DOI: 10.5961/highereducsci.1488819

Language Instructors' Perceptions on Mobile Learning Integration in Turkish Universities

Türkiye'deki Üniversitelerde Yabancı Dil Öğretim Elemanlarının Mobil Öğrenme Kullanımına İlişkin Algıları

Emrah Baki BAŞOĞLU

ABSTRACT

While there is a growing interest in using mobile technologies for language learning, the successful integration of mobile learning in classroom learning hinges on instructor buy-in. This study investigates language instructors' perceptions of mobile learning integration in Turkish higher education, particularly concerning perceived benefits, challenges, and demographic variables. A sample of 236 language instructors from various Turkish universities participated in the study and were selected through convenience sampling. Data were collected via the Mobile Learning Perception Scale, a validated instrument with 26 items across three sub-dimensions. The findings suggest that instructors hold generally positive perceptions of mobile learning's potential for language teaching. Moreover, no significant differences in MLPS scores were found based on instructor gender, age, teaching experience, or educational level, indicating that these demographic factors may not strongly predict instructors' views on mobile learning. These results suggest that positive attitudes toward mobile learning are prevalent among language instructors, which is encouraging for the broad implementation of this approach. The study's implications include the need to leverage instructors' favorable perceptions through supportive institutional policies and professional development, as well as to conduct further research to explore how to overcome the remaining barriers to mobile learning implementation in higher education.

Keywords: Mobile learning, Language learning, Mobile technology integration, Instructor perceptions, Higher education

ÖZ

Yabancı dil öğrenimi için mobil teknolojilerin kullanımına yönelik artan bir ilgi olsa da, mobil öğrenmenin sınıf içi öğrenime başarılı bir şekilde entegrasyonu öğretmenlerin katılımına bağlıdır. Bu çalışma, özellikle algılanan faydalar, zorluklar ve demografik değişkenlerle ilgili olarak, Türk yükseköğretiminde yabancı dil öğretim elemanlarının mobil öğrenme kullanımına ilişkin algılarını araştırmaktadır. Çalışmaya Türkiye'deki çeşitli üniversitelerden 236 yabancı dil öğretim elemanı katılmış ve katılımcılar kolay ulaşılabilir örnekleme yoluyla seçilmiştir. Veriler, üç alt boyutta 26 maddeden oluşan bir ölçek olan Mobil Öğrenme Algısı Ölçeği aracılığıyla toplanmıştır. Bulgular, katılımcıların mobil öğrenmenin potansiyeline ilişkin genel olarak olumlu algılara sahip olduğunu göstermektedir. Ayrıca, ölçek puanlarında öğretim elemanlarının cinsiyeti, yaşı, öğretim deneyimi veya eğitim düzeyine göre anlamlı bir farklılık bulunmamıştır; bu da bu demografik faktörlerin öğretim elemanlarının mobil öğrenmeye ilişkin görüşlerini güçlü bir şekilde tahmin edemeyebileceğini göstermektedir. Bu sonuçlar, mobil öğrenmeye yönelik olumlu tutumların yabancı dil öğretim elemanları arasında yaygın olduğunu göstermektedir ki bu da geniş çaplı uygulama çabaları için cesaret vericidir. Çalışmanın sonuçları, destekleyici kurumsal politikalar ve mesleki gelişim yoluyla yabancı dil öğretim elemanlarının olumlu algılarından yararlanma ihtiyacını ve yükseköğretimde mobil öğrenme uygulamasının önündeki diğer engellerin nasıl aşılacağını keşfetmek için daha fazla araştırma yapılmasını içermektedir.

Anahtar Sözcükler: Mobil öğrenme, Dil öğrenimi, Mobil teknoloji entegrasyonu, Eğitmen algıları, Yükseköğretim

Başoğlu E. B., (2025). Language instructors' perceptions on mobile learning integration in Turkish universities. *Journal of Higher Education and Science/Yükseköğretim ve Bilim Dergisi, 15*(3), 366-377. https://doi.org/10.5961/highereducsci.1488819

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Received/*Geliş Tarihi* : 23.05.2024
Accepted/*Kabul Tarihi* : 05.11.2025

INTRODUCTION

The education landscape is undergoing a significant transformation driven by the ubiquitous nature of mobile technologies. Students today carry powerful learning tools in their pockets, making education more accessible through an innovative pedagogical approach known as mobile learning (m-learning). M-learning leverages the portability and accessibility of mobile devices to create flexible, student-centered learning experiences (Lin et al., 2023). Studies have consistently highlighted the positive impact of mobile devices on student engagement and learning outcomes (Dashtestani, 2015; Oyelere et al., 2017; Parajuli, 2016). These studies document the widespread adoption of smartphones and tablets by students and suggest that m-learning can foster deeper engagement and improved performance in higher education settings.

However, successfully integrating any technology into the teaching largely depends on instructor buy-in and readiness. In other words, instructors' beliefs and attitudes play a critical role in shaping the implementation of educational technologies in the classroom (Abuhmaid, 2014; Ertmer et. al., 2012). While a significant body of research has explored students' perceptions of m-learning (Yarahmadzehi & Goodarzi, 2020; Biswas et al., 2020; Togaibayeva et al., 2022), a crucial gap exists in our understanding of instructor perspectives, particularly within the context of language education at the university level. This lack of knowledge necessitates further investigation, especially regarding language instructors in higher education. In the Turkish context, m-learning initiatives have been increasingly implemented in primary and secondary education, but their impact in higher education remains relatively limited (Efiloğlu Kurt, 2023). This situation presents a unique opportunity to examine how language instructors in Turkish universities perceive m-learning.

The significance and novelty of the present study lie in its focus on language instructors in higher education, a group that has been less frequently studied in m-learning research. By examining instructors' perceptions, this study provides insights into an often overlooked perspective in educational technology adoption. The study is guided by the Technology Acceptance Model (TAM), a theoretical framework of technology acceptance and adoption (Davis, 1989). TAM posits that users' adoption of a technology is influenced by their perceived usefulness and ease of use of that technology. In educational settings, if instructors perceive mobile learning as useful for language teaching and relatively easy to implement, they are more likely to embrace it. Recent work integrating social cognitive theory with TAM (Almogren & Aljammaz, 2022) supports the notion that both personal factors and perceived technological benefits jointly influence instructors' readiness to adopt m-learning. These theoretical perspectives provide a foundation for the research focus of this study and help explain why examining instructors' perceptions is important: instructors' beliefs about the value and efficacy of mobile learning will shape whether and how they integrate such tools into their teaching practice.

In light of the gaps identified and the theoretical considerations, this study aims to investigate the mobile learning perceptions of university-level language instructors in Türkiye and to determine whether these perceptions differ according to key instructor demographics. The research questions addressed in this study are as follows:

The research questions are:

1. How do language instructors in Turkish universities perceive the potential of mobile learning?
2. Do language instructors' mobile learning perceptions differ significantly according to gender?
3. Do language instructors' mobile learning perceptions differ significantly according to age?
4. Do language instructors' mobile learning perceptions differ significantly according to experience?
5. Do language instructors' mobile learning perceptions differ significantly according to educational level?

LITERATURE REVIEW

Mobile Learning Integration in Higher Education and Language Instruction

Mobile technologies have seen a significant increase, offering transformative potential in education. The concept of mobile learning (m-learning) has gained popularity due to its core characteristics, such as flexibility and student-centered learning approaches. M-learning enables learning to take place at any time and location, catering to individual student needs and preferences (Filho & Barbosa, 2013). Park (2011) categorizes educational applications of mobile technologies based on their interaction levels and social/individual focus, illustrating the diverse ways mobile technologies can be embedded into distance and face-to-face learning environments. Such integration has led educators to acknowledge mobile devices as valuable tools for increasing student participation and collaboration (Rambe & Bere, 2013). In the context of language instruction, mobile applications and platforms offer opportunities for authentic language practice, immediate feedback, and access to multimedia resources, thereby enriching the learning experience for students.

Studies across different countries and disciplines have found that incorporating mobile devices can improve students' learning behaviors and performance. For instance, Almaiah and Jalil (2014) found that university students perceived m-learning services as useful and convenient, which facilitated successful adoption. Similarly, the use of mobile apps in language learning has been linked to increased engagement and motivation among learners (Jamaldeen et al., 2018). Shonola et al. (2016) note that mobile technologies enable educational activities beyond traditional classroom boundaries, allowing learning to extend across various locations and times. This ubiquity helps establish more interactive and adaptable learning environments. Indeed, m-learning can promote collaborative learning and transform pedagogy, as evidenced by implementations of mo-

bile instant messaging and other tools to boost participation in university settings (Rambe & Bere, 2013). Recent research continues to affirm these benefits: Tseng et al. (2022) observed that mobile-assisted learning interventions led to enhanced student engagement and positive learning behaviors. Collectively, these studies reinforce the notion that m-learning, when thoughtfully integrated, can enrich student-centered learning experiences and outcomes in higher education, including language learning.

Factors Affecting Instructors' Perceptions of Mobile Learning

While student-focused studies dominate the m-learning literature, researchers have increasingly turned attention to the factors that affect instructors' adoption of mobile learning in their teaching. Research has shown that teacher pedagogical beliefs are crucial in technology integration, as beliefs often have a more significant impact on behavior than knowledge (Hew & Brush, 2006; Inan & Lowther, 2009; Gribbins, 2023). The successful and effective integration of technology in various disciplines, including foreign language teaching, requires consideration of instructors' ideas and beliefs (Kumar et al., 2022). If instructors remain unconvinced of the pedagogical value of m-learning or feel unprepared to use it, they are unlikely to incorporate mobile tools regardless of institutional initiatives. Indeed, professional development and training have been highlighted as key enablers for effective technology integration (Kaya & Adıgüzel, 2021). Instructors who receive support in developing the necessary skills and strategies are more apt to embrace mobile learning in their classrooms.

Instructors' perceptions of m-learning can also be influenced by demographic and contextual factors and research has shown that these factors play a significant role in shaping how instructors view and adopt m-learning in educational settings. A study by Al-Hunaiyyan et al. (2017) highlighted the impact of instructors' age and gender on their acceptance of m-learning. This research emphasized the importance of considering instructor characteristics and social implications in understanding how instructors perceive the use of mobile technology in education. Similarly, the research by Martin et al. (2020) suggested that differences in demographics, such as age and experience, can influence faculty facilitation in online teaching environments, which may extend to m-learning settings. Some studies have noted gender dynamics in teaching that could carry over to technology use; for example, differences in how students evaluate male vs. female instructors have been documented (Freeman, 1994; Brady & Eisler, 1999), hinting that gender might subtly influence an instructor's teaching style or confidence with new tools like m-learning. In addition, instructors' own educational backgrounds can play a role in their pedagogical outlook. Şahan (2017) reported that pre-service teachers' perceptions of their instructors' teaching skills varied with the instructors' academic qualifications, implying that an instructor's level of education might inform their approach to new teaching methods or technologies. All these factors – beliefs, support, and personal demographics – are important to consider because they may collectively determine how receptive a language instructor is to integrating mobile learning into their curriculum.

Mobile Learning in the Higher Education Context

Globally, higher education institutions have seen a steady increase in mobile learning initiatives aimed at transforming curriculum delivery and pedagogy. In a Caribbean university context, for example, Thomas-Martin and Ellis (2020) demonstrated how mobile learning can be harnessed to revolutionize course delivery and create more effective learning activities. A systematic review by Krull and Duart (2017) observed that research on m-learning in higher education has grown substantially in the 2010s, with a notable shift towards studying mobile learning across various types of devices and learning contexts (rather than focusing on any single device or platform). The COVID-19 pandemic further accelerated the adoption of mobile learning tools in higher education worldwide – students and instructors alike had to rely on smartphones and tablets to maintain educational continuity (Alturki & Aldraiweesh, 2022). This surge underscored the potential of m-learning to support teaching and learning during disruptions and beyond.

Several studies have examined factors that affect m-learning adoption among university students, which can indirectly shed light on instructors' challenges. Gan et al. (2017) identified that students' attitudes, the perceived usefulness of mobile devices for learning, and individuals' sense of control over using these technologies are significant predictors of m-learning adoption in higher education. These findings align with broader technology acceptance research, suggesting that end-users (whether students or instructors) need to see clear benefits and feel capable of using mobile tools effectively. In a related vein, integrating social cognitive theory with TAM has been shown to positively influence mobile learning uptake; Almogren and Aljammaz (2022) demonstrated that factors like self-efficacy and social influence, combined with perceived usefulness (a core tenet of TAM), significantly impacted faculty members' intentions to use m-learning in a university setting. The implication is that both individual perceptions and social-environmental factors matter when considering how to promote mobile learning integration. In Egyptian higher education, researchers have even developed agile-based mobile learning systems to ensure that m-learning solutions provide meaningful learning experiences and sustain student motivation (Elkhateeb et al., 2019). While these studies focus on various global contexts, they highlight issues—usefulness, ease of use, self-efficacy, institutional support—that are universally relevant, including in Turkish universities.

Within Turkey's higher education system, research on mobile learning is still emerging. A recent study by Efiloğlu Kurt (2023) investigated students' acceptance of smartphone-based learning in Turkish universities and found generally positive attitudes toward m-learning, though the actual implementation in classrooms was not widespread. This suggests that while the student population may be ready for mobile-assisted learning, there might be systemic or instructional hurdles limiting its use. Indeed, the perspectives of instructors are a critical piece of this puzzle. To date, relatively few studies have zeroed in on Turkish university instructors' views regarding mobile technology integration for teaching. The current study builds on

the global insights discussed above and addresses this local research gap by examining how language instructors in Türkiye perceive mobile learning—providing contextualized understanding that can help Turkish higher education institutions design better support and policies for mobile learning.

Technology Acceptance Model

To interpret instructors' adoption of mobile learning, this study considers Technology Acceptance Model (TAM) as a theoretical framework. Originally developed by Davis (1989), TAM posits that two key factors — perceived usefulness and perceived ease of use — determine an individual's willingness to adopt a new technology. In educational contexts, TAM has been widely used to explain and predict both teachers' and students' acceptance of e-learning and m-learning tools. If instructors believe that using mobile technology will enhance their teaching effectiveness (usefulness) and if they find the technology straightforward to use, they are more likely to incorporate it into their practice. Empirical studies grounded in TAM support its relevance for m-learning integration: for example, in a study at a Saudi university, instructors' perceptions aligned with TAM constructs predicted their behavioral intentions to use mobile learning in teaching (Almogren & Aljammaz, 2022). Similarly, research with university students by Tseng et al. (2022) showed that positive perceptions and experiences (such as a state of "flow" and engagement) reinforced the continued use of learning technologies, echoing TAM's emphasis on perceived value and ease. By applying TAM in the context of Turkish language instructors, the present study can gauge whether these instructors feel that mobile learning is useful for language teaching and easy enough to implement — factors that would likely influence their adoption decisions.

Previous research utilizing TAM has consistently demonstrated that when instructors perceive educational technologies, such as mobile learning, as useful and easy to use, their willingness to adopt and integrate these technologies into their teaching practices increases significantly (Davis, 1989; Almogren & Aljammaz, 2022). For example, studies by Gan et al. (2017) and Al-Hunaiyyan et al. (2017) have specifically indicated that educators' perceived usefulness is a critical predictor of their attitudes towards adopting mobile learning in higher education contexts. Therefore, examining language instructors' perceptions through the lens of TAM will help uncover factors influencing their acceptance or resistance to mobile learning.

METHOD

Research Design

This study employed a quantitative research design to investigate the m-learning perceptions of language instructors in Turkish universities. The research specifically focused on a survey method for data collection, The research specifically focused on a survey method for data collection, and the researcher discussed in depth how demographic factors and theoretical considerations inform language instructors' perceptions of m-learning integration.

Participants

The population of the interest is the language instructors working in higher education institutions across Türkiye. According to the Council of Turkish Higher Education statistics, approximately 6027 language instructors are working in Turkish universities. The sample is 236 language instructors from different universities in Turkey with ±7% precision level where the confidence level is 95% (Israel, 1992). These instructors were chosen through convenience sampling, based on their accessibility and willingness to participate. An open call to participate in the survey was distributed via multiple channels (described in the Procedure below), inviting volunteer instructors to take part. The resulting sample had a slightly higher proportion of female instructors and included a range of ages, experience levels, and educational backgrounds. Table 1 summarizes the demographic characteristics of the respondents. Of the 236 instructors, 69.9% (n = 165) were female and 30.1% (n = 71) were male. The ages of participants were distributed as 28.0% in the 20–29 range, 46.2% in the 30–39 range, and 25.8% aged 40 or above. In terms of teaching experience, about half (48.3%) of the instructors had more than 10 years of experience, 30.1% had 6–10 years, and 21.6% had 0–5 years. Regarding educational attainment, nearly half of the sample (48.7%) held a Master's degree, 39.8% held a Bachelor's degree, and 11.4% had a PhD.

Table 1. Demographic Characteristics of Language Instructors

		n	%
Gender	Male	71	30.1
	Female	165	69.9
Age	20-29	66	28
	30-39	109	46.2
	40 and older	61	25.8
Experience	0-5 years	51	21.6
	6-10 years	71	30.1
	More than 10 years	114	48.3
Education	Bachelors	94	39.8
	Masters	115	48.7
	PhD	27	11.4

Data Collection and Analysis

Data collection was conducted through a self-administered electronic survey, The Mobile Learning Perception Scale (MLPS), which was developed by Uzunboylu & Ozdamli (2011). The MLPS consists of 26 statements rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). It was designed to capture language instructors' perceptions of m-learning and included three dimensions seeking teachers' feedback on different facets of m-learning. These dimensions are:

1. Aim-Mobile Technologies Fit (A-MTF): This dimension focused on the suitability of m-learning tools to the aim of teaching and learning activities.

2. Appropriateness of Branch (AB): This dimension assessed the perception of teachers regarding the suitability of m-learning activities to their specific branch or subject area.
3. Forms of M-learning Application and Tools Sufficient Adequacy of Communication (FMA and TSAC): This dimension explored teachers' perceptions of the adequacy of communication through different forms of m-learning applications and tools.

These dimensions were designed to capture the various aspects of teachers' perceptions of m-learning and were used to assess their opinions regarding the integration of mobile technologies in education.

Statistical analyses were performed with SPSS version 29.0. The distribution of data was determined by Shapiro-Wilk test. Continuous variables were expressed as mean±std. deviation or median (minimum-maximum). Continuous variables were compared with the independent sample t-test or the Mann-Whitney U test for two groups. ANOVA or Kruskal-Wallis test was used to determine for differences between three or more groups. *p* value of less than 0.05 was considered statistically significant for all tests.

Uzunboylu and Özdamlı (2011) established the MLPS scale's initial reliability and validity during its development. In the current study, the MLPS also showed high internal consistency; Cronbach's alpha was calculated as 0.901 for the entire scale, indicating excellent reliability.

Procedure

The survey was distributed through a multi-pronged approach to reach as many eligible instructors as possible. First, an email invitation containing the survey link was sent directly to approximately 1,400 language instructors across 13 Turkish universities. These instructors were identified through university language department directories and professional contacts. After the initial email distribution, follow-up reminder emails were sent to boost the response rate. In addition to email outreach, the survey link was shared on professional social media (specifically, LinkedIn) where language instructors in Türkiye are active. This helped in reaching instructors who might not have seen the email. Furthermore, the researcher coordinated with university administrators to post the survey invitation on an institutional platform – the Electronic Information Management System (EBYS) – used by Turkish universities for internal announcements. By leveraging these channels, the study aimed to encourage a broad and diverse range of instructors to participate on a voluntary basis. All respondents provided informed consent before proceeding with the questionnaire, and they were informed that their responses would be kept confidential and used for research purposes only.

During data collection, participants accessed the survey online and responded to the MLPS items along with demographic questions. The survey took approximately 10 minutes to complete. Data collection occurred over a specified period (4 weeks) to allow ample time for instructors to respond at their convenience.

Data Analysis

Quantitative data analysis was conducted using IBM SPSS Statistics version 29.0. Prior to performing statistical tests, the distribution of the MLPS scores for each subscale and the total scale was examined for normality. The Shapiro–Wilk test was used to assess whether the data for each group and each subscale followed a normal distribution. Descriptive statistics (mean, standard deviation, median, minimum, and maximum) were calculated for the MLPS sub-dimensions and total scores to summarize instructors' overall perceptions of mobile learning.

Given the research questions, the analysis focused on both descriptive results (to address RQ1) and inferential comparisons across different groups of instructors (to address RQ2–RQ5). For comparisons between two groups (such as male vs. female instructors for RQ2), an independent samples *t*-test was used when the subscale data were approximately normally distributed; if normality was violated, the non-parametric Mann–Whitney U test was applied. For comparisons among three or more groups (such as across multiple age categories, experience levels, or education levels for RQ3–RQ5), a one-way ANOVA was used for metrics meeting parametric assumptions, and the Kruskal–Wallis H test was used as a non-parametric alternative when appropriate. In cases where ANOVA was conducted and a significant result obtained, post-hoc tests would be planned; however, as reported below, no significant differences emerged, so post-hoc testing was not required. For all statistical tests, a p-value less than 0.05 was considered statistically significant.

To ensure ethical conduct, the study adhered to relevant protocols and gained ethical approval from the Zonguldak Bülent Ecevit University Social and Human Sciences Ethics Committee (reference number: 12.03.2024/427276 protocol number: 566).

FINDINGS

This study (n=236) explored language instructors' perceptions of m-learning in Turkish universities using the Mobile Learning Perception Scale (MLPS). The MLPS assessed instructors' views on three sub-dimensions: how well mobile technologies fit language learning goals (A-MTF), the appropriateness of mobile activities for different language areas (AB), and the adequacy of communication through m-learning tools (FMA and TSAC).

Overall Perceptions of Mobile Learning (RQ1)

The first research question asked how language instructors in Turkish universities perceive the potential of mobile learning. Descriptive results from the MLPS provide insight into instructors' overall perceptions. Table 2 presents the summary of instructors' MLPS scores on each sub-dimension. Across the sample of 236 instructors, the scores suggest generally positive perceptions. The mean score for the A-MTF subscale was 29.41 (SD = 3.359) out of a possible 40, indicating that on average instructors somewhat agreed that mobile technologies fit well with language learning objectives. The AB subscale

had a mean of 35.21 (SD = 4.698) out of 45, which is relatively high and suggests a favorable view of mobile learning activities being appropriate for the instructors' subject area (language teaching). Similarly, FMA and TSAC subscale mean was 35.12 (SD = 4.705) out of 45, indicating that instructors generally believed mobile learning tools provide adequate forms of communication for teaching and learning. The minimum and maximum observed scores on each subscale reveal that there was some variation in the responses: for each sub-dimension, some instructors were more skeptical (e.g., the lowest scores were around 19–20), whereas others were very positive (with maximum scores in the mid-40s). Overall, however, the average scores across all three dimensions suggest a positive outlook on m-learning's potential in language education.

Table 2. Descriptive Statistics of Language Instructors' Mobile Learning Perceptions

	n	Min	Max	Mean	SD
A-MTF	236	20	37	29.41	3.359
AB	236	19	45	35.21	4.698
FMA and TSAC	236	20	45	35.12	4.705
Total	236				

Note: Sub-dimensions are 'Aim-Mobile Technologies Fit' (A-MTF), 'Appropriateness of Branch' (AB), and 'Forms of M-learning Application and Tools' Adequacy of Communication' (FMA and TSAC)

Differences by Gender (RQ2)

The second research question examined whether instructors' perceptions of mobile learning differed by gender. To investigate this, the MLPS scores of male (n = 71) and female (n = 165) instructors were compared. As shown in Table 3, the analysis revealed no statistically significant differences between male and female instructors on any of the three MLPS sub-dimensions or on the total MLPS score. For example, the median A-MTF score was 30 for males and 29 for females, and this small difference was not significant (p=0.920). Similarly, male and female instructors had almost identical median scores on the AB subscale (35 vs. 36, p=0.802) and the FMA & TSAC subscale (both medians 35, p=0.675). The total MLPS scores (which sum the subscales) were also very close on average (mean ~99.4 for males vs. ~99.9 for females), with p = 0.752 indicating no significant difference. In sum, instructors' perceptions of mobile learning were equivalent across genders in this sample.

Table 3. Comparison of Language Instructors' Mobile Learning Perceptions According to Gender

	Male (n=71)	Female (n=165)	p
A-MTF	30 (20-37)	29 (20-37)	.920
AB	35 (20-45)	36 (19-45)	.802
FMA and TSAC	35 (21-45)	35 (20-45)	.675
Total	99.37±12.46	99.90±11.51	.752

Note: Sub-dimensions are 'Aim-Mobile Technologies Fit' (A-MTF), 'Appropriateness of Branch' (AB), and 'Forms of M-learning Application and Tools' Adequacy of Communication' (FMA and TSAC).
p>0.05 = No significant difference between groups.

Differences by Age (RQ3)

The third research question asked whether instructors' mobile learning perceptions differ by age group. Participants were divided into three age categories (as in Table 1: 20–29, 30–39, and 40 and above). Table 4 shows the comparison of MLPS scores across these age groups. Statistical analysis (Kruskal–Wallis tests for non-parametric comparisons, given some non-normal distributions) found no significant differences among the age groups on any MLPS sub-dimension or the total score. For instance, the median A-MTF scores were essentially the same for instructors in their 20s, 30s, and 40s (approximately 29–30; p=0.922). The medians for the AB subscale were also very close (36, 35, and 36 for the three groups, p=0.363, not significant). In the FMA & TSAC subscale, the mean scores were nearly identical across age groups (around 35, p=0.818). Similarly, the total MLPS score did not differ meaningfully by age (p=0.587). These results suggest that younger and older instructors in the sample are alike in how they perceive mobile learning. Age, therefore, was not a critical determinant of m-learning perception in this study.

Differences by Teaching Experience (RQ4)

The fourth research question focused on whether instructors' perceptions vary according to their teaching experience. Instructors were categorized into three groups by years of language teaching experience: 0–5 years, 6–10 years, and more than 10 years. As presented in Table 5, the analysis again showed no statistically significant differences among these experience groups on any MLPS sub-dimension or the total score. For example, the mean A-MTF scores were roughly 28.9, 29.8, and 29.4 for the increasing experience groups (p=0.398, indicating no significant difference). The median AB scores were

Table 4. Comparison of Language Instructors' Mobile Learning Perceptions According to Age

	20-29 (n=66)	30-39 (n=109)	40 and older (n=109)	p
A-MTF	29.5 (21-37)	29 (20-37)	29 (20-37)	.922
AB	36 (25-44)	35 (20-45)	36 (19-45)	.363
FMA and TSAC	35.42±4.35	35.04±4.61	34.93±5.28	.818
Total	101±10.13	99.41±11.42	98.95±13.97	.587

Note: Sub-dimensions are 'Aim-Mobile Technologies Fit' (A-MTF), 'Appropriateness of Branch' (AB), and 'Forms of M-learning Application and Tools' Adequacy of Communication' (FMA and TSAC)
p>0.05 = No significant difference between groups.

identical (35) across all three experience levels (p=0.810). Similarly, the FMA & TSAC medians (34, 35, 36) were not significantly different (p=0.230). The total MLPS scores (medians ~97 to 101) did not differ significantly either (p=0.482). These results suggest that instructors who are early in their careers and those who are highly experienced share similarly positive perceptions of mobile learning. The number of years an instructor has been teaching does not appear to substantially influence their views on m-learning integration.

Differences by Educational Level (RQ5)

The fifth research question queried whether instructors' perceptions differ by their highest educational attainment (Bachelor's, Master's, or PhD degree). Table 6 summarizes the MLPS scores for instructors in these three education level groups. Once again, the results revealed no statistically significant differences among the groups on any subscale or the total score. For instance, the median A-MTF score was 30 for those with a Bachelor's, 29 for those with a Master's, and 31 for those with a PhD (p=0.100, not significant). Likewise, the median AB scores (35 for Bachelor's and Master's, 37 for PhD) did not differ at a significant level (p=0.304). A similar pattern was observed in the FMA & TSAC subscale (medians 35, 35, and 38; p=0.077, n.s.). The total MLPS median scores were 100.5, 99, and 106 for Bachelor's, Master's, and PhD holders respectively, with p = 0.088 (no significant difference). These findings suggest that the level of formal education an instructor has attained does not have a strong impact on their perception of mobile learning. All groups, regardless of degree, generally viewed m-learning positively.

In summary, all subgroups of instructors generally expressed a positive attitude toward mobile learning, and the variations observed were within-group rather than between-group. The findings also show that there were no significant differences in mobile learning perceptions when comparing instructors by gender, age, teaching experience, or educational attainment.

DISCUSSION

This study investigated language instructors' perceptions of m-learning integration in Turkish universities. The results indicate that instructors hold generally positive perceptions of m-learning's potential for language learning. The mean scores across all MLPS sub-dimensions suggest a belief that mobile technologies can align with language learning goals, be suitable for various language areas, and offer adequate communication tools. This aligns with previous research highlighting the perceived benefits of m-learning for student engagement and learning outcomes (Dashtestani, 2015; Oyelere et al., 2017; Parajuli, 2016). This alignment suggests that instructors in Turkish universities recognize the potential of m-learning to enhance the language learning experience. In our study, language instructors recognized many of the same advantages for m-learning that have been documented from the student perspective, suggesting an awareness that mobile devices could enhance the language learning experience. This widespread positive outlook is encouraging, as it implies a readiness among instructors to at least consider incorporating mobile technology into their pedagogy.

Beyond the overall positive perceptions, a key contribution of this study is its examination of potential differences in m-learning attitudes across instructor demographics. The study found no statistically significant differences in m-learning perceptions based on instructor gender, age, teaching experience, or educational attainment. These findings suggest that these demographic factors may not be strong predictors of instruc-

Table 5. Comparison of Language Instructors' Mobile Learning Perceptions According to Experience

	0-5 years (n=51)	6-10 years (n=71)	10 years and more (n=114)	p
A-MTF	28.92±3.93	29.76±3.18	29.40±3.45	.398
AB	35 (23-44)	35 (25-45)	35 (19-45)	.810
FMA and TSAC	34 (25-42)	35 (23-45)	36 (20-45)	.230
Total	97 (71-121)	101 (72-127)	100.5 (60-127)	.482

Note: Sub-dimensions are 'Aim-Mobile Technologies Fit' (A-MTF), 'Appropriateness of Branch' (AB), and 'Forms of M-learning Application and Tools' Adequacy of Communication' (FMA and TSAC)
p>0.05 = No significant difference between groups.

Table 6. Comparison of Language Instructors' Mobile Learning Perceptions According to Education

	Bachelors (n=94)	Masters (n=115)	PhD (n=27)	p
A-MTF	30 (21-37)	29 (20-37)	31 (22-37)	.100
AB	35 (19-44)	35 (20-44)	37 (22-45)	.304
FMA and TSAC	35 (20-44)	35 (23-45)	38 (21-45)	.077
Total	100.5 (60-121)	99 (65-124)	106 (65-127)	.088

Note: Sub-dimensions are 'Aim-Mobile Technologies Fit' (A-MTF), 'Appropriateness of Branch' (AB), and 'Forms of M-learning Application and Tools' Adequacy of Communication' (FMA and TSAC)
p>0.05 = No significant difference between groups.

tors' general views on m-learning in Turkish universities. This is somewhat surprising, as prior research has indicated that instructor characteristics like age and experience can influence technology adoption. The research by Al-Hunaiyyan et al. (2017) suggests that instructor characteristics like age and gender can influence technology adoption. Similarly, Martin et al. (2020) pointed to the potential impact of teaching experience on how instructors facilitate online learning, which could extend to m-learning contexts, and one might assume that instructors with advanced degrees could be either more open to innovative practices or more critical of unproven methods. However, in our findings none of these factors showed a significant effect on perceptions.

This lack of demographic differences merits reflection. One interpretation is that the growing ubiquity of mobile technology in daily life has leveled the playing field among different groups of instructors. Mobile devices are now commonplace and essential tools for communication and information, used by people of all ages and backgrounds. As a result, even older instructors or those with many years of traditional teaching experience may have developed comfort and familiarity with smartphones and apps, narrowing the gap in attitudes that might have been more pronounced a decade ago. In other words, what might once have been a "digital divide" in educator perceptions could be diminishing. Research on technology acceptance supports this idea: external variables like age or gender are often mediated by factors such as perceived usefulness and ease of use (Venkatesh & Davis, 2000). In our context, it appears that instructors of all demographics perceive sufficient usefulness in mobile learning (and do not find it overwhelmingly difficult to use), so their perceptions converge. The TAM framework, as integrated by Almogren and Aljammaz (2022), would suggest that high perceived usefulness can lead to positive attitudes broadly, regardless of demographic differences – and our results exemplify that scenario.

It is somewhat surprising that experience and education level did not introduce differences, because one could hypothesize that more experienced instructors might rely on established techniques or that those with higher degrees might be more aware of research on technology in education. Our results did hint that instructors with PhDs had slightly higher median perception scores, but with such a small subgroup, the difference was not significant. It's possible that with a larger sample or in certain contexts, subtle differences might emerge. Nevertheless, the core finding here is that none of the demographic factors we examined were strong predictors of instructors' general views on m-learning. This uniformity is a positive sign, indicating a broad-based receptivity to mobile learning integration among language instructors in Turkish higher education.

The absence of differences by demographics also directs attention to other factors that might be influencing instructors' perceptions. If gender, age, experience, and education level are not driving variation, what might be the other factors? Prior literature suggests that instructors' beliefs, values, and the support they receive may be more critical determinants of technology integration success than demographic traits. Ertmer et al. (2012) highlighted the complex relationship between teacher beliefs and technology use: intrinsic factors like a teacher's confidence in technology, their pedagogical beliefs about student-centered learning, and their openness to change can significantly impact how they adopt new tools. In our context, it could be that the instructors who participated largely share certain positive beliefs about the role of technology in language learning. Alternatively, those who chose to respond to the survey might already be the ones interested in or open to m-learning, reflecting a self-selection bias where less enthusiastic instructors did not participate. This is one possible explanation for the uniformly positive findings.

Another consideration is the role of the institutional environment and professional development. The literature emphasizes that even willing instructors need adequate support to implement new technologies effectively (Hew & Brush, 2006; Inan & Lowther, 2009). In Türkiye, if there have been national or institutional initiatives promoting digital learning (such as training programs or pilot projects for mobile learning in education), these efforts might have elevated baseline perceptions among instructors. Kaya and Adıgüzel (2021) suggest that targeted professional development can shape instructors' attitudes by building their competence and confidence in using educational technologies. It is plausible that some instructors in our sample have had exposure to workshops or success stories about m-learning, which in turn positively influenced their perceptions.

It is important to note that while the findings of this study show broad optimism and no group differences, this does not automatically translate to seamless implementation of mobile learning in practice. Other studies have found that even instructors who acknowledge the benefits of technology might face barriers to using it, such as lack of time, insufficient technical support, or curricular constraints (Hew & Brush, 2006; Inan & Lowther, 2009). In this study, we focused on perceptions, which are an essential precursor to adoption, but actual classroom integration would require addressing practical challenges. The uniformly positive perceptions are a strength, in that we likely have a cohort of instructors who are willing to integrate m-learning. The next step is to ensure they have the means to do so effectively.

Comparing our results with previous research reveals both alignment and divergence. On one hand, the generally positive stance of instructors aligns with findings from other contexts where teachers recognized the potential of m-learning. For example, studies in different countries have reported teachers viewing mobile learning as a useful supplement to traditional instruction (e.g., Shonola et al., 2016). On the other hand, our finding of no gender or age effect diverges from some earlier studies such as Al-Hunaiyyan et al. (2017), who found that younger instructors and male instructors were slightly more accepting of m-learning in a Middle Eastern context. One possible reason for this divergence could be the difference in context and time: technology adoption patterns can change rapidly. It may be that since 2017, familiarity with mobile learning has grown among all demographics of instructors, reducing the

gaps that were once observable. Additionally, cultural and institutional differences between the contexts might account for different outcomes; Turkish higher education may have its own unique dynamics influencing instructor attitudes.

Another area of discussion is related to the scale and measurement of perceptions. In this study, the MLPS was used to capture perceptions on three dimensions. It could be insightful to consider if instructors rated some dimensions higher than others. For instance, in Table 2, the mean for Appropriateness of Branch (35.21) was higher (relative to its maximum) than the mean for A-MTF (29.41). This might imply that instructors are especially convinced that mobile learning is suitable for language learning activities in their field, even if they are slightly less certain about the overall alignment with their teaching aims. While all means are high, these subtle differences could guide where instructors might need more convincing or support. From a theoretical standpoint, this resonates with the idea of compatibility from Rogers' Diffusion of Innovations theory (Rogers, 2003): instructors likely find mobile learning more appealing if it is compatible with their subject matter needs and existing practices. The high AB subscale scores indicate perceived compatibility with language teaching, which bodes well for diffusion of m-learning in this field.

In summary, the discussion of our findings suggests that Turkish language instructors generally perceived mobile learning as useful and suitable for their teaching context, aligning clearly with TAM's construct of perceived usefulness. This broad acceptance is promising and somewhat in contrast to expectations of variability based on demographic factors. The absence of significant demographic differences suggests that TAM's theoretical assumptions regarding universal factors influencing technology acceptance (usefulness and ease of use) may overshadow demographic distinctions in certain educational contexts. It highlights the importance of looking beyond surface demographics to understand technology adoption. Instructors' underlying beliefs, the supportive context they operate in, and exposure to success stories or training likely play a more pivotal role in shaping their attitudes. The next step is to capitalize on these positive perceptions by providing the means to turn perception into practice, ensuring that instructors have the resources and knowledge to integrate mobile learning in ways that truly benefit students.

LIMITATIONS and FUTURE RESEARCH

While the current study provides a useful snapshot of language instructors' perceptions of mobile learning in Turkish higher education, it is not without limitations. First, the study relied on self-reported survey data, which capture perceptions but do not necessarily reflect actual classroom practices. Instructors might express positive views on a survey yet encounter difficulties or demonstrate different behaviors when integrating m-learning in real teaching scenarios. Future research could complement surveys with classroom observations or interviews to examine how perceptions align with implementation.

Second, our sample, although drawn from multiple universities and reasonably large (n=236), was a volunteer sample that may have attracted instructors already interested in technology. This self-selection means the findings might overrepresent more tech-savvy or enthusiastic instructors. Additionally, the group of instructors with PhD degrees was relatively small (only 27 individuals), which may have limited our ability to detect differences by education level. Future studies could aim for a stratified sampling approach to ensure sufficient representation of all subgroups, or potentially focus on underrepresented groups (e.g., instructors who are more skeptical of technology) to see if their perceptions differ.

Another limitation is the cross-sectional nature of the research. Perceptions were captured at one point in time. As mobile learning tools and institutional policies evolve, instructors' perceptions may also change. Longitudinal research could track how exposure to new mobile learning initiatives or professional development programs influences instructor attitudes over time. It would be insightful to see, for example, if sustained use of certain mobile applications in teaching leads to increasingly positive perceptions or addresses any initial reservations instructors might have.

In terms of the measurement, while the MLPS provided a structured way to gauge perceptions, it may not cover every nuance of instructors' thoughts on m-learning. There might be context-specific factors (like particular institutional support structures or cultural attitudes towards technology) that influence perceptions but are not explicitly measured by the scale. Qualitative research – such as focus group discussions or open-ended survey questions – could be employed in future work to uncover themes that the MLPS might not fully capture. For instance, instructors could be asked what they see as the main barriers to using mobile learning or what specific mobile tools they find most promising or problematic.

Given that this study found no differences across basic demographics, future research should delve deeper into what does influence instructors' readiness to adopt mobile learning. Potential areas include examining the role of institutional support (e.g., does having an e-learning support office or a clear policy on mobile learning at the university improve perceptions?), peer influence (e.g., do instructors who see colleagues successfully using m-learning develop more positive attitudes?), and personal innovativeness (some instructors might naturally be early adopters of technology, which could be measured and analyzed). Investigating such factors could involve more complex statistical modeling (like regression or structural equation modeling) to see which factors best predict an instructor's perception or intention to use mobile learning.

Additionally, research could explore m-learning perceptions in different disciplines or contexts. This study focused on language instructors; it would be interesting to compare if instructors in other fields (such as sciences, engineering, or social sciences) have similar attitudes or if the nature of the subject influences how mobile learning is perceived. Within language education, examining different language teaching contexts (e.g., instructors teaching English vs. other foreign languages, or comparing instructors in preparatory language programs vs. those teaching language electives) might reveal subtle differences.

CONCLUSION

In conclusion, this study offers important insights into how language instructors in Turkish universities perceive mobile learning and underscores the generally positive outlook among these educators. The research set out to explore instructors' perceptions and to determine if factors such as gender, age, experience, or education level affected those perceptions. The findings revealed that instructors widely recognize the potential benefits of mobile learning for language education – they see mobile technologies as fitting well with their teaching goals, appropriate for their subject matter, and capable of facilitating adequate communication and interaction in learning. Notably, the enthusiasm for mobile learning was evident across all subsets of instructors: there were no significant differences in perception when comparing by gender, age group, years of experience, or highest degree earned. This uniform positivity suggests that the foundation is in place for broad acceptance of mobile learning initiatives in the language education departments of Turkish higher education.

The implications of these findings are significant for various stakeholders in the education sector:

- **For instructors**, the generally positive attitudes towards mobile learning are encouraging, as they indicate a readiness to engage with new teaching tools. Instructors can take confidence in the knowledge that many of their peers share an openness to m-learning. This creates a collegial environment where they can exchange ideas, best practices, and even collaborate on integrating mobile-based activities into their curricula. Instructors who might be hesitant could be mentored by those who are more experienced or enthusiastic, fostering a community of practice around mobile-assisted language teaching.
- **For educational leaders and policymakers**, the lack of demographic disparities in perception means that professional development and support for m-learning integration can be offered broadly, without the need to heavily tailor programs to specific subgroups. Since both younger and older, novice and veteran instructors are similarly receptive, training workshops and resource development can be designed for all instructors. Policymakers should focus on creating enabling conditions for these positive perceptions to translate into action. This includes investing in the necessary infrastructure (e.g., reliable campus Wi-Fi, access to devices or educational apps), providing technical support, and incorporating mobile learning into institutional teaching and learning strategies. The results also imply that initiatives to integrate mobile learning are likely to be met with goodwill by instructors, which is a critical ingredient for successful implementation. Thus, policymakers can move forward with reforms or projects in this area with some assurance of instructor buy-in, concentrating their efforts on removing practical barriers.
- **For researchers**, the study highlights that instructor perceptions of technology are a multifaceted issue not easily predicted by basic demographics. Future research can build on this work by examining deeper factors that influence adoption of mobile learning, as discussed in the previous section on limitations and future work. Researchers should also note the importance of context: our findings add a piece to the global puzzle of how educators view m-learning, and comparative studies could enrich understanding (e.g., is the trend of no demographic differences unique to this context or a more general phenomenon?). There is also an implication that more qualitative insight is needed – researchers might explore why instructors feel so positively, what personal or institutional narratives have shaped these perceptions, and how these attitudes impact actual teaching practices.

The positive perceptions among language instructors in Turkish universities show promise for the continued integration of mobile learning into higher education. Instructors are key agents in the educational process, and their openness to leveraging mobile technology creates a rich ground for innovation in teaching and learning. To capitalize on this, higher education institutions should provide ongoing support and resources, ensuring that instructors can transform their positive perceptions into effective pedagogical practices. By doing so, universities will be better positioned to enhance language education through mobile learning, ultimately benefiting students who are increasingly expecting and engaging in digitally-enriched learning environments.

Ethics Committee Approval: The study gained ethical approval from the Zonguldak Bülent Ecevit University Social and Human Sciences Ethics Committee (reference number: 12.03.2024/427276 protocol number: 566).

The Authors Contributions: The author is the sole contributor to the study.

Conflict of Interest: The author has no relevant financial or non-financial interests to disclose.

Financial Support: No funding was received for conducting this study.

Peer-Review Proces: Double-blind refereeing.

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