

Attitude of Secondary School Teachers towards Mobile Learning

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Abstract

This study examined the attitudes of secondary school teachers towards mobile learning with respect to gender and locality in Jammu District. Mobile learning has emerged as an important technology-enhanced educational approach that offers flexible, accessible, and learner-centered learning opportunities. Since teachers play a crucial role in the successful implementation of mobile learning, understanding their attitudes is essential for effective technology integration. The study employed a descriptive survey design and collected data from 200 secondary school teachers selected from 50 secondary schools using simple random sampling. Teachers' attitudes were measured using the Attitude Scale Towards Mobile Learning developed by P. Pachaiyappan and S. Raja Kumar, and the data were analysed using a 2×2 factorial ANOVA. The findings revealed significant differences in teachers' attitudes towards mobile learning based on both gender and locality, whereas the interaction effect between gender and locality was not statistically significant. The results indicate that individual and locale characteristics independently influence teachers' acceptance of mobile learning. The study highlights the need for professional development, improved digital infrastructure, and supportive institutional policies to promote the effective integration of mobile learning in secondary education.

Keywords: secondary school teachers, mobile learning

Introduction

The rapid advancement of information and communication technologies has transformed educational practices across the world. Among these innovations, mobile learning (M-learning) has emerged as an effective approach that enables learners to access educational content through portable digital devices such as smartphones, tablets, and personal digital assistants. Unlike conventional classroom-based learning, M-learning supports continuous learning by allowing students and teachers to engage with educational resources regardless of time and location. Consequently, it has become an important extension of e-learning and a valuable component of technology-enhanced education (Bihari and Gupta, 2024).

The growing use of mobile technologies has encouraged educational institutions to integrate mobile learning into teaching and learning processes. Mobile learning not only promotes flexibility and learner autonomy but also enhances communication, collaboration, and access to instructional resources. As educational systems increasingly adopt digital technologies, understanding the attitudes of teachers towards mobile learning becomes essential because teachers are the primary agents responsible for implementing technological innovations in the classrooms (Talekar, 2017).

Concept of Mobile learning

Mobile learning refers to the delivery and acquisition of knowledge through portable digital devices connected to wireless communication technologies. It is commonly viewed as an advancement of electronic learning that enables learners to study beyond the limitations of traditional classrooms. Mobile learning supports individualized, collaborative, and interactive learning experiences by providing instant access to educational materials, online discussions, assessments, and multimedia resources. Through smartphones, tablets, and portable devices, learners can participate in educational activities at any time and from virtually any location, making learning more flexible and learner-centered (Dahri et al., 2023).

Advantages and challenges of mobile learning

The widespread adoption of mobile learning is largely attributed to its numerous educational benefits. It provides flexibility, immediate access to learning resources, enhanced interaction between teachers and students, collaborative learning opportunities, and timely feedback. Furthermore, mobile technologies support inclusive education by enabling learners with diverse needs to participate effectively in educational activities. Integration with communication platforms and multimedia applications further enriches the teaching-learning process.

Teachers encounter several challenges in integrating mobile learning into classroom practice. The most common barriers include inadequate infrastructure and resources, unreliable internet connectivity, lack of technical support, insufficient training opportunities, limited time for lesson planning, and inadequate administrative support. In addition, restrictive school policies, curriculum constraints, and concerns about students' distraction, classroom misbehavior, cyber safety, and data security hinder effective implementation. Teachers' lack of confidence, limited digital competence, and beliefs about the educational value of mobile technologies also influence their willingness to adopt mobile learning. Research further suggests that factors such as teaching experience, age, ICT training, and institutional support significantly affect teachers' readiness to integrate mobile technologies into teaching and learning (Nikolopoulou et al., 2023).

Attitude towards mobile learning

Attitude represents an individual's learned tendency to respond positively or negatively towards an object, idea, or activity. It encompasses cognitive beliefs, emotional responses, and behavioural intentions that collectively influence decision-making and actions (Manjunath and Venkatesh, 2021). In educational settings, teachers' attitudes towards technology significantly affect their willingness to adopt innovative instructional practices. Positive attitudes encourage effective integration of mobile technologies, whereas negative attitudes may limit their classroom use. Therefore, examining teachers' attitudes provides valuable insights into the successful implementation of mobile learning initiatives.

Significance of the study

The increasing availability of mobile devices has created new opportunities for improving educational delivery. As schools and higher educational institutions continue to embrace digital learning environments, understanding teachers' perceptions of mobile learning becomes increasingly important. Findings from the present study can assist educational administrators, policymakers, and teacher educators in designing professional development programmes, strengthening digital infrastructure, and promoting effective integration of mobile technologies in teaching. The study also contributes to the existing body

of knowledge by providing empirical evidence on teachers' attitudes towards mobile learning in the context of secondary education.

Objectives of the study

The study was conducted with the following objectives:

1. To examine whether secondary school teachers differ significantly in their attitudes towards mobile learning based on gender.
2. To examine whether secondary school teachers differ significantly in their attitudes towards mobile learning based on locality.
3. To study the interactional effect of gender and locality on teachers' attitudes towards mobile learning.

Hypotheses of the study

1. There is significant difference in teachers' attitudes towards mobile learning based on gender.
2. There is significant difference in teachers' attitudes towards mobile learning based on the locality.
3. There is significant interaction effect of gender and locality on teachers' attitudes towards mobile learning.

Delimitations of the study

The present investigation was delimited to secondary school teachers working in Jammu District. The sample comprised teachers from 50 selected schools, and the total sample size was restricted to 200 participants.

Thematic review of literature

Theme 1: Evolution and conceptualization of mobile learning

Earlier studies primarily focused on defining the concept and scope of mobile learning. Abfalter et al. (2004) described mobile learning as a form of distance education that enables learners and teachers to access educational content through wireless handheld devices. Barker et al. (2005) emphasized that the successful adoption of mobile learning depends not only on technological infrastructure but also on issues such as security, safety, and user training. Similarly, Georgieva et al. (2005) classified mobile learning systems based on communication technologies, learner access, mobility, and compliance with e-learning standards. El-Hussein and Cronje (2010) further expanded the concept by explaining that mobile learning encompasses the mobility of technology, learners, and learning processes. Collectively, these studies established the theoretical foundation of mobile learning and highlighted its multidimensional nature.

Theme 2: Education benefits and learning outcomes of mobile learning

Several researchers have examined the effectiveness of mobile learning in enhancing teaching and learning outcomes. Mehdipour and Zerehkafi (2013) reported that mobile learning offers numerous educational benefits, including greater accessibility, flexibility, and support for lifelong learning. Elfeky and Masadeh (2016) demonstrated that mobile learning significantly improved students' academic achievement and conversational skills. During the COVID-19 pandemic, Biswas et al. (2020) highlighted the critical role of mobile learning in ensuring educational continuity and minimizing learning disruptions. Likewise, Yosiana et al. (2021) concluded that mobile learning effectively supports mathematics instruction and promotes independent learning among students. These studies consistently indicate that mobile learning can positively influence student learning when implemented effectively. Further, Garzón et al. (2025)

conducted a comprehensive meta-analysis of 253 empirical studies and reported that mobile learning has a significant positive effect on students' learning gains across different educational levels and disciplines. The study also found that higher-quality mobile learning interventions produced stronger educational outcomes, confirming the effectiveness of mobile learning as a pedagogical approach.

Theme 3: Teachers' attitude and acceptances of mobile learning

Teacher acceptance has emerged as a major determinant of successful mobile learning implementation. Alfarani (2015) reported that teachers acknowledged the collaborative potential of mobile learning but also identified social, cultural, and organizational barriers that limited its adoption. Ahmed et al. (2018) found that both students and instructors generally held positive perceptions of mobile learning, although concerns regarding social and cultural issues remained. Dumber (2026) observed that students attitudes varied across demographic groups, with positive attitude differences reported for gender and rural and urban students where female and rural area students had positive attitude than that of male and urban students towards mobile learning. Alblowi (2019) established a significant positive relationship between teachers' attitudes and their adoption of mobile learning in higher education. Vo and Vo (2020) similarly reported positive teacher attitudes toward integrating mobile technology into language teaching. These findings demonstrate that teachers' attitudes play a central role in determining the successful integration of mobile learning in educational settings. Buabeng-Andoh (2025) found that student-teachers' continued intention to use mobile learning management systems was significantly influenced by perceived usefulness, satisfaction, and confirmation of expectations, emphasizing that positive attitudes are essential for sustained adoption of mobile learning technologies. Similarly, a study on prospective language teachers reported that the majority of respondents exhibited positive attitudes toward mobile-assisted language learning, recognizing its role in creating interactive learning environments and authentic learning opportunities despite challenges such as internet connectivity and device affordability (Domingo et al., 2025). Most recently, Shambare and Jita (2026) revealed that teachers' Technological Pedagogical Content Knowledge (TPACK) significantly predicted their acceptance of mobile learning. The study concluded that pedagogical competence and confidence, rather than merely favorable perceptions, are key drivers of teachers' intention to integrate mobile learning into classroom practice.

Research gaps

The reviewed literature demonstrates substantial progress in understanding the concept, benefits, adoption, and educational impact of mobile learning. Previous studies have predominantly focused on conceptual frameworks, technological acceptance, student achievement, and teachers' perceptions in diverse institutional contexts. Although several investigations have examined teachers' attitudes towards mobile learning, most were conducted in universities, teacher education institutions. Evidence relating specifically to secondary school teachers remains limited. In addition, the literature reviewed did not identify any study conducted among secondary school teachers in Jammu district, thereby leaving a significant contextual gap in the existing body of knowledge.

To address this gap, the present study investigates the attitudes of secondary school teachers towards mobile learning by comparing male and female teachers as well as teachers from rural and urban locality institutions. The study also examines the interaction effect of gender and institutional type, thereby contributing empirical evidence from the Jammu District and extending the existing literature on mobile learning in secondary education.

Research methodology

The study employed a descriptive survey research design to examine the attitudes of secondary school teachers towards mobile learning. Two-way ANOVA was employed to study the main and interaction effects of gender (male and female) and locality (rural and urban) on teachers' attitudes towards mobile learning. The study was conducted among 200 secondary school teachers selected from 50 secondary schools in Jammu District. The sample comprised 100 male and 100 female teachers. Participants were selected using simple random sampling technique, ensuring equal representation of teachers from rural and urban locality institutions.

Variables of the study

- **Independent Variables**
 - Gender (Male and Female)
 - Locality (Rural and Urban)
- **Dependent Variable**
 - Attitude towards Mobile Learning (Attitude Scale Scores)

Tool used

Data were collected using the Attitude Scale Towards Mobile Learning developed by P. Pachaiyappan and S. Raja Kumar. The instrument is a five-point Likert-type scale comprising both positively and negatively worded statements, with response categories ranging from Strongly Disagree (1) to Strongly Agree (5). Negative items were reverse scored. The reliability of the instrument was established using Cronbach's alpha, which yielded a coefficient of 0.84, indicating that the tool is reliable.

Collection of data

Permission was obtained from the selected schools prior to data collection. The attitude scale was administered to the selected teachers after explaining the purpose of the study and assuring them that their responses would remain confidential and would be used solely for academic research. Completed questionnaires were collected and analysed for final results.

Analysis of data

The collected data were coded and analysed using two-way Analysis of Variance (ANOVA) with a 2×2 factorial design to determine the main effects of gender and locality, as well as their interaction effect on teachers' attitudes towards mobile learning. Statistical significance was tested at the 0.05 level.

Table 1
Showing the summary of ANOVA for 2x2 Factorial Design

Source of variance	SS	Df	MS	F	Level of Significance
A (Gender)	7840	1	7840	17.6	Significant
B (Locality)	11971.6	1	11971.6	26.9	Significant
AxB	1849.6	1	1849.6	4.16	Not significant
Within	16004.4	36	444.56		

Interpretation

A two-way Analysis of Variance (ANOVA) was performed to examine the effects of gender and locality on secondary school teachers' attitudes towards mobile learning.

The analysis revealed a significant main effect of gender ($F = 17.60$), indicating that male and female teachers differed significantly in their attitudes towards mobile learning. Therefore, the first hypothesis was accepted. This finding suggests that gender plays an important role in shaping teachers' perceptions and acceptance of mobile learning.

The results also showed a significant main effect of locality ($F = 26.90$). Teachers employed in rural and urban schools demonstrated significantly different attitudes towards mobile learning, leading to the acceptance of the second hypothesis. The finding implies that locality of the institutions may influence teachers' exposure to digital technologies, access to technological resources, and willingness to adopt mobile learning.

The interaction effect between gender and locality yielded an F-value of 4.16. According to the analysis, this interaction was interpreted as statistically non-significant. Hence, the third hypothesis was rejected, suggesting that the combined influence of gender and locality did not produce a significant difference in teachers' attitudes towards mobile learning beyond their independent effects.

Overall, the findings indicate that gender and locality independently influence teachers' attitudes towards mobile learning, whereas their interaction does not substantially affect teachers' perceptions.

Conclusion

The present study examined the attitudes of secondary school teachers towards mobile learning with respect to gender and locality. The findings demonstrated that both gender and locality significantly influenced teachers' attitudes towards mobile learning. However, the interaction between gender and locality was not found to have a significant effect on teacher's attitude towards mobile learning. However, this finding is inconsistent with the studies conducted by Sharma et al. (2024), who found no significant gender difference in secondary school teachers' attitudes towards mobile learning in Jammu and Kashmir. Similarly, Rukh et al. (2021) reported no significant difference in male and female teachers' readiness for mobile learning integration. These inconsistencies may be attributed to differences in geographical settings, institutional support, technological infrastructure, teacher training opportunities, and sample characteristics. Further, with respect to locality this finding contradicts the results of (Sao et al., 2018) observed no significant difference in teachers' attitudes towards mobile learning based on locality. The difference between the findings may be due to variations in the availability of ICT infrastructure, administrative support, funding patterns, digital policies, and teachers' professional experiences across different educational contexts. The results suggest that teachers' acceptance of mobile learning is shaped by individual and institutional characteristics, highlighting the importance of creating supportive educational environments that encourage technology integration.

Educational implications

The findings of the study have several implications for educational practice and policy:

- Professional development programme should be organized to strengthen teachers' competencies in integrating mobile learning into classroom instruction.
- Educational administrators should ensure equitable access to digital infrastructure and mobile learning resources across rural and urban schools.

- Teacher education institutions should incorporate mobile learning strategies into pre-service and in-service teacher training programme.
- Schools should encourage the effective pedagogical use of mobile technologies to enhance student engagement and promote learner-centered teaching practices.
- Policymakers should formulate institutional guidelines that facilitate the meaningful integration of mobile learning while minimizing potential barriers to its adoption.

Limitations and suggestions for further research

The study was limited to a sample of 200 secondary school teachers from selected government and private schools in Jammu District. Therefore, the findings should be interpreted within this context.

Future studies may:

- include larger and more diverse samples from different geographical regions;
- examine teachers at the college and university levels;
- investigate additional factors such as teaching experience, digital competence, age, and technological self-efficacy;
- employ mixed-methods or longitudinal research designs to obtain a deeper understanding of teachers' attitudes and actual use of mobile learning technologies; and
- explore the relationship between teachers' attitudes towards mobile learning and students' learning outcomes.

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