 agreed towards the behavioral intention (BI) of handheld devices in learning language. This shows the trend that behavioral intention is an important factor of technology acceptance model (TAM).

Teachers' support levels were distributed into five levels. The range given to each level is as follows if,

Range score = 1 - 6 = Lower

Range score = 7 - 12 = Low

Range score = 13 - 18 = Moderate

Range score = 19 - 24 = High

Range score = 25 - 30 = Higher

Q: To what extent does higher education students' perception regarding Teachers' Support exist in fostering their MALL adaption?

Table 3: Levels of Teacher's Support

Level	Range score	Frequency	Percent	Mean	SD
lower	1-6	2	2%		
Low	7-12	3	3%		
Moderate	13-18	8	8%	4.18	
High	19-24	49	49%		
Higher	25-30	39	39%		.85
Total		102	100%		

In this table it is showed that overall 49% students having frequency 49 showed high level towards Teachers' support while 39% students having frequency 39 showed higher level response with mean score=4.18 and SD=.85 towards Teachers' support, whereas 8% students having frequency 8 showed moderate response towards Teachers' support. Moreover, only 3% of the students with frequency 3 showed low level towards Teachers' support.

This shows the trend that students showed high response towards the Teachers' support in incorporating the support of teachers as an external factor in Technology Acceptance Model in Pakistani higher Education system.

Table 4: Statement analysis of Teacher's support (Behaviour support, capacity support, and affective support for teachers)

Statement	SA F%	AG F%	UND F%	DA F%	SDA F%	Total F%	Mean	SD
Total	144 24%	337 56%	76 13%	21 4%	28 5%	606 100%	3.90	0.95

This table shows that overall, majority (80%) of students having mean score=3.90 and SD=.95 agreed towards the factor teacher's support in learning language. This shows the trend that teacher's support is an important factor.

Relationship between Teachers' support and perceived usefulness is given below:

Q: To what extent does teacher support influence students' perceived usefulness and perceived ease of use of MALL?

Table 5: Relationship between Teachers' support and perceived ease of use

	Mean	Std. Deviation	Pearson Correlation	Sig. (2-tailed)
Teacher support	23.4257	4.78821		
Students' perceived ease of use of MALL	26.2772	4.98020	.775* .000	

This table shows that the Pearson Correlation coefficient value is .775^{**}. As p value is greater than .000 which shows that there is strong and reliable relationship between Teachers' support and Students' perceived ease of use of MALL. Hence Null hypothesis H₀₁= there is no significant relationship between Teachers' support and Students' perceived ease of use of MALL is not accepted. This shows the trend that as Teachers' support increases Students' perceived ease of use of MALL also increases and vice versa.

Relationship between Teachers' support and perceived usefulness is given below:

Table 6: Relationship between Teachers' support and perceived usefulness

	Mean	Std. Deviation	Pearson Correlation	Sig. (2-tailed)
Teacher support	23.4257	4.78821		
Students' perceived usefulness of MALL	8.7822	3.70298	.772* .000	

This table shows that the Pearson Correlation coefficient value is .772^{**}. As p value is greater than .000 which shows that there is significant/ strong and positive relationship between Teachers' support and students' perceived usefulness of MALL. Hence Null hypothesis H_{01} = there is no significant relationship between Teachers' support and students' perceived usefulness of MALL is not accepted. This shows the trend that as Teachers' support and students' perceived usefulness of MALL also increases and vice versa.

Relationship between perceived usefulness and perceived ease of use on students' behavioral intention is given below

Q: What are the levels of relationship among perceived usefulness, perceived ease of use, and behavioral intention in the Pakistani context?

H_{01} = There is no significant impact of perceived usefulness and perceived ease of use on students' behavioral intention of students in adapting MALL.

Table 7: Regression analysis students' behavioral intention of students in adapting MALL.

ANOVA ^a						
Model	Sum of squares	df	Mean square	F	R	Sig
Regression	723.054	2	361.527			
Residual	314.273	98	3.207	112.735	.835 ^a	.000 ^b
Total	1037.327	100				

a. Dependent Variable: Total_BI

b. Predictors: (Constant), Total_easeofUse, Total_PER_use

Table shows significant difference in scores of students' perceived usefulness, perceived ease of use and behavioral intention $R_{(100)} = .835$, $P < 0.05$ indicated that the null hypothesis "There is no significant impact of perceived usefulness and perceived ease of use on students' behavioral intention of students in adapting MALL" is rejected.

The table shows that there is a strong and positive as $F = 112.735$ relationship between perceived usefulness and perceived ease of use on students' behavioral intention of students in adapting MALL.

Table 8: level of collinearity between perceived usefulness and perceived ease of Use

Collinearity Diagnostics ^a						
Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions		
				perceived usefulness of MALL	perceived ease of Use of MALL	

1		2.9	1.0	.00	.00	.00
2	71	00		.99	.12	.08
3		.02	11.	.01	.88	.92
	2	698				
		.00	20.			
	7	650				

a. Dependent Variable: Total_BI

The table depicts that there is a high level of collinearity between perceived usefulness and perceived ease of Use as by the indicated value i.e. $0.88 > 0.3$ and $.92 > 0.3$. Therefore, Perceived usefulness and perceived ease of Use were retained.

3. Findings

It is found that many of the students agree towards perceived usefulness, perceived ease of use and behavioral intention. According to the results, students usually had favorable opinions on the three main components of the Technology Acceptance Model: Behavioral Intention (BI), Perceived Usefulness (PU), and Perceived Ease of Use (PEOU). The majority of participants concurred that using mobile learning technology can help them improve their academic performance and boost their language learning activities. Students saw mobile devices and applications as useful educational tools that allowed them to participate in learning activities outside of the typical classroom setting, interact effectively, and easily access learning resources. Additionally, the results indicate that students find these technologies to be user-friendly and do not encounter any major challenges when utilising mobile learning platforms. Students' propensity to embrace and continue utilising mobile technology for educational purposes is influenced by their favourable opinion of its usability. The participants' high degree of behavioral intention further indicates their willingness and drive to incorporate mobile learning resources into their daily academic schedules.

It was also concluded that majority of the students were agreed towards Teachers' support. Teacher support is another important finding of the study. The findings show that, in the context of mobile learning, students often view their professors as providing a high degree of assistance. It was reflected that many of the students showed high level towards technology acceptance model and teachers' support.

The current study looked at how teacher assistance and the TAM affected Pakistani higher education students' adoption of MALL. The study's conclusions show that students' opinions about using mobile devices to learn languages are typically favorable. Perceived utility, perceived ease of use, and behavioral intention all showed high levels of agreement, indicating that students view MALL as helpful, approachable, as well as beneficial of their academic learning goals.

The results showed that teacher affective support, teacher capacity support, and teacher behavioral support positively impact students' views and willingness to accept mobile learning technologies, indicating that teachers act not only as instructional intermediaries but also as significant motivating factors in enabling students to take advantage of technologically enhanced language learning environments. The study also showed that teacher support serves a significant role in determining students' acceptance and use of MALL. Furthermore, within the context of the Technology Acceptance Model, the results demonstrated a substantial correlation between perceived utility, perceived ease of use, and behavioral intention. Students who thought mobile learning tools were simple to use were more likely to think they were helpful and desire to keep using them for language acquisition. These results strengthen the usefulness of TAM in comprehending Pakistani higher education students' use of technology.

The analysis also emphasizes how crucial it is becoming to include mobile technology into higher education, especially in classrooms where students are learning a language. Students' enthusiastic reactions show that they are prepared to embrace advanced, adaptable teaching methods. However, the availability of technology resources, teacher readiness, and institutional support are critical to the effective implementation of MALL.

The results of this study have significant theoretical, practical, pedagogical, and policy ramifications for the incorporation of MALL in Pakistani higher education institutions. Students' favourable opinions of the TAM constructs—behavioral intention, perceived usefulness, and perceived ease of use—as well as the high levels of teacher support point to a favourable environment for the adoption and use of mobile learning technologies in language instruction. For educators, administrators, curriculum designers, legislators, and academics interested in advancing technology-enhanced language acquisition, these results offer insightful information.

The research recommends that language instructors actively use mobile devices into their teaching methods from an educational standpoint. The high degree of perceived usefulness among students suggests that students think mobile devices can improve their academic performance and learning experiences. In a similar vein, the favourable opinion of ease of use indicates that students feel at ease utilising mobile devices and apps for learning. As a result, educators may confidently use mobile-based activities in their classrooms, including vocabulary-learning apps, online tests, digital meetings, group projects, language-learning games, and multimedia materials. The results emphasise even more how crucial teacher support is for promoting technology use. Students' desire to use mobile learning technologies may be greatly increased by teachers who offer technical assistance, emotional support, and efficient classroom management. As a result, educators should embrace learner-centred teaching strategies that make use of mobile technology as

essential elements of the teaching and learning process rather than just as supplemental resources. These methods can encourage student participation, independence, teamwork, and linguistic competency. Given the high levels of perceived utility and usability among students, higher education institutions ought to explicitly include Mobile-Assisted Language Learning (MALL) into English language courses. Teachers should use organized mobile-based activities to improve engagement and learning results since students show a high behavioral intention toward mobile learning. To improve teachers' technological proficiency and pedagogical abilities for successful MALL integration, ongoing training programs should be put in place. To facilitate smooth mobile learning, institutions should guarantee sufficient digital infrastructure, including dependable internet connectivity and technological resources. To maintain and enhance students' adoption of technology and the successful execution of MALL, institutional regulations and routine monitoring should be created.

Curriculum development and educational policy are two more significant implications. The results show that students are open to using mobile learning tools for language acquisition. As a result, curriculum designers and legislators must think about incorporating MALL into educational frameworks and regulations. Educational authorities should acknowledge mobile learning as a useful teaching strategy that may improve learning opportunities and outcomes rather than viewing it as an optional or supplemental component. In order to successfully integrate mobile devices into language instruction, curriculum designers need create learning resources, exercises, and evaluation techniques. In addition to educating pupils for the digital needs of modern society, such integration may foster flexibility, accessibility, and learner autonomy. Additionally, the study emphasises the necessity of strategic planning and policy-level funding. Enough funding should be set aside by governmental organisations and educational bodies to promote initiatives that use technology to improve learning. This covers financing for digital content creation, teacher preparation courses, educational technology research initiatives, and technology infrastructure. Reducing technology gaps across schools and guaranteeing that all students have fair access to digital learning opportunities should be the main goals of policy efforts. These actions can help close the digital gap and advance inclusive education.

The results also have implications for further study. Even though the study found high levels of teacher support and technological acceptability, further research is required to fully examine these connections. Future research might look into how students' adoption of mobile learning tools is influenced by several demographic factors, including gender, academic discipline, educational level, and technical experience. In order to investigate possible variations in technology adoption trends, researchers may also carry out comparative studies between public and private organisations. When evaluating how

students' attitudes and actions change over time as they get more familiar with mobile learning devices, longitudinal studies might be very helpful.

The results of this study highlight the substantial potential of mobile-assisted language learning in higher education. Students' favourable opinions of technology adoption and the significant impact of teacher assistance indicate that educational institutions stand to gain from the use of mobile devices into language instruction. In the context of Pakistani higher education, stakeholders may provide supportive learning environments that optimise MALL's efficacy and enhance educational results by addressing pedagogical, practical, theoretical, and policy factors.

4. Conclusion

The study concludes that teacher support and the Technology Acceptance Model's components are crucial for encouraging the successful implementation of mobile-assisted language learning in Pakistani higher education. By expanding TAM to include teacher support as an external element, the study adds to the body of literature already in existence. It also offers useful insights for educators, organizations, and legislators looking to more successfully use technology into language instruction. The research recommends that language instructors actively use mobile devices into their teaching methods from an educational standpoint. The high degree of perceived usefulness among students suggests that students think mobile devices can improve their academic performance and learning experiences. In a similar vein, the favourable opinion of ease of use indicates that students feel at ease utilising mobile devices and apps for learning. As a result, educators may confidently use mobile-based activities in their classrooms, including vocabulary-learning apps, online tests, digital meetings, group projects, language-learning games, and multimedia materials.

References

- Ali, M. M., Gulzar, M. A., & Anwar, M. N. (2018). Impact of MALL on grammar of EFL learners in Pakistan. *ELF Annual Research Journal*, 20(2018), 39-55.
- Ali, M. M., Khizar, N. U., Yaqub, H., Afzaal, J., & Shahid, A. (2020). Investigating speaking skills problems of Pakistani learners in ESL context. *International Journal of Applied Linguistics & English Literature*, 9(4), 62.
- Al-Jarf, R. (2012). Mobile technology and student autonomy in oral skill acquisition. In J. Díaz-Vera (Ed.), *Left to my own devices: Learner autonomy and mobile-assisted language learning innovation and leadership in English language teaching* (pp. 105–130). Emerald Group Publishing Limited.
- Baleghizadeh, S., & Oladrostam, E. (2010). The effect of Mobile Assisted Language Learning (MALL) on grammatical accuracy of EFL Students. *MEXTESOL Journal*, 34(2), 77–86.

- Botero, G. G., Questier, F., Cincinnato, S., He, T., & Zhu, C. (2019). Acceptance and usage of mobile asisted language learning by higher education students. *Journal of Computing in Higher Education*, 30(3), 426–451.
- Bottino, R. M. (2004). The evolution of ICT-based learning environments: Which perspectives for the school of the future? *British Journal of Educational Technology*, 35, 553-567.
- Brown, C. P., Englehardt, J., & Mathers, H. (2016). Examining preservice teachers' conceptual and practical understandings of adopting iPads into their teaching of young children. *Teaching and Teacher Education*, 60, 179–190.
- Chang, C., & Hsu, C. (2011). A mobile-assisted synchronously collaborative translation–annotation system for English as a foreign language (EFL) reading comprehension. *Computer Assisted Language Learning*, 24(2), 155–180.
- Chang, C.-C., Yan, C.-F., & Tseng, J.-S. (2012). Perceived convenience in an extended technology acceptance model: Mobile technology and English learning for college students. *Australasian Journal of Educational Technology*, 28(5), 809–826.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use and the user acceptance of information technology. *MIS Quarterly*, 13(3), 318–339.
- Davis, F. D., & Venkatesh, V. (1996). A critical assessment of potential measurement biases in the technology acceptance model: Three experiments. *International Journal of Human-Computer Studies*, 45(1), 19–45.
- DeLambo, D. A., Homa, D., Peters, R. H., DeLambo, A. M., & Chandras, K. V. (2011). Facebook and social media: Implications for counseling college students. American Counseling Association's VISTAS 2011 Annual Electronic Monograph. Alexandria, VA: American Counseling Association.
- Fouz-González, J. (2017). Pronunciation instruction through Twitter: The case of commonly mispronounced words. *Computer Assisted Language Learning*, 30(3), 631–663.
- Gabarre, C., & Gabarre, S. (2010). An innovative assessment method for real world learning: Learner created content with a cell phone, YouTube and an LMS. In *Proceedings of Global Learn Asia-Pacific 2010 - Global Conference on Learning and Technology*, (pp. 1202–1210). Penang, Malaysia: AACE.
- Hoi, V. N. (2020). Understanding higher education learners' acceptance and use of mobile devices for lan guage learning: A Rasch-based path modeling approach. *Computers & Education*, 146(103761), 1–15.
- Hoi, V. N., & Mu, G. M. (2021). Perceived teacher support and students' acceptance of mobile-assisted language learning: Evidence from Vietnamese higher education context. *British Journal of Educational Technology*, 52(2), 879-898.

- Huang, Y. M., Huang, Y. M., Huang, S. H., & Lin, Y. T. (2012). A ubiquitous English vocabulary learning system: Evidence of active/passive attitudes vs. Usefulness/ease-of-use. *Computers & Education*, 58(1), 273–282. <https://doi.org/10.1016/j.compedu.2011.08.008>
- Jarvis, H., & Achilleos, M. (2013). From Computer Assisted Language Learning (CALL) to Mobile Assisted Language Use (MALU). *Tesl-ej*, 16(4), n4.
- Joseph, S. R., & Uther, M. (2009). Mobile devices for language learning: Multimedia approaches. *Research and Practice in Technology Enhanced Learning*, 4(1), 7–32. <https://doi.org/10.4018/IJMBL.2017010104>
- Kennedy, C., and Levy, M. (2008). L'italiano al telefonino: using SMS to support beginners' language learning. *ReCALL* 20, 315–330. doi: 10.1017/S0958344008000530
- Klimova, B. (2018). Mobile phones and/or smartphones and their apps for teaching English as a foreign language. *Education and Information Technologies*, 23(3), 1091–1099
- Kukulska-Hulme, A. (2013). Mobile-assisted language learning. In C. Chapelle (Ed.), *the encyclopedia of applied linguistics* (pp. 3701–3709). New York: Wiley
- Kukulska-Hulme, A., & Shield, L. (2008). An overview of mobile assisted language learning. From content delivery to supported collaboration and interaction. *ReCALL*, 20(3), 271-289. <http://dx.doi.org/10.1017/S0958344009000202>
- Kukulska-Hulme, A., & Traxler, J. (2019). Design principles for learning with mobile devices. In H. Beetham, & R. Sharpe (Eds.), *Rethinking pedagogy for a digital age: Principles and practices of design* (3rd ed., pp. 181 197). New York & London: Routledge.
- Kukulska-Hulme, A., Lee, H. & Norris, L. (2017). Mobile learning revolution: Implications for language pedagogy. In Chapelle, C. A. & Sauro, S. (eds.), *the handbook of technology and second language teaching and learning*. Hoboken: John Wiley & Sons, 217-233.
- Lai, C. (2015). Modeling teachers' influence on learners' self-directed use of technology for language learning outside the classroom. *Computers & Education*, 82, 74–83.36(2), 122–141.
- Levy, M., and Kennedy, C. (2005). "Learning Italian via mobile SMS," in *Mobile Learning: A Handbook for Educators and Trainers*. Eds. A. Kukulska-Hulme and J. Traxler (Taylor & Francis), 76–83.
- Lin, C. C. (2014). Learning English reading in a mobile-assisted extensive reading program. *Computers & Education*, 78(1), 48–59

- Loewen, S., Crowther, D., Isbell, D. R., Kim, K. M., Maloney, J., Miller, Z. F., et al. (2019). Mobile-assisted language learning: a Duolingo case study. *ReCALL* 31, 293–311. doi: 10.1017/S0958344019000065
- Moghari, M., & Marandi, S. (2017). Triumph through texting: Restoring learners' interest in grammar. *ReCALL*, 29(3), 357–372.
- Morchid, N. (2019). The determinants of use and acceptance of Mobile Assisted Language Learning: The case of EFL students in Morocco. *Arab World English Journal*, 5, 76–97.
- Naz D. S., Rasheed, T., Khalid, M., & Naseem, H. (2023). Impact of Teaching English Grammar via Mobile Learning Apps to English as Second Language Learners in Pakistan. *Russian Law Journal*, 11(3).
- Pervaiz, A, Tahir R Dad K K. (2022). Attitudes and Perceptions of Graduate ESL Students towards Mobile Assisted Language Learning in Pakistan. *PAKISTAN LANGUAGES AND HUMANITIES REVIEW*, 6(2), 328-340, doi:10.47205/plhr.2022 (6-II) 28
- Rodríguez-Arancón, P., Arús, J., & Calle-Martinez, C. (2013). The use of current mobile applications in EFL. *Procedia - Social and Behavioral Sciences*, 103, 1189-1196. <https://doi.org/10.1016/j.sbspro.2013.10.446>.
- Sarhandi, P. S., Khan, I. F., Buledi, M. H., & Asghar, J. (2016). Integration of technology with pedagogical perspectives: An evaluative study of in-house CALL professional development. *Arab World English Journal (AWEJ) Special Issue on CALL*, (3).
- Stockwell, G. (2010). Using mobile phones for vocabulary activities: examining the effect of platform. *Lang. Learn. Technol.* 14, 95–110.
- Taradi, S. K., & Taradi, M. (2016). Making physiology learning memorable: A mobile phone-assisted case-based instructional strategy. *Advances Physiology Education*, 40(3), 383–387. <https://doi.org/10.1152/advan.00187.2015>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.
- Wu, Q. (2015). Designing a smartphone app to teach English (L2) vocabulary. *Computers & Education*, 85(1), 170–179.