EDUCATIONAL TECHNOLOGY AND ICT

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Module-10: Mobile Learning

Hello dear learners, welcome to SWAYAM-NPTEL course on Educational Technology and ICT. I am Dr. Sarita Anand from Department of Education, Vinaya Bhavana, Visva-Bharati, Santiniketan, West Bengal and your course coordinator for this course on ET and ICT. Today we are going to talk about mobile learning. Before going to the today's topic, we will see the previous covered concepts. We had covered the integrated individualized learning with the blended mode of learning and flipped classroom. How we can integrate these three concepts and also, we had discussed about the advantages and challenges and the solutions.

Now, today's topic mobile learning. Mobile learning often abbreviated as M-learning. In many books you will find that M-learning is used. Here it is a transformative approach to education that leverages the power of mobile devices to facilitate learning anytime, anywhere and revolutionize the way we learn and consume educational content.

In an increasingly digital world, the adoption of mobile learning has revolutionized education by enabling accessibility, flexibility and personalization. By integrating technology into the learning process, M -Learning or mobile learning empowers the learner to access educational content and engage in interactive activities at their own pace and convenience and also whenever they want, they can use it. It refers to the use of mobile devices like smartphones and tablets to access learning materials and engage in educational activities inside the classroom or outside the classroom.

Meaning of mobile learning: Mobile learning is an educational approach that uses mobile devices such as smartphones, tablets, and laptops to deliver instructional content and foster learning experiences. Mind it, these laptops are also mobile—movable. That's why we are keeping it here in mobile learning.

It emphasizes convenience, enabling learners to access educational materials and activities regardless of time or location. Mobile learning promotes self-directed, collaborative, and context-aware learning, making it a vital tool in contemporary education. Definition of mobile learning: Many researchers have given different definitions of mobile learning. Organizations have also defined mobile learning to capture its essence.

These are given by different researchers like Traxler in 2007, who defines mobile learning as an educational provision where the sole or dominant technologies are handheld or palmtop devices. UNESCO (2013) described mobile learning as learning that is facilitated through the use of portable technologies, primarily focusing on the mobility of the learner. Crompton in 2013 highlights mobile learning as learning across multiple contexts through social and content interaction using personal electronic devices. I want to clarify that mobile does not mean only mobile phones or smartphones in M-learning. These definitions underscore mobile learning's reliance on technology to enable learning across varied environments.

The origin of mobile learning, the concept of mobile learning, is rooted in the broader field of distance education. Early experiments with portable technologies such as audio cassettes, players, and personal digital assistants (PDAs) laid the groundwork for the m-learning movement. The origin of mobile learning can be traced to the late 20th century when distance education evolved. The 1970s and 80s saw the emergence of correspondence courses, audiovisual aids, and teleconferencing as precursors to

The second one is technological advancements. The late 1990s witnessed the rise of mobile devices such as PDAs and early mobile phones capable of delivering basic educational content. And the third one is the internet boom. With the advent of wireless internet in the 2000s, mobile learning became feasible on a larger scale as devices could access online content anytime, anywhere. So, the history of mobile learning.

The historical development of mobile learning can be divided into distinct phases. The early phase in the 1990s: the concept of mobile learning began to take shape with the advent of PDAs and early mobile phones. These devices embedded basic learning functionalities such as reading e-books or accessing simple learning apps. Initiatives such as the Palm Pilot's classroom use exemplify early experiments in mobile learning. The next stage: expansion phase in the 2000s.

With the proliferation of smartphones, wireless internet, and advanced mobile operating systems, mobile learning gained momentum. Key developments include the introduction

of learning management systems, the LMS with mobile compatibility. The use of SMS for educational purposes, particularly in developing regions. Increased emphasis on mobile-friendly e-content platforms and apps. The third one is the modern phase from 2010 to the present.

The 2010s witnessed exponential growth in mobile learning due to widespread smartphone adoption, enhanced internet connectivity, and app-based learning ecosystems. Key milestones include the rise of massive open online courses, the MOOCs optimized for mobile devices. Incorporation of mobile learning into formal education through one-to-one device initiatives. Development of adaptive learning technologies, augmented reality, and virtual reality for mobile platforms. So, today mobile learning is an integral part of education at all levels, from primary schools to teacher training.

Now, we will talk about the types of mobile learning. Mobile learning is a versatile educational approach, no doubt, that integrates portable technology into the learning process. The effectiveness of mobile learning stems from its ability to adapt to various contexts, learning styles, and educational needs. This flexibility has led to the classification of mobile learning into several types, each addressing unique pedagogical approaches and purposes.

The first one is formal mobile learning. Formal mobile learning occurs within a structured environment, such as schools, colleges, or training programs, where the curriculum and assessments are predefined. For example, using mobile apps like Google Classroom or Blackboard for distributing assignments, conducting quizzes, and fostering discussion forums for a particular class by a particular teacher. Case studies: In a study by Park in 2011, mobile learning in a university setting enhanced the delivery of lecture materials and increased student engagement in formal learning activities.

So, formal mobile learning is a trend that is increasing day by day in the educational scenario. The second one is informal mobile learning. Informal mobile learning happens outside traditional classroom settings, often initiated by the learner. It is unstructured and focuses on self-directed and interest-based learning.

For example, learners using apps like Duolingo to learn a new language or accessing YouTube tutorials to acquire new skills. The relevance of this informal mobile learning is that this kind of informal learning is particularly effective for skill development and lifelong learning, as it encourages autonomy and curiosity from the learner's side. Self-paced mobile learning allows learners to access content and complete tasks at their own

convenience, making it highly flexible. Whenever they have time, they go through the content available on their mobile learning apps.

For example, platforms like Khan Academy or Coursera mobile apps enable learners to watch video lectures, solve problems, and take quizzes at their own pace. Similarly, the Swaim platform does the same for learners. The fourth one is collaborative mobile learning. Collaborative mobile learning involves group activities where learners interact and collaborate using mobile technologies.

For example, students using WhatsApp or Slack discuss projects, share resources, and collectively solve problems. There is some evidence from studies like Sharples et al. in 2007, which emphasized that mobile tools enhance collaboration by enabling real-time communication and resource sharing. The fifth type is context-aware mobile learning. This type of learning uses the learner's location, time, and environment to provide tailored educational content.

For example, an AR-enabled app like Google Expeditions provides virtual field trips based on the user's geographical location. The application of this kind of mobile learning, context-aware learning, is widely used in museum tours, archaeological digs, and outdoor education. The sixth one is game-based mobile learning. Game-based mobile learning incorporates gamification elements to make education more engaging and enjoyable, especially for lower-class school students.

For example, apps like Quizzes or Kahoot use gamified quizzes to foster competition and motivation among the learners. Research evidence or support? Studies such as those by Traxler in 2007 shows that the gamification in mobile learning enhances students' motivation and participation. The seventh one is microlearning. Microlearning delivers small, focused chunks of information of an aim to learners' immediate needs.

For example, apps like Blinkist summarizes books into 15-minute audio sessions. allowing user to grasp the key ideas quickly. They need not to read the full book. It is providing the geist. The importance of this kind of microlearning mobile learning. This kind of microlearning is particularly effective for the professionals who require just in time learning. The eighth one is social mobile learning. This social mobile learning leverages social media platforms to create interactive and community-based learning environments. For example, educators using Instagram or Facebook groups to share resources and conduct discussions.

What are the benefits of this kind of social mobile learning? According to Park in 2011, social media learning fosters community engagement and peer learning. The ninth one is work-based mobile learning. This type focuses on the professional development providing on-job training and continuous skill improvement using mobile tools. For example, sales team using mobile apps like Salesforce for training modules and performance tracking. What is the significance for this kind of work-based mobile learning? It provides mobile devices, helps bridges the gap between theoretical knowledge and practical experiences.

Now, the advantages of mobile learning. One of the key advantages of mobile learning is its accessibility. Whenever you are interested to see something, to learn something, to study or watch something, the gadget is ready. With smartphones and tablets becoming ubiquitous, learners can access educational resources from anywhere with an internet connection. Definitely internet is required. This flexibility allows for just-in-time learning, enabling learners to acquire knowledge and skills precisely when they need them.

Moreover, mobile learning promotes personalized learning experiences. Another significant benefit of mobile learning is its potential to enhance learner engagement. Interactive features such as quizzes, games, and simulations can make learning more enjoyable and motivating. Additionally, mobile devices can facilitate collaborative learning through online forums, group chats, and video conferencing. So, we can conclude the highlighted advantages below.

The first one is accessibility, which we have already discussed. Learners can access resources and participate in educational activities anytime, anywhere, breaking down geographical barriers. The second one is engagement. Mobile learning supports interactive and multimedia-rich content that enhances learner engagement. Interactive features like games, quizzes, and simulations can make learning more enjoyable and understandable.

The third one is flexibility. Students can learn at their own pace on their own schedule, promoting personalized learning. Tailoring learning experiences addresses individual needs and preferences, providing personalization. The fifth one is collaboration. Mobile platforms facilitate peer-to-peer interaction and collaborative projects.

Real-time feedback. Mobile devices enable immediate feedback on assignments and quizzes accelerating the learning process. The next one is collaborative learning. This collaborative learning environment provides the chance and opportunity to the learners to work collectively on a particular project and join the peer to peer learning and just in time learning Learners can access relevant information, training materials at the point of need.

Whenever they require, they can go through the content and learn on the spot. Now, like every system has its challenges, mobile learning is also having the challenges. While mobile learning offers numerous advantages, it is important to address the potential challenges such as digital divide, technical difficulties and need of the quality content. Ensuring equitable access to technology and providing adequate training for the educators are crucial to maximize the benefit of mobile learning. Following are the challenges faced during the mobile learning whenever you are going to use it, opt it.

The first one is digital divide; this challenge is everywhere. In any kind of module or the model or the approach you are utilizing, this is the main challenge for the learning. Digital divide. Inequalities or equities in access to devices and internet connectivity hinder widespread adoption. It needs to ensure equal access to mobile devices and reliable internet connectivity for all the learners.

Content design: Developing high quality engaging mobile friendly content that aligns with the curriculum and standards can be complex. Distraction. This is the biggest challenge for the mobile learning. The multifunctionality of the mobile devices may lead to the distraction during the learning session.

When students are opening their mobile to learn or search something on Swam platform, they are searching the shopping apps. So, these are the distractions which are the challenges to use the mobile learning in classes. Technical issues, definitely the battery life, device compatibility and software updates can disturb the learning. Addressing technical difficulties and providing adequate support to the learners, educator is a big challenge. The memory problem, when they are going to download the content, there is the problem of memory where they will store the content.

So, these are the technical issues. The fifth one is data privacy and security. This is the global issue, global challenge and also here in this mobile learning. Protecting sensitive learner data and ensuring secure access to the educational resources is the bigger challenge for the mobile learning.

The future of mobile learning: Definitely, besides the challenges, there is a bright future for mobile learning. As technology continues to advance, the future of mobile learning holds immense potential. Emerging technologies like AR can further enhance the immersive and interactive nature of mobile learning experiences. Artificial intelligence can be used to personalize learning content and provide intelligent tutoring systems. Like these

days, students are using Meta AI frequently. Mobile learning is not just a trend; it is a powerful tool that can transform the way we learn and teach.

By embracing the possibilities of mobile technologies, we can create more engaging, effective, and equitable learning experiences for learners of all ages at present. CIET of NCERT is doing this with the help of PM eVidya AR. So, I suggest you download the PM eVidya AR app and utilize mobile learning on your own smartphone.

So, in conclusion, we can say that mobile learning represents a paradigm shift in education. It offers unprecedented opportunities for flexible, personalized, and accessible learning. From its origin in distance education to its current status as a cornerstone of modern pedagogy, mobile learning has evolved alongside technological advancements. Mobile learning has the potential to revolutionize education by making learning more accessible, engaging, and personalized. By embracing the power of mobile devices, we can create innovative, effective learning experiences that empower learners to succeed in the 21st century. Dear learners, I have provided some references. You can go through them for your further reading.

Thank you.