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# Endorsement of Individualized Instruction and Learning Performance through Mobile-Based Learning Management

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## Abstract

In the ever changing world, higher education demands to have a competitive and inspiring learning environment that facilitates technology enhancement to make m-learning easy and individualised to all. Mobile learning has a significant impact on learning environment shifting. M-learning makes easy individualised instructions that enhance learning performance of learners. Mobile-based learning management system (LMS) has the ability to deliver highly relevant, resources individualized for each child's learning style and other individualised needs. In this chapter, there is an attempt to discuss the various endeavours and significance of mobile-based learning management system. It also reflects how M-based LMS facilitates individualised instruction that enhances learning performance.

**Keywords:** mobile-based learning management system, individualised instruction, learning performance

## 1. Introduction

The present scenario of the technology has changed world's learning pattern. After integration of communication-based technology into the classrooms, contemporary education has accelerated. With the growing acceptance of using mobile devices, m-learning has become significant in teaching and learning process. M-learning or mobile learning is learning across multiple contexts, through social and content interactions, using personal electronic devices. For distance education, m-learners use mobile device educational technology at their convenience.

M-learning services can be provided through the learning management systems (LMSs). With the mobile learning management system, many opportunities have been facilitated to advance course efficacy. After completion of courses, instructors can refer messages, reminders, homework, and some other supporting materials to students using mobile platforms.

This chapter focuses on the following objectives:

1. To study the meaning and concept of mobile based learning management system.

2. To study the relationship between individualized instruction and learning performance.
3. To explore the individualized instruction and learning management system with reference to learning management system.
4. To study the perception of administrators towards LMS.

## **2. Methodology of the study**

A descriptive survey method has been used. Thirty principals have been selected through the purposive sampling method from different teacher training institutes affiliated with MJP Rohilkhand University, Bareilly. Self-developed semi-structured interview has been employed to collect the data. Percentage analysis has been calculated for qualitative analysis. For theoretical background, the present study has been based on secondary data collected from articles, publications, and Websites.

### **2.1 What is mobile-based LMS?**

For learning, an instructor uses LMS to deliver online courses and learning materials for learners. For management, an LMS helps instructor to organise and manage his students as well as the course itself through a mobile device. In teaching practices through mobile-based learning, a teacher educator can build and create their own cloud-based LMS with the help of any available LMS service providers. LMS can combine texts, videos, images, practice questions, assessment, and feedback.

In its first step, a teacher educator needs to create interactive learning content with the integrated Web authoring tool and publish as HTML5, which is supported on various smartphones and tablets. Then it is required to schedule and publish events on a site and allow the pupil teachers to register for the events from a mobile device. Hence, they may be able to browse events on a calendar or sort events by location.

### **2.2 Significance of mobile-based LMS**

In this modern world, pupil teacher training needs to be easy and accessible. Learning management is the capacity to design pedagogic strategies that achieve learning outcomes for students [1]. The learning management concept was developed by Richard Smith of Central Queensland University (Australia) and is derived from architectural design (an artful arrangement of resources for definite ends) and is best rendered as design with intent. Typically, mobile responsive LMS has an ability to offer an innovative approach for teacher educators as well as pupil teachers to create and deliver e-lesson plans and also monitor their teaching and learning process and assess their overall performance and completion of the required courses.

Teacher educators can also create new topics, add comments, and share documents under existing topics within multiple learning forums. A learning management system may also provide pupil teachers with the ability to use interactive features such as threaded discussions, video conferencing, and discussion forums to reach their full potential. Discussions can rectify and enhance the learning experiences by enabling pupil to share their practices and insights with peers. Instructors can moderate the post to avoid unsolicited e-mails. Instructors should also create

and manage pupil teachers' login account/profile and control what they should access on the mobile portal. Teacher educators can generate and deliver online quizzes or assessments comprising various question types to keep track of each learner's teaching and learning performance. It is the responsibility of each teacher educator to get feedback from pupil teachers. In this way, pupil teachers can also use LMS for their practice teaching in simulated mode through mobile. They have lot of opportunities to improve their new teaching skills by getting feedback from their peers and their instructors.

### 2.3 Features of mobile-based learning management system

- **Synchronized online and mobile learning:** with this feature of MLMS, during practice teaching, pupil teachers may able to initiate an e-learning module at his desk, pause, and pick it up where he left off on his mobile device.
- **Mobile virtual classroom:** pupil teachers may participate fully in practice teaching with slide viewing, HD video, and voice with a single click.
- **Social learning:** with the help of mobile device, pupil teacher can work together with the online community to explore and observe content. Pupil teachers can also participate in discussions, provide ratings and comments, and connect with experts while practice teaching.
- **My learning plan:** pupil teachers have speedy access to their learning proposal, assisting them stay on top of their practice teaching. Supervisors also have mobile access to the 'My Team' dashboard, so they know who is on target and who may necessity assistance, and they can reach out directly from their phones by sending messages, setting up a meeting, or even starting a meeting directly from their mobiles.
- **Intelligent recommendations on the go:** pupil teachers can analysis recommendations from The Intelligent Mentor (or 'TIM') when it is appropriate during practice teaching for them.
- **Apple and Android applications:** native applications are available for Apple and Android phones and tablets.
- **Enterprise class security:** mobile devices make practice teaching easy and secure with LMS-based single sign-on for both online and mobile access. For sensitive content, teacher educators have the choice to have it robotically deleted after a set period of time. Automatic time-outs, remote wipe, and access PINs for the devices are supplementary safekeeping features.

### 3. Mobile-based LMS and individualized instruction

In previous days of the one-size-fits-all curriculum, today's schools are becoming diverse. Many teachers find that their class rooms are populated by English language learners, gifted students, students with disabilities, and students who are culturally diverse [2]. Teacher educators observe that only a minor subgroup of any class was acquainting the resources they presented. Hence, one of the utmost benefits of using technology in classrooms is the ability to deliver highly relevant, pertinent resources individualized for each child's learning style and other

individualised needs. Mobile devices such as laptops, personal digital assistants, and mobile phones have become a learning tool with great potential in both classrooms and outdoor learning.

Mobile learning has a characteristic of not being dependent on time and space [3]. Properly, the use of a mobile-based LMS has potential to allow teacher educators to help each pupil teacher to develop their own pace of instruction. Mobile-based LMS can create an effective system of individualized instruction that is reasonable, replicable, and accessible. A mobile-based LMS makes learning stress-free for teacher educators to involve pupil teachers' at all different levels. Pupil teachers can open their own learning folders and access individualised, higher level lesson units.

### **3.1 What is individualized instruction?**

Learners are very different in their academic needs, backgrounds, and abilities. For this motive, it is imperative to come across them where they are so that we can make best use of their learning potential. One way to do this is to utilize individualized instruction.

Individualized instruction refers to the practice of strategies, resources, and assessments to meet the necessities of one particular learner. It makes sure that a scholar is receiving the appropriate guidance, flexibility, and learning support to magnify opportunities for academic progression. A learner's profile gives educator information that shows both a learner's strengths and weaknesses.

### **3.2 Purposes of individualized instruction strategy**

Individualised instruction is based on the assumption that every individual has specific needs, and therefore, it involves different tasks for each learner and supports at individual level. Individualized instruction incorporates such teaching strategies that connect with individual student's learning strategies. The ultimate goal is to facilitate a learning environment that will make best use of the potential for student success. Individualised learning has following purposes:

- **To enrich and improve listening pattern:** since most of the teaching is done through lecturing, the role of students is to listen and if felt essential take note of them. The learning of the learners is critically reliant on their listening practice and sense of hearing, thus facilitate them in improving their listening pattern.
- **Empowers the pupil teachers to elucidate a lesson or demonstrate a technique to small groups of students at a time:** this method offers the benefit for the pupil teachers in teaching or elucidating a lesson or to demonstrate a technique to their small group of learners.
- **Individualizing instruction permits each pupil teacher to augment individualised instruction through the curriculum at his or her own pace:** in this instruction method, teacher educators need to know the capacity of pupil teachers' pace of learning and content of learning. It is less important to cover the content from the curriculum. Vigorous significance is that the learner becomes able to learn through curriculum in his own way.
- **Long-term retention as they note down what they frequently comprehend** while the pupil teacher is teaching in the class, students are actively engaged in taking note of what they really understand instead of what the pupil teacher explains.



They usually note down what they comprehend and are frequently recorded in their own words. So, this supports them to keep in mind the information for an elongated period of time.

- **Importance is given to a learner as a specific not as group, class, and so on:** the strategy is more related to how much a particular pupil teacher is capable to learn, retain, and his or her achievement not as a group, class, and team. According to the present education scenario, 'no child is left behind' so it is important for a pupil teacher to keep attention on a child as an individual.

### 3.3 Impact of mobile-based learning management systems on learning performance

New communication technology, particularly LMSL, is assumed to be effective in boosting interaction between the pupil teacher and the learner, and refining learning performance. MLMS may vary as per need and requirements of learner and learning environment. But it has some common features and purposes. A good MLMS can improve learning performance of a pupil teacher in different ways as follows:

- **Ability to create self-registration:** for a large number of learners, pupil teachers need to learn an automated self-registration feature. Otherwise, registering a small class can be done manually. LMSL can make possible for pupil teachers to create self-registration for learners.
- **Capability to construct a portal for course materials:** LMSL can provide a single location of past and current course materials. This feature makes it easier to retrieve data, reuse materials, or organize courses for students. Students may be able to navigate their vital goal and augment their learning performance.
- **Proficiency to generate a knowledge base or self-service portal:** learners and educators needed assistance to use the MLMS. A self-service section should address FAQs or collate best practices and case studies. This feature of MLMS generates curiosity to explore knowledge and manage their study as they want.
- **Expertise to assemble course materials by categories:** learners may be able to organize the courses by topics, subjects, authors, or curriculum order. Learners and educators also develop expertise to sort the materials as they required.
- **Ability to create groups or teams:** this feature lets them conduct group classes, which may be valuable for group orientations or team workshops.
- **Ability to join a course funnel:** with this feature of mobile-based LMS, learners can choose the programs where they needed improvement across curricula or courses.
- **Reduce stress for quizzes and tests:** mobile-based LMS provides exercise platform for learners. Pupil teachers assess students' performance or competency before, during, or after the course program. This feature improves learning performance and reduces stress for quizzes and tests.
- **Ability to export/import resources:** learners become able to swap course materials, reports, and registries to popular document files like PDF, TXT, JPEG, CVS, and DOC in case they need to use other curriculum.

### 3.4 Mobile-based learning performance

Mobiles with their increasing usage have created a learning culture that fits the pressure-filled environment of modern, hi-tech, fast-paced workplaces. Individualised learning is gradually recommended as an effectual approach for raising learners' inquisitiveness and motivation. It supports learners to advance their ability to work anywhere and anytime, and an unpredictable environment makes them more critical thinkers and curious learners. Although mobile technology is a suitable support for this learning process, there is a need of practical strategies for educational practitioners' who can impart mobile learning as a tool to improve learning performance among learners. Integrating performance-centred learning and m-learning, results in a performance-centred mobile learning (PML) approach, in which students receive performance support via a mobile device (Mileva), mobile-based individualised instructions have following ubiquitous potentials:

- i. **Eradicate lessening errors:** in teaching learning environment, learners need to be very accurate and any slight mistake can create enormous problems. Mobile devices can be the best tool to support them accurately with their need at any point and time. They can also seek real-time support from the MLMS when needed.
- ii. **Bring up-to-date about latest information:** in the hi-tech industry, new features are added with the knowledge world frequently. When the pupil teachers are about to meet a prospect, they need to have considerable information about the new learning apps. Such latest updates can be accessed easily through mobile devices. The learners can easily access the information and apply it across the curriculum effectively.
- iii. **Become proficient at complex processes:** when any institute implements mobile-based LMS in their organization, the end-users may find it difficult to use the software, despite end-user training. Teacher educators and pupil teachers are not familiar to new work processes. So they are cautious and do not perform the task well with the new software. In such scenarios, they can develop learning performance and deliver it through mobile devices. The learners can also resolve any complications themselves while working on the mobile-based LMS.
- iv. **Offline support:** mobile learning not only deals with online support and access to information but also makes available offline support to teacher educators as well as pupil teachers. Mobile devices have the endowment of storing vast volumes of data offline due to the recent technological expansions. This feature is utmost advantageous to learners who belong to remote areas with limited Internet connectivity.
- v. **Bottom line:** mobile learning can deliver what the learning environment needs, when they need it, wherever they are. This mobile-based LMS is aware of what pupil teachers are doing and where they are. It also enables interventions regarding teaching and learning. They can get instant assistance on their device.

### 4. Obligatory teaching skills with MLMS

Teaching is a type of communication process, may it be verbal or nonverbal. In this process, the communication should be clear and accurate. A teacher educator

adapts various ways of teaching according to the needs of pupils. In this digital world, maximum educators possess the digital skills desirable to function in academic life. There are the basics such as managing the e-mails, using the learning management system (LMS), and uploading papers to plagiarism checkers, among others. Yet some faculties still struggle with basic LMS functions [4].

The rapid penetration of mobile-based learning into our learning environment creates challenges both for teacher educators and pupil teachers to face. The skill level needed to be updated with the changes in technology is expanding. The working modes of teacher educators have been transformed since the introduction of learning management systems (LMS). Whether courses are taught entirely online or whether a blended approach is used, most university instructors must design and develop online materials, and create and maintain course Websites [5], and LMSs have become the predominant means of communication with students for many instructors. Some important features of a mobile-based LMS include: grading, discussion forums, online assessment, plagiarism checkers, community portals, posting and uploading of assignments, and tracking of usage statistics.

A pupil teacher, therefore, is able to work with mobile-based learning management system. They should also be able to create an appropriate learning environment, and evaluate the performance of the students accordingly. They should learn how to create courses within the mobile-based learning management system. They should have opportunity to post assignments, monitor learners' progress and work, and post content (video, documents, links and more) and to flip their class-rooms. Mobile-based LMS includes some inbuilt applications like word processor; spread sheet and slide show presentations that allow the creation of different course content and various assessment tools. Thus, pupil teachers learn and practise all these skills, to make their teaching effective.

4.1 Results and discussion

Findings concluded through interview revealed that LMs is positively related with individualised instruction and learning performance. Results are shown in **Table 1**.

S. No.	Item	Frequency (n)	Responses (%)
1	Individualized instructions increase learning performance.	25	83
2	LMS can enhance learning performance.	24	80
3	LMS can facilitate individualized instructions.	21	70
4	LMS increases student engagement with technology; creating extra learning opportunities.	22	73
5	LMS has potential to increase access technology for students.	15	50
6	LMS has ability to improve student success.	18	60
7	LMS introduces greater peer support options for students.	23	76
8	LMS provides additional resource for students and academics.	16	53
9	LMS increases students' responsibility.	15	30
10	LMS enhances interactivity among learners.	19	63
11	LMS enhances reflective engagement among learners.	20	66
12	LMS provides feedback for learners as well as educators.	25	83

**Table 1.**  
*Types of LMS.*



Results revealed that administrators have positive approach towards LMS. They supposed that LMS has a great potential to enhance techno-centric learning environment. LMS can improve entire learning environment but need to update pedagogy and instructional approach as per learners' demand. Therefore, it is imperative to develop mobile-based pedagogy and teaching skills so that learners, educators, and administrators can be benefitted from mobile-based learning management system. On the bases of findings, some considerations have been discussed here with reference to mobile-based teaching skills and LMS.

#### **4.2 Refining mobile-based teaching skills with learning management system**

Time is shifting fast and technology is crossing ahead even quicker. Today's pupil teachers are tech-savvy. They like visuals, colours, animation, and real-life videos. The introduction of mobile learning has given a new height to learning in the field of teacher education. They can now better assimilate new knowledge through mobile apps, which are known to be more operative in keeping active interest even in the most boring topics. One smart feature of mobile based LMS that make convenience of recording a lesson taught in a class, develop quizzes, etc. and then sharing it with other sections of the school. If a student has been absent for a particular lecture, he/she can conveniently watch the lecture video and complete his notes later, without depending on his classmates.

There are many ways, in which teaching practice of pupil teachers is carried out. And if, the practice teaching of pupil teachers is done, with the help of mobile-based LMS (learning management system), then, it could positively enhance the teaching skills of pupil teachers.

During teaching practice, the teachers are pupil teachers; they are laying their foundation to become teachers. And if, from the very beginning, we contribute in enhancing their teaching skills, with the help of mobile-based learning management system, then it would lead to a line of good and effective teachers.

With mobile learning management system, pupil teachers can get connected to its fellow pupil teachers, and all together can work on each other's strength and weakness, leading to their improvement of teaching skills. In practice teaching, pupil teachers traditionally observe the other pupil teacher and give various suggestions; in mobile-based learning management system, suggestions can be given through while connecting to each other.

Thus, mobile-based learning management system can be helpful in enhancing the teaching skills of pupil teachers.

#### **4.3 Dimensions of mobile-based teaching skills**

One of the most neglected areas of m-learning is the digital skills of teacher educators. Like face-to-face teaching learning process, mobile-based teaching needs a strong formation in content, instruction, and assessment. But since they are teaching using the technology, they also need formation in other areas (managing online learners and technology skills). These areas include:

- **M-content knowledge:** in mobile-based learning, teacher educators must know their content and must know how to help learners develop an understanding of content in a learning environment. Often, it assumes that all m-learning is a self-study process in which content assists as instructive materials and that learners can learn key content concepts on their specific way simply by watching a video or reading text. In such an environment, m-instructors emphasise on communication, record keeping, and administrative tasks.

They also need to have content knowledge, but most of all, they need to know how to help learners develop a deep understanding of m-content and know how to use m-content through individualised instructional strategies in a technology-mediated environment.

- **Blend pedagogy, individualised instruction, technology, and content:**

M-learning is usually skirmish to find well-qualified instructors who understand how the individualised instruction, intersection of technology, pedagogy, and content can deliver meaningful learning experiences for pupil teachers; who reveal skills of self-regulation that enhance their efficacy as m-facilitator; and who understand the importance of and have the skills to provide active facilitation and technology-mediated support [6].

M-facilitator also knows to modify the individualised instructional practices and pedagogical techniques for the m-learning environment. Teacher educators should prepare m-learning facilitator (pupil teacher) to teach in the medium in which they will instruct.

Medium-based individualised instruction (i.e. training online instructors to teach online via an online program) can help pupil teachers develop the necessary skills to foster interaction and communication with and between learners during practice teaching through m-learning. M-facilitator should also know how to implement telecommunication tools in support of individualised instructional method that can enhance pupil teachers' knowledge acquisition.

M-learner and facilitator can blend pedagogy, individualised instruction, and curriculum as per need and requirement of m-learning environment. M-facilitator has also the required skills as online instructor. Burns (2013) also states that introduce online instructors to frameworks of knowledge, such as technological pedagogical content knowledge, which emphasize connections among technologies, curriculum content, and specific pedagogical approaches so that instructors can blend technology, pedagogy, and content to produce effective, discipline-based teaching via technology.

- **Create an online presence:** in m-learning environment, the facilitators demonstrate a vigorous and multidimensional role. They should be well aware of innovation in the field of m-learning. They should also take care of novices and potentially disorienting experience. Facilitator should ensure the presence of learners in online learning environment. Facilitators must work to establish a welcoming presence, set a tone that encourages reflection and inquiry, broaden and deepen online communication, assess both individual and group learning and interactions, make critical judgments about whether and how well participants are gaining content-specific knowledge, encourage those who fall behind in posting, know when and when not to intervene, and summarize participant learning [6].

Teacher educators should provide robust and skilled assistance of knowledge for their pupil teachers and make them able to manage their content as they required. They are also responsible to facilitate them in m-learning process, especially when learners are new in m-learning.

- **Energetic communication skills:** online discussion through m-learning provides a platform for individual learners to come into a collaborative learning community. Without such discussions, the learning opportunity becomes a solo endeavour, and opportunities for deeper learning are lost [6]. Instructors can provide various opportunities for pupil teachers to sharp their online

communication skills. They can also suggest those best learning strategies for online participation. Instructors can become a bridge between the learner and the virtual world.

- **Ability to manage learners (in online classes):** M-learner should know to the complete his task independently and regulate his time and learning style. He should also learn to work in an open environment. It is the responsibility of teacher educators to motivate their learners, assist with counselling, offer just-in-time support, assess and monitor their performance, and provide individualised instruction to improve learning performance and teaching skill.

M-instructors need to offer adequate support and facilitation via the technology available (computer, mobile phone, tablets, laptop, e-mail, etc.) on an on-going basis. This assistance makes them intuitive and develops interest to learn and explore new knowledge.

#### **4.4 Requisite of mobile-based LMS and teaching skills**

Mobile-based LMS has been required to associate some of the issues with m-learning as given below:

1. Teachers must be proficient in digital skills.
2. Parents must be aware of the importance of m-learning at home.
3. Community and stakeholders should be ready to accept m-learning.
4. Schools must consider improving their existing infrastructure.

#### **4.5 Mobile-based LMS and teaching skills**

Mobile learning has long been applied in the teaching and learning processes with promising advantages. Utilizing the right combination of mobile learning features influences the students' learning approach, increases their interest, enhances their performance, and affects the learning environments. MLMS can develop communication skills. It is a pivotal teaching skill. Mobile-based LMS fosters communication skills among learners. This may include discussion forums, real-time messaging, videoconferencing, e-mail, and announcement posts. The second teaching feature is accessibility. MLMS allows students to access their assignments and course content from home. Additionally, the technology promotes globalization with open, flexible learning environments. So it may be concluded that teaching MLMS has the capacity to learn without border.

Learning management systems permit teachers and pupil teachers to post supplementary content and resources to enrich the curriculum, providing learning opportunities without the constraint of classroom schedules or limited class time. Pupil teachers also regulate their teaching skills across the practice teaching.

Mobile-based LMS develop the flexibility in teaching and learning among pupil teachers, because they learn at different rates, and mobile-based learning management systems offer the flexibility needed to meet their distinctive learning needs. Pupil teachers can revert and review content as needed, or spend additional time researching a topic of interest. This self-directed learning makes them self-regulatory, and pupil teachers can develop more control over their practice teaching.

#### **4.6 Future prospects of mobile-based learning management system with reference to pupil teachers**

With regard to access to computers, large-scale one-to-one computing programs have been implemented in many countries globally, such that elementary- and middle-school students and their teacher educators have their own mobile devices. In addition, in terms of promoting innovation in education via information technology, not only does mobile computing support traditional lecture-style teaching, but through convenient information gathering and sharing, it can also promote innovative teaching methods such as cooperative learning, exploratory learning outside the classroom, and game-based learning. Therefore, mobile technologies have great potential for facilitating more innovative educational methods. Simultaneously, these patterns in educational methods will likely not only help subject content learning but may also facilitate the development of communication, problem-solving, creativity, and other high-level skills among students.

Thus, mobile-based learning management system can be helpful in enhancing the individualised instruction, learning performance, and teaching skills of pupil teachers.

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