

# Role of Mobile Technology on the Learning Structure of the Students

Amit Kumar Uniyal<sup>1</sup>, Isha Rawat<sup>2</sup>, Akanksha Bisht<sup>3</sup>, Neha Rani<sup>4</sup>

<sup>1</sup>Graphic Era Deemed to be University, Dehradun, Uttarakhand, India

<sup>2</sup>Graphic Era Deemed to be University, Dehradun, Uttarakhand, India

<sup>3</sup>Graphic Era Deemed to be University, Dehradun, Uttarakhand, India

<sup>4</sup>Assistant Professor, Department of commerce, Graphic Era Hill University, Dehradun, Uttarakhand

---

## ABSTRACT

Mobile era, considerably cellular phones, have proliferated swiftly with inside the unique nations. Mobile era improvements are speedy broadening the scope of mastering outdoor of formal education with the aid of using facilitating adaptable and instant get right of entry to rich virtual resources. M-learning can be a crucial addition to conventional education. Mobile gadgets can increase the mastering revel in past faculties and universities with the aid of using allowing instructional substances in a dynamic, portable, and unbiased mastering environment; they could offer college students with a method of communiqué each amongst themselves and with their instructors. The goal of this studies is to offer a complete evaluation of college student's willingness to apply M-learning in their curriculum.

**Keywords:** Mobile Technology, M Learning, Turbo Viewer, Behavioral intentions, Innovativeness

---

## INTRODUCTION

As cellular units have come to be greater accepted in daily life, so has the thought that they might be beneficial in the study room and for learning. The integration of cell science into the schooling gadget has led to new gaining knowledge of techniques for college students of higher-education.

With the introduction of cell technology, getting to know is now greater open and widespread. According to Khalif, cellular science can be described 'as any small gadgets with an Internet connection and edit performance (Khalif, Z. (2018). In addition, Mobile Technology can also be described as any small gadget such as a smartphone, private digital assistant (PDA), digital audio participant and use of wi-fi internet. (Wang et al) With mobile technologies being a regular part of many students daily lives, it is possible to incorporate mobile technologies that provide an educational opportunity for all age groups.

This may improve the effectiveness of authentic scientific research beyond classroom settings. Students, lecturers, and other technology implementers can communicate more effectively and easily with each other using mobile technology. This provides a pragmatic impact on knowledge and education. University students have increasingly adopted mobile devices, making it worthwhile to investigate the impact of mobile device use on academic performance. (Qi, 2019).

Mobile Learning outperforms other traditional learning platforms due to ease of connectivity between the educator and the scholar.

It refers to any learning that occurs using wireless gadgets such as smart phones, Personal digital assistants, and tablets, where these gadgets may travel with the students to allow learning to occur at any time and from any location. (Abu and Love, 2013).

As a means of enriching the learning experience of students on campus, mobile learning offers a great deal of potential. By integrating mobile learning into the curriculum, educators can improve accessibility, interoperability, and reuse of educational resources, as well as improve interactivity and flexibility during the teaching process. (Liu et al., 2010)

Perception is the procedure of acquiring and decoding stimuli which have been established through the senses within the human device in step with the expertise that has been possessed. Using the expertise, they have; belief offers with how people relate to the environment. Students; belief is a complicated interplay that entails at the least 3 primary components, specifically selection, preparation, and interpretation. (Pebriantika et al., 2019) According to the studies carried out through Bond's University, it became reportedly determined out that, "Mobile education is perceived in a different way through college students, starting from being a 'distraction' to being 'green' with greater thematic content material on effective than poor views." As an end result of having the whole lot in a single place, cellular mastering become deemed efficient through college students as 'it's a whole lot simpler to be on that everyone the time,' and for visible learners, it became additionally taken into consideration to be genuinely, genuinely useful. According to students, mobile learning would be more effective if every student had access to their textbooks, which would also make education more affordable. (Kinash et al., 2012)

## **LITERATURE REVIEW**

Mobile gadgets have the possible to make a contribution to curricula at some point of the most ring technique since wireless applied sciences allow get entry to to records at the desired time and location. M - learning, a paradigm that was once set up primarily based on this premise and has been researched due to the fact that the 2000s, is one of the most giant developments that enhances the effectivity and efficacy of learning. (Talan, 2020)

According to the study analyzed by Gaziantep Islam Science and Technology, University, Turkey, "Mobile learning was revealed to have a favorable and generally significant influence on learning performance. The finding indicated that mobile learning improved students academic performances."

The argument why cell gaining knowledge of complements gaining knowledge of overall performance is because of the reality that cell generation permits gaining knowledge of anywhere, at any time, fosters scholar-centered training, and tailors M learning platforms as per the needs of students. (Corbeil & Valdes- Corbeil, 2007), Mobile Technology presents the power for every learner to examine at his or her very own speed, to get entry to distance gaining knowledge of structures and often enhance their know-how the usage of the ultra-modern era technology which notably make contributions to college students; educational performances. (Elçiçek, & Bahçeci 2017 ). A study by Sobri and Fatimah (2012) in Malaysian college students on the cognizance and necessities of cell gaining knowledge of offerings in better training and the results of the take a look at discovered that scholars have sufficient know-how and cognizance to incorporate m-gaining knowledge of their training environment. According to UNESCO (2011), numerous standards are taken into consideration for powerful m-gaining knowledge of adoption, which include cost, leadership, content, encouragement from each educators and parents, well-described m-gaining knowledge of goals, acknowledgement of m-gaining knowledge of, and the precise focused scholar demographics for m- gaining knowledge of. The Lakeshore University college students taken into consideration that the interactive technique of their college direction became greater profitable than their excessive faculty instructions because the cell gadgets allow them to interact with the curriculum, this helps the findings of Heath et al. (2005), who determined that cell gadgets and cell programs boosted college students and their perceived accept as true with in direction content.

## **RESEARCH METHODOLOGY**

Secondary data has been utilized to study the role of mobile technology in the learning of students. Platforms like Scopus, Emerald, and Google Scholar have been used to find relevant studies to drive the results. The researcher has thoroughly studied the previous literature to provide detailed and broad knowledge to the readers.

## **FINDINGS AND DISCUSSION**

### **Role of Mobile Technology in Various Disciplines:**

- Accountancy- Previous literature is of the view that mathematical calculation and accounting rules make students have an unfavorable attitude towards accountancy. (Dangi et al., 2017) A study based in Spain evaluated the attitude of university accounting students towards M-learning platforms. It found that visual tools for numerical content of accountancy help in mobilizing thoughts and effective understanding. (Marriott and McGuigan, 2018) The role of Professors is undeniable while instructing the use of M Learning platforms. Along with this, learning content of the mobile courses should have high utility for the students which helps in developing a positive attitude. Along with this, generic skills of students like fondness towards practical/ numeric subjects, and higher logical understanding is a determining factors in their attitude towards accounting-based M learning courses.

The study even suggests the introduction of technological training for professors which will help in better implementation of M learning. Students reflect a positive attitude towards Electronic assessment systems as they provide instant feedback and reduce biases in ratings. (Herrador et al., 2020)

- **Mathematics-** The widespread acceptance of M learning opens up new arenas for mathematics which remains a popular discipline for M researchers. Prior literature established a positive relationship between mobile learning and traits like problem-solving, critical thinking, and motivation. (Hung et al., 2014; Al-Khateeb, 2018) Various applications have been developed to effectively understand topics like algebra, trigonometry, statistics, etc. Mobile devices like I pads, tablets, and mobile phones enabled the use of visualization and dynamic affordances on touchscreens that paves the way to logical thinking. (Larkin and Calder, 2016; Cayton et al., 2015) A learn about based totally in Turkey used to be carried out to improve a scale to look at the acceptance of cell technological know-how by using excessive faculty college students whilst reading mathematics. A scale named M-TASLM was once developed as a aggregate of eight technological know-how acceptance models. (Açıkgül and Sad, 2020) Cayton et al (2015) evaluated the mathematical learning-based purposes in the Apple App Store to find out about the nice of content, adaptability, interaction, and feedback. The researcher observed a excessive stage of interplay between students, parents, and instructors whilst the accuracy of content material regularly suffers due to mindful plan decisions.
- **Computer Science-** A survey conducted on the second-year computer science students of Biskra University found that 76.92% of students prefer mobile learning systems while considering training courses in Java and C Language. Accessibility, immediacy, interactivity, awareness, and permanence of the M learning platform provide it an edge over traditional learning. (Bourekache et al., 2020) M Learning in blended classrooms for the subject of Computer science projected high satisfaction of students in China. One of the software named “ActiveClass” permits students to ask questions to professors anonymously regarding lecture material. The M Learning system archived videos of the course on the class’s Web site for students to review at their convenience. (Shen et al., 2009)
- **Electrical Engineering-** Bring Your Device (BYOD) strategy has entered the field of education with the support of mobile learning. AutoCAD is a mobile application that is used for developing models, designs, electrical diagrams, design of electrical control systems, etc. TurboViewer is another software that supports 2D or 3D models/designs. Thus, M learning fosters the involvement of practical knowledge in classroom study. It improves the employability of students and makes them market-ready. (Sizova et al., 2020)
- **Field Investigation-** Whitmeyer et al., 2020 conducted field investigations through mobile technology like iPad cameras, StratLogger app, Two-way radios, GoPro video cameras, Livestream app, etc. Field investigation is used in various disciplines to offer field training to the students while conducting research in the field of healthcare, disaster management, agriculture, geology, etc. Sites like Slide Rock State Park, The Grand Canyon, SP Crater, Kilkee, County Clare, etc showcased improved accessibility with the support of Mobile technology.
- **Healthcare-** Games aiming at expanding knowledge base have been a subject of various research projects for developing cutting-edge educational technology. They are better known as serious games as they do not merely focus on entertainment. MANTRA stands for “Maternal and Neonatal Technologies in Rural Area” which was launched in Nepal to improve knowledge of maternal

health, Neonatal Health, and geohazards amongst women in rural areas. MANTRA focuses on visual communication rather than textual as its target audience has a low literacy rate. The game has three basic modules each focusing on Maternal Health, Neonatal Health, and Geohazards. The research showcased a positive relationship between MANTRA and literacy among rural women.(Mueller et al., 2020)

### **Factors influencing the adoption of M Learning Technology:**

- **Performance Expectancy-** It is the positive expectations regarding an information technology that can lead to improvement in productivity or performance. (Venkatesh et al., 2003) In the context of M Learning, it is related to convenience, flexibility, and learning productivity. Along with contributing to performance, it involves minimum efforts due to ease of use and a simplified model. Thus, effort expectancy is low which strengthens the behavioral intentions towards the usage of M Learning technology. Mobile learning technology is an effective combination of self-efficacy, perceived usefulness, perceived satisfaction, etc. (Wu et al., 2008)
- **Social Influence-** The students may be influenced to opt for mobile learning platforms through various social groups. There are two types of social influence- superior influence and peer influence. (Igbaria et al., 1994) Several studies highlight the role of lectures or the influence of immediate faculty members that exercise a direct influence on the behavior of students. This in turn acts as a motivator factor for students while adapting to mobile technology. (Karahanna and Straub, 1999) The influence of lecturers or instructors falls under the category of superior influence.
- **Quality of Service-** The expectations of students regarding the quality of services of various M-learning platforms influence their decision of adoption. Quality of services includes various factors like reliability, quality of content, response, and security. (Lee, 2010)
- **Personal Innovativeness-** Some individuals find themselves inclined to the adoption of new technology for trial. Students with a high level of innovativeness or creativity are more likely to have positive ideas and the latest developments in technology. (Lu et al., 2005) Previous literature connects innovativeness with the early adoption of mobile learning platforms. (Abu and Love, 2013)

### **CONCLUSION**

M Learning has emerged to be a great complementary technology for traditional learning. It facilitates distance education and acts as a support for students. Its flexibility and time effectiveness give it an edge over traditional education. Although rather than treating it as a substitute, it should be considered complementary to classroom education. This study is restricted to secondary data due to the limitation of time. This literature can be extended in the future with the help of primary data.

### **Limitations of the Study**

The data collected was less. Much more can be explored regarding the students learning structure using primary data and applying the statistical tools.

## REFERENCES

1. Al-Khateeb, M. (2018). The effect of teaching mathematical problems solving through using mobile learning on the seventh grade students' ability to solve them in Jordan
2. Hung, C. M., Huang, I., & Hwang, G. J. (2014). Effects of digital game-based learning on students' self-efficacy, motivation, anxiety, and achievements in learning mathematics. *Journal of Computers in Education*, 1(2), 151-166.
3. Larkin, K., & Calder, N. (2016). Mathematics education and mobile technologies. *Mathematics Education Research Journal*, 28(1), 1-7
4. Cayton-Hodges, G. A., Feng, G., & Pan, X. (2015). Tablet-based math assessment: What can we learn from math apps?. *Journal of Educational Technology & Society*, 18(2), 3-20.
5. Açıkgül, K., & Şad, S. N. (2020). Mobile technology acceptance scale for learning mathematics: Development, validity, and reliability studies. *International Review of Research in Open and Distributed Learning*, 21(4), 161-180.
6. Bourekache, S., Tigane, S., Kazar, O., & Kahloul, L. (2020, December). Mobile and personalized learning system for computer science students. In *2020 Sixth International Conference on e-Learning (econf)* (pp. 189-193). IEEE
7. Shen, R., Wang, M., Gao, W., Novak, D., & Tang, L. (2009). Mobile learning in a large blended computer science classroom: System function, pedagogies, and their impact on learning. *IEEE Transactions on Education*, 52(4), 538-546.
8. Sizova, K., Bilous, R., Serhienko, S., Soshenko, S., Shmeleva, A., & Nesen, M. (2020, September). Mobile Technologies in the Electrical Engineers Training. In *2020 IEEE Problems of Automated Electrodrive. Theory and Practice (PAEP)* (pp. 1-4). IEEE.
9. Dangi, M. R. M., Adnan, M. F., & RASHID, M. Z. A. (2017). An Innovation in Teaching and Learning of Accounting Concept Using AccRoBa© Game Approach. *Malaysian Journal of Education* (0126-6020), 42(1).
10. Marriott, P., & McGuigan, N. (2018). Visual metaphor and visual tools in accounting education. *Accounting Education*, 27(6), 549-551.
11. Herrador-Alcaide, T. C., Hernández-Solís, M., & Hontoria, J. F. (2020). Online learning tools in the era of m-learning: Utility and attitudes in accounting college students. *Sustainability*, 12(12), 5171.
12. Whitmeyer, S. J., Atchison, C., & Collins, T. D. (2020). Using mobile technologies to enhance accessibility and inclusion in field-based learning. *GSA Today*, 30
13. Mueller, S., Soriano, D., Boscor, A., Saville, N. M., Arjyal, A., Baral, S., ... & Kostkova, P. (2020). MANTRA: Improving knowledge of maternal health, neonatal health, and geohazards in women in rural Nepal using a mobile serious game. *Frontiers in Public Health*, 8, 584375.
14. Venkatesh, V., Ramesh, V., & Massey, A. P. (2003). Understanding usability in mobile commerce. *Communications of the ACM*, 46(12), 53-56.
15. Wu, Y. L., Tao, Y. H., & Yang, P. C. (2008). The use of unified theory of acceptance and use of technology to confer the behavioral model of 3G mobile telecommunication users. *Journal of Statistics and Management Systems*, 11(5), 919-949
16. Igarria, M., Schiffman, S. J., & Wieckowski, T. J. (1994). The respective roles of perceived usefulness and perceived fun in the acceptance of microcomputer technology. *Behaviour & information technology*, 13(6), 349-361

17. Karahanna, E., & Straub, D. W. (1999). The psychological origins of perceived usefulness and ease-of-use. *Information & management*, 35(4), 237-250.
18. Lee, J. W. (2010). Online support service quality, online learning acceptance, and student satisfaction. *The internet and higher education*, 13(4), 277-283.
19. Lu, J., Yao, J. E., & Yu, C. S. (2005). Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology. *The Journal of Strategic Information Systems*, 14(3), 245-268.
20. Abu-Al-Aish, A., & Love, S. (2013). Factors influencing students' acceptance of m-learning: An investigation in higher education. *International Review of Research in Open and Distributed Learning*, 14(5), 82-107
21. Khlaif, Z. (2018). Teacher's perceptions of factors affecting their adoption and acceptance of mobile technology in K-12 settings. *Computers in the Schools*, 35(1), 49-67.
22. Wang, H. Y., Liao, C., & Yang, L. H. (2013). What affects mobile application use? The roles of consumption values. *International Journal of Marketing Studies*, 5(2), 11.
23. Liu, Y., Li, H., & Carlsson, C. (2010). Factors driving the adoption of m-learning: An empirical study. *Computers & Education*, 55(3), 1211-1219.
24. Kinash, S., Brand, J., & Mathew, T. (2012). Challenging mobile learning discourse through research:
25. Student perceptions of Blackboard Mobile Learn and iPads. *Australasian journal of educational technology*, 28(4).
26. Pebriantika, L., Paristiowati, M., & Mochtar, H. (2019). Students' perceptions of mobile technology in higher education: Preparation to design mobile learning models. *Universal Journal of Educational Research*, 7, 180-185.
27. Qi, C. (2019). A double-edged sword? Exploring the impact of students' academic usage of mobile devices on technostress and academic performance. *Behaviour & Information Technology*, 38(12), 1337-1354.
28. Talan, T. (2020). The effect of mobile learning on learning performance: A meta-analysis study. *Educational Sciences: Theory and Practice*, 20(1), 79-103.
29. Corbeil, J. R., & Valdes-Corbeil, M. E. (2007). Are you ready for mobile learning?. *Educause Quarterly*, 30(2), 51.
30. Elçiçek, M., & Bahçeci, F. (2017). Mobil öğrenme yönetim sisteminin öğrenenlerin akademik başarıları ve tutumları üzerindeki etkilerinin incelenmesi. *Kastamonu Eğitim Dergisi*, 25(5), 1695-1714.
31. Hashim, A. S., & Ahmad, W. F. W. (2012, November). The development of new conceptual model for MobileSchool. In 2012 Sixth UKSim/AMSS European Symposium on Computer Modeling and Simulation (pp. 517-522). IEEE.
32. Heath, B. P., Herman, R. L., Lugo, G. G., Reeves, J. H., Vetter, R. J., & Ward, C. R. (2005) Project Numina: Enhancing student learning with handheld computers. *Computer*, 38(6), 46-53.
33. Khaddage, F., Lanham, E., & Zhou, W. (2009). A Mobile Learning Model for Universities. *International Journal of Interactive Mobile Technologies*,