

A STUDY OF SENIOR SECONDARY STUDENTS' ATTITUDES TOWARD MOBILE LEARNING PLATFORMS

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Abstract

The growth in information and communication technologies has extended the horizon of mobile technologies. Mobile technology has found its place in the education field and has stretched teaching-learning to anytime anywhere learning through mobile phones. In recent times, several learning applications based on mobile have entered the market with the aim of offering a virtual learning experience to children. The usability and efficiency of mobile-based learning applications have resulted in their widespread utilization in the field of education. The primary aim of this paper is to determine the attitude of senior secondary school students towards mobile-based learning applications on the basis of their efficiency and usefulness. The study sample consisted of 100 senior secondary school students of a school in Delhi. The current research found that senior secondary school students have a positive attitude towards the usability and effectiveness of mobile-based learning applications.

Keywords: *Attitude, Effectiveness, Mobile based learning Application, Usability.*

Introduction

The international landscape of education has been deeply transformed by the accelerated pace of growth in Information and Communication Technology (ICT). These advances have stretched the learning horizon outside the confines of classrooms, with learners receiving flexible, tailored, and accessible learning experiences. ICT options like multimedia materials, gamification tactics, and online platforms are now key components of contemporary pedagogy, transforming the ways students and teachers engage with learning material (Kanvaria, 2014; UNESCO, 2023).

Mobile learning, specifically, has become a transformative force in education democratization. As the use of wireless and portable technology to learn while mobile, mobile learning makes it easy to access education resources at anytime and anywhere (Quinn, 2000; Park, 2011). Recent findings affirm that mobile learning enhances student engagement, motivation, and critical thinking skills exponentially, making mobile learning an integral part of learning in the 21st century (Pedraja-Rejas et al., 2024). It is also conducive to lifelong and autonomous learning, matching the requirements of ever-more fluid knowledge economies (Kang, 2024).

Following the COVID-19 pandemic, the use of digital learning environments sped up across the globe. This change has established a solid ground for mobile-based learning programs, especially in emerging nations such as India. Indian learning apps like Byju's, Unacademy, and Vedantu became extremely popular, allowing students to carry on learning even when formal education was disrupted. According to González-Calvo and Barba-Martín (2024), as they highlight, the pandemic reconfigured the pedagogical function of ICT in classrooms, and teachers were forced to revise their practice and focus on a range of learning needs.

Yet, education technology is a double-edged sword. While it has several advantages, its impact rests with its effective application, fair access, and user flexibility. UNESCO (2023) warns that if not integrated reflectively, technology can perpetuate inequalities or disengagement. Thus, knowing the students' attitude toward mobile learning—constructed from usability, individual experience, and cultural environment—is key to its long-term effectiveness (Kanvaria, 2014; Hacieminoglu, 2015).

Research Questions

The investigators posed the following questions while analyzing literature relevant to the current scenario:

1. What is the attitude of secondary school pupils towards mobile learning applications?
2. How do secondary school pupils perceive the usefulness and effectiveness of mobile-based learning applications?

Objectives of the Study

The following goals were proposed for achievement in this study:

1. Determine the attitude of senior secondary school pupils towards mobile-based learning applications.
2. Assess senior secondary school students' perceptions of the usefulness and effectiveness of mobile learning applications.

Significance of the Study

It is beneficial to know the attitudes of senior secondary students toward mobile-based learning applications to inform effective education strategies and policies. Since mobile learning is progressively integrated in school systems, particularly after the digitalization promoted by the COVID-19 pandemic, investigating students' perceptions and reactions is crucial to maximize instructional design, enhance engagement, and enhance learning achievements (Pedraja-Rejas et al., 2024).

Positive attitudes among students toward mobile-based learning have the potential to increase motivation, promote higher participation, and inspire independent learning—essential qualities required for 21st-century skill development. According to Kang (2024), mobile learning increases flexibility and student-directed learning, with content

personalization and availability in various socio-economic environments. This aspect is even more applicable in developing nations such as India, where mobile learning devices have the potential to eliminate inequalities in access and equity by opening up educational opportunities beyond traditional classroom environments (Kanvaria, 2014).

Moreover, awareness of these attitudes helps teachers detect and break technology adoption barriers like digital literacy issues, change resistance, or infrastructure constraints (UNESCO, 2023). It also assists in creating inclusive learning spaces that facilitate diverse learning capabilities and the development of lifelong learning competencies, which are key in today's knowledge economy driven by dynamism (González-Calvo & Barba-Martín, 2024).

In addition, the findings from such research can be used to shape policy in education by highlighting the importance of supportive digital environments, fair resource allocation, and specific teacher education. By prioritizing learner requirements and expectations of educational technologies, policymakers and teachers can act in concert toward building a more inclusive, interactive, and knowledge-based society (Hacieminoglu, 2015).

Functional Definitions of the key terms used in the research

The study took into account three important terms-Mobile-based Learning Application, Usability and Effectiveness of Mobile-based Learning Applications.

1. Mobile-based Learning Applications

Mobile learning is defined as ubiquitous learning that takes place through the use of mobile devices such as smartphones, tablets, or tablet computers. These devices provide opportunities to students to learn anytime and anywhere by connecting to and interacting with content on mobile devices.

2. Effectiveness of Mobile-based Learning Applications

Effectiveness in mobile learning is the ability to achieve desired outcomes accurately and completely. Key factors contributing to its effectiveness include its ubiquity and ease of use. Mobile-based learning applications offer various attributes such as visual impact, concept clarity, better performance, self-pace, quick access to information, diverse learning methods, feedback, drill and practice, remediation, and long-term retention of concepts.

3. Usability of Mobile-based Learning Applications

Usability is the ease of use and suitability of a system for specific users performing specific tasks in a specific setting. It assesses the product's usefulness and ease for users. Usability dimensions of mobile-based applications include student-friendly features, appropriate content coverage, convenience of time, reliable information, saving and sharing content, affordability, mobility, and creating interest.

Therefore, when designing a user interface for mobile phones, especially for educational purposes, it is crucial to consider the user requirements of these devices.

Research Method

- **Setting of the Study:** The study was carried out at senior secondary school, GBSSS Dhakka.
- **Design of the Study:** Simple descriptive survey method was employed to study and compare the variables of the study. The descriptive survey method refers to the methods that describe the characteristics of the variables under study. A survey method was undertaken in this study, data was collected and analyzed.
- **Variable of the Study:** This study brought to light and described the relationship between the psychological variable -'Attitude' towards mobile-based learning applications and variables like usability and effectiveness of mobile-based learning applications.
- **Population and Sample of the Study:** A sample of 100 senior secondary school students was selected by stratified sampling technique.
- **Sample Selection:** An incidental sampling technique was adopted to select the sample from the population.
- **Tool of the study:** The researchers prepared a questionnaire for finding the attitude of senior secondary school students towards the effective use of mobile based learning applications.
- **Description:** A questionnaire was used to collect data on senior secondary school students' attitudes towards mobile-based learning applications. The questionnaire, consisting of two parts, 'Part A' for personal details and 'Part B', an attitude scale with 22 items, was used to assess their perceptions of the usability and effectiveness of these applications.
- **Validity:** The content validity of the test was established by the constructors with the help of various experts' opinions and suggestions. The experts critically examined each and every item of the questionnaire.
- **Reliability:** The Cronbach's alpha reliability for the questionnaire was calculated and it was found 0.98.
- **Scoring:** Scoring of the questionnaire was based on 5 point scale which possesses the quantitative values for students as- Strongly agree-5, Agree-4, Cannot say-3, Disagree-2, Strongly disagree-1
- **Administration of the questionnaire:** The copies of the questionnaire were administered to the students of a school of the CBSE board, located in Delhi.
- **Difficulties in data collection:** The task of data collection was tedious. The investigators had to approach the authorities for their consent many times. However, they were kind enough to allow the investigators to conduct the survey.

Data Analysis and Interpretation

The first objective of the study was to find out the attitude of senior secondary school students toward mobile-based learning applications. For this purpose, a questionnaire was administered to the secondary students. Section B of the questionnaire contained 22 statements/items which were used to find out the attitude of secondary students towards mobile-based learning applications. The sample of 100 students who were boys was taken and the attitude of the students was analyzed in terms of their usability and effectiveness. Table 1 shows the number of students with different streams in the school. 60 students belonged to class XI and 40 students belonged to class XII. The average number of hours per day was calculated 7.47 by the students using mobile based learning applications. Table 2 shows that the maximum percentage of senior secondary students of GBSSS, Dhakka use YouTube for learning which is about 75%.

Table 1 Stream of the senior secondary students using mobile based learning applications

STREAM	Number of students (N=100)
Arts	69
Commerce	31

Table 2 Commonly used mobile based learning applications by the senior secondary students

Mobile based learning applications	Number of Respondents	Percentage
YouTube	75	75
Vedantu	6	6
Unacademy	5	5
Byjus	9	9
Extramarks	2	2
Meritnation	1	1
Any Other	2	2

The attitude of the respondents were measured using a 10 item (statements) Likert scale measurement. A mix of positive and negative items were used. A Five-point Likert Scale was used denoting from 1= strongly disagree to 5= strongly agree, negative statements accordingly scored. It was assumed by the researchers that the mean likert score of 0 to 2 shows negative attitude, 2.1 to 3 shows neutral attitude and above 3 shows positive attitude.

Table 3 Attitudes of senior secondary students towards mobile based learning applications

Parameters	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree	Mean Likert Score
I like mobile based learning applications because the video animation makes the audio/visual lecture understandable.	34	61	01	03	01	4.24
I find it difficult to cope with missed lectures on the mobile based learning application.	22	52	04	15	07	3.67
Whenever I get stuck, I interact with the mentors of mobile based learning applications to clear my doubts.	21	50	02	22	05	3.60
It is easy for me to remember the concepts through pictures and videos of mobile learning applications.	42	42	07	05	04	4.12
I get distracted while learning from mobile based learning applications.	29	31	17	21	02	3.64
Studying through mobile based Learning applications has improved my class performance.	29	43	15	07	06	3.82
I prefer studying from mobile based learning applications because it provides quick feedback.	17	50	15	15	3	3.63
Studying through mobile based learning applications is a very time taking process.	17	31	20	05	27	3.28
Very easily, I can search for content or solutions to my problems on mobile based learning applications.	33	48	05	12	02	3.98
I enjoy learning through animated videos, quizzes, MCQs, pictures, puzzles etc. on mobile based learning applications.	32	52	05	07	04	4.01
I can learn at my own pace with the help of mobile based learning applications.	18	55	17	08	02	3.79

The numerous question sets in mobile based learning applications is quite complicated and difficult for me.	11	34	32	20	03	3.59
Operating features of mobile based learning applications is quite complicated and difficult for me.	17	29	15	35	04	3.20
I go through the videos and notes uploaded on mobile based learning applications before my exams.	26	54	09	09	02	3.94
Excess usage of mobile or mobile based learning applications gives health issues.	21	47	11	12	09	3.6
Mobile based learning applications give a better understanding of difficult concepts /experiments.	20	56	08	11	05	3.79
I like mobile based learning applications because it provides accurate information and explanation of the concepts.	26	51	10	11	02	3.88
I can save the videos or links from mobile based learning applications for later use.	26	50	09	13	02	3.86
Mobile based learning applications are costly.	29	28	18	22	03	3.59
While using mobile based learning applications, I do not deviate to social sites for games.	11	26	24	29	10	3.10
I cannot use mobile based learning applications anytime and from anywhere.	11	37	12	28	12	3.07
I like to study through audio/visual lectures of mobile based learning applications as compared to the traditional method of learning.	20	34	17	22	07	3.38

Table 3 shows the attitudes of the students towards mobile based learning applications which clearly shows that senior secondary students have a positive attitude towards mobile based learning applications in terms of usability and effectiveness.

Analysis of attitudes among senior secondary students of using mobile-based learning applications shows a combination of favourable and unfavourable reactions.

Favourable Aspects: Students find video animations, interactive quizzes, and convenient searching of contents helpful, with great support for visual materials such as pictures and videos to help them learn. They also concur that academic performance is enhanced by mobile learning and provides better comprehension of complex concepts.

Challenges: Issues raised are distractions from social websites, problems in using the app, and the time-consuming nature of learning through mobile apps. Some students also complain of limited access and struggle to keep up with missed classes.

Neutral/Negative Aspects: A large majority of students consider mobile learning apps to be time-consuming and a bit complex to use, while others prefer conventional learning over mobile-based audio/visual lectures.

Conclusion

On the basis of the study, it can be concluded that the attitude of secondary students towards mobile-based learning applications is positive. It can also be concluded that the secondary students have a positive attitude towards mobile based learning applications in terms of usability and effectiveness. Students feel that the mobile based applications are effective but there are some constraints which bothers their usability.

Delimitations of the study

Due to the paucity of time and money, the present study was delimited as:

1. This study has not included parents' behavior assessment because it was not possible to contact the parents of all students.
2. Due to the limitation of time students of GBSSS, Dhakka was only taken.
3. Students of only senior secondary level were taken for their opinion keeping in mind that they would provide relevant information.
4. The study is restricted only to boys.

Limitations

1. The school had only two streams: Arts and Commerce.
2. Some students had the least access to mobile phones at their homes.
3. The students were unaware of all the applications related to learning on mobiles.

Further Researches

- Different schools of Delhi could be taken to compare the attitudes of boys and girls.
- Also, the attitude of private and government school students at senior secondary level could be compared in order to know the exact attitude difference between these schools.

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