

# The Use of Mobile Technology for teaching and learning

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***ABSTRACT:***

*Mobile technology has introduced a new wave of educational tools that afford creative use of instant access to a wealth of resources. These devices hold a great potential for transforming learning. Over the past few years, there has been a large investment in information and communication technology in the teaching/learning process. In this context, mobile technologies that include smartphones and tablets emerge as an innovative tool that is utilized differently in the learning environment to yield different results according to the strategies employed. Recent studies show that students' motivation increases when mobile technology is incorporated into the learning process, leading to a greater participation, and subsequently, better and faster acquisition and retention of information/concepts and skills. Therefore, the purpose of this paper is to give information about the trends in mobile technology developed and used in the learning environment for teacher professional development. The scope of the study covers the people involved in the use of mobile learning, what best practices are applied in the mobile learning, and the success factors influencing the use of mobile technologies in teaching and learning. This paper also covers the benefits of the use of mobile technology for teaching and learning as well as the challenges that have been witnessed thus far. The scope of this study also covers the implications of the use of mobile technology for future developments of teaching practice. The research design is a meta-analysis of published resources and trends in the teaching and learning environment. This research paper utilizes an archival data collection methodology to uncover the results under the scope of the study.*

***KEYWORDS:***

*Mobile, technology, teaching, learning.*

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## **Introduction**

The general public is experiencing an extreme change in the manner they communicate and act, since many activity sectors (budgetary, education, social insurance) are receiving the utilization of mobile technology to convey administrations. For instance, in the finance sector, clients have now access to flexible banking services through using mobile technology(Ally, 2014), while libraries are being digitized and data designed for access utilizing mobile technologies.The healthcare sector is additionally utilizing mobile advances in technology to convey training to medicinal services experts and deliver services to patients (Baran, 2014). With the introduction of communication technology, students can utilize mobile technology anyplace and whenever to get to instructive resources(Lorah, 2015), and therefore these advancements are changing the manner in which we live and how we get education. There were 6 billion mobile subscriptions all around before the end of 2011 and in developing nations a greater part of individuals access Internet from their cell phones (Cascio, 2016). Clarke (2013) detailed that mobile devices numbers surpassed PCs customers in 2011. This has given teachers a chance to convey significant learning by means of the mobile devices. By 2020 digital technology will be installed and appropriated in many items that can be accessed by everyone. Individual antiquities, for example, keys, garments, shoes, note pads and papers will have gadgets installed inside them, which can communicate with one another (Saxena, 2013). As perKunzler (2011), IDC demonstrated that in 2016 there will be 480 million mobile devices worldwide and 65% of these gadgets will be utilized to BYOD. Moreover, it is evaluated in 2020 to be utilized 10 billion mobile devices, when the total populace isn't in excess of 8 billion.

Information and communication technologies (ICT), incorporated into the teaching/learning process (TLP) have uncovered essential approaches to enhance the student's information. Utilizing these advancements invigorates the enthusiasm for learning of the material taught, turning into an advertiser factor of noteworthy discovering that prompts development of skillful students with open horizons and inclined to put resources into innovation. Kenny (2012) states that since innovation is so present in the day by day lives of young people, a class without their utilization would be totally uninteresting.

Over the past decades, the added value the mobile technology has in the classroom has been largely acknowledged and, from that point forward, endeavors have been made by various partners in the field of training, including academic network and governments to sum up its utilization and thusly improve the TLP (Ally, 2014). Dias (2017) opine that while the rising political economy of advanced education proposes an expansion in the diversity of educational settings, technology-assisted learning could without a doubt offer a significant toolbox with which to expand decision and react to the necessities emerging. With the various technologies accessible, educators and students alike can get to a huge number of data and utilize it, exploring their potential. The utilization of these technologies in the classroom gives a closer connection among instructor and student, advances their collaboration and prompts a joint and increasingly dynamic learning. The presence of accessible technologies stirs in student's significant enthusiasm for searching for new ways, allowing for a bigger and consolidated way of acquiring information (Saxena, 2013). In any case (Park, 2012) and (Teo, 2012) demonstrated that ICT is infrequently utilized by most instructors in their training practices despite the fact that, as

noticed, today's students - "digital natives" - every day utilize digital media and particularly versatile innovations.

ICT advancements, especially of mobile innovations, has revolutionized the world as we know it, and gadgets, for example, tablets, accessible since 2010, have picked up prevalence so rapidly among the general population and in different age groups. Murray, (2016) state that is unimaginable not to attempt to envision what such devices can prompt being introduced into the classrooms. The appearance and utilization of mobile innovations has prompted the rise of the idea of Bring Your Own Device (BYOD). The idea of BYOD was developed in 2007 in a business context as "the act of enabling representatives of an association to utilize their very own PCs, cell phones or different gadgets for work purposes" (Nishizaki, 2015). Such a training surpassed hierarchical hindrances and was integrated across the board. For the first time in human history, connected cell phones surpassed, in mid-2013, the number of people on planet earth (Ross, 2010); while the quantity of cell phone and tablets outperformed PC deals comprehensively (Quillen, 2011). To utilize these tools adequately an understanding is fundamental and consequently there are suggestions in the teacher preparing not just for the utilization and use of innovation, but also for the underlying concepts and support.

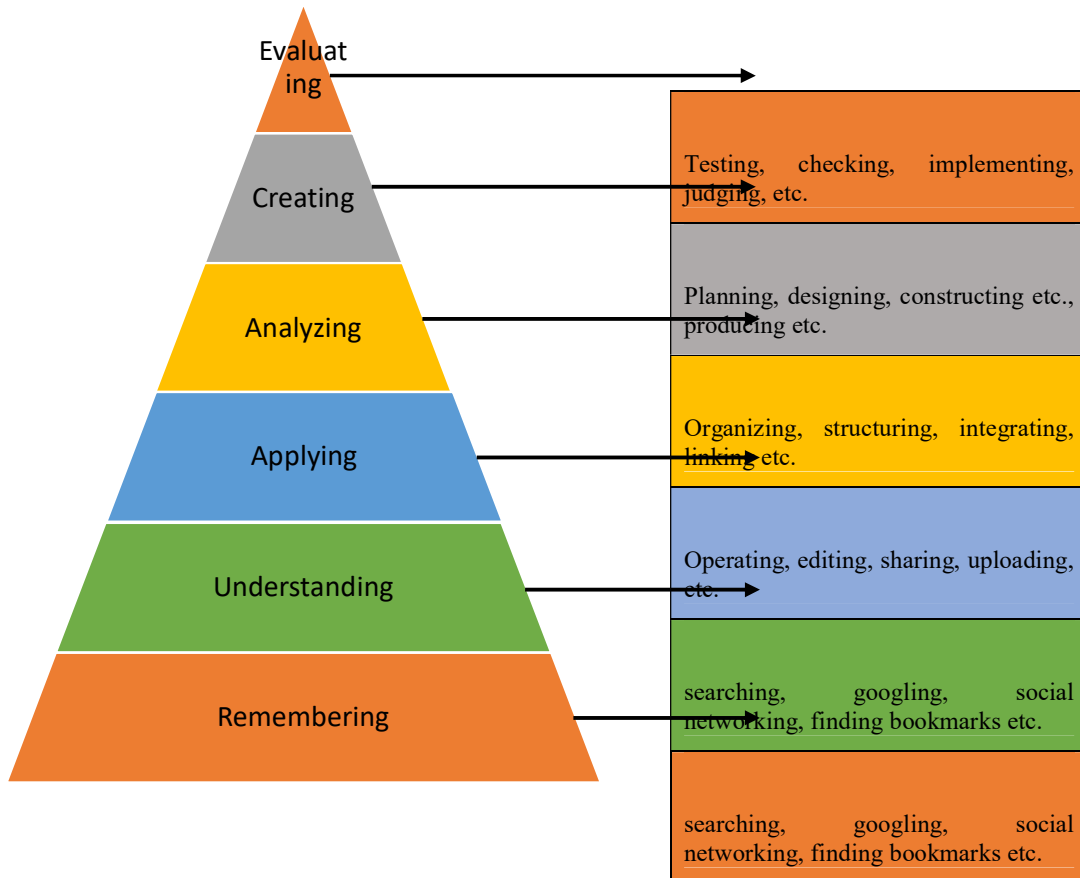
Research Findings

## **Rationale for the use of Mobile technology in teaching and learning**

Technology has advanced to take up the space in everyday human life. It is evident that technology has brought about ease in the way of doing things. From definitions, technology has five facets. First, technology is a rational process that creates a means. Secondly, technology is a set of tools. Thirdly, technology is a knowledge that makes technological processes possible. Fourth, technology is defined as subset related to the object and the knowledge. Fifth, technology is a system that is made up of knowledge, objects, process, developers and users.

In the recent times, mobile technology has grown so fast. Features and specifications that are found in the mobile devices are constantly improved and are advancing through time. There is now a myriad of things a mobile device can do and it is up to the teacher/students to get to find a way of utilizing it in a way that realizes maximum benefits. The more complex technology an individual need, the more advanced device he/she will need. Fortunately, there are so many mobile devices available today ranging from, laptops, notebook, handphone, smartphone, tablets, PDA etc. Therefore, the mobile devices are tools of technology created to fit any user's needs including the need to advance teaching and acquire knowledge. According to Wasowski (2009), there are six grades of digital capability as demonstrated in the Bloom's Digital Taxonomy. This brings to light how mobile technology can be incorporated in both teaching and learning and how they relate to each other.

Figure 1 Bloom's Digital Taxonomy



Teaching and learning are a procedure of communication

between an educator and a student where an instructor can move information and guide the students by setting a learning condition so the students are prepared to confront the future with the information they have and this is conceivable when the students show good personality. To make the procedure conceivable, there certain segments to be considered by an educator in teaching process (Hamalik, 2001). The segments among others are:

1.A process of cooperation or Interaction. Interaction is two-way relationship making a stimulus reaction relationship from a communicator to a communicant. By making interactions, there is a dynamic and affecting life made between them with the goal that every one of them can improve their life (UPI, 2013). A teacher who is able to build that interaction between them and the student makes the teaching more efficient and effective. To do so, the teacher ought to have a good communication skill. By utilizing mobile technology, the teacher can make this interactive relationship. It is on the grounds that in the 21st century students are keen on technology. It is on this grounds that a teacher needs to accommodate her student's interests.

2.A process of transferring and receiving knowledge. This procedure is by all accounts the primary procedure in teaching and learning. An instructor who transfers the learning admirably to the students is a skilled teacher. However, the instructor in transferring the learning now and then face a few impediments. Learning materials, as information, once in a while can't be displayed directly in a classroom. The educator needs media, for example, picture, activity, video, or sound to clarify the materials. The teacher can access them through mobile devices.

3.A process of guiding or mentoring. Teaching and learning is not just a procedure of transferring information, yet in addition a procedure of managing or tutoring the students. A good teacher ought to be imaginative in dealing with the class. The individual in question ought to support and welcome the students to effectively take part in learning. In this era, students are usually eager to take an interest when technology is associated with the teaching and learning activity. For this reason, a teacher can then incorporate mobile devices in transferring knowledge. By making use of mobile learning, a teacher can personalize a learning material and even show the students some websites that might contain very important information. The mobile devices can also enable the teachers pass the idea that they can go beyond what is learnt in class I order

to get the highest order of thinking skills and high achievement. This active interaction through the use of technology allows for proper guiding and mentoring.

4. A process of conditioning a class setting. Setting a class for learning is additionally one of an instructor's responsibilities. An instructor who conditions a class well can be said to be a good manager of learning. A class is defined as number of people or things coming together to form a group by reason of common attributes, characteristics or common traits (Mango, 2015). As indicated by the definition, the presence of a teacher in a class is just but an option. Therefore, when a teacher is absent from class, it is better for him to request that the students learn independently, for instance by utilizing their mobile devices. They can get to, dissect the learning substance, use the application, and survey their own learning (self-coordinated learning). The other model of conditioning a class is called collaborative learning. In this setting, students are allowed to get rewards, participate with friends and interdepend on formed teams, and respect the different character diversity(Mohamed, 2019). This allows the teacher to be able to assess the learners individually and in a group.

The utilization of mobile technologies in teaching and learning and the teacher professional development, obviously, can't be isolated from the best practices in how the mobile learning application is created. Knowledge, process, developers, users, are occupied with a framework in building up the applications. Information from engineers and the developers is required in creating of mobile learning. The foundations run from instructive innovation, data innovation, to topic foundation. Engineers having innovative instructive foundation should break down the necessities, plan the application, develop the substance, and assess the application, while those having data innovation foundation should make a model of mobile application. Developers with the topic background are to develop the learning materials. The process of developing mobile



application takes a few steps. ADDIE approach has been viewed as perhaps the best practice. This methodology comprises of certain stages; Analysis, Design, Development, Implementation and Evaluation (Hodell, 2011).

## **The Use of Mobile Technology in Teaching and Learning**

### Types of mobile devices

The presence of very many devices has made it challenging for teachers to understand the multitude of programs and applications available for teaching. While the iPhone and iPad received most of the attention because they were the very first in the market, the iPhone accounts for less than 20% of all smartphones available in the world market (Hutchison, 2011). Samsung, Huawei, LG, Sony among others have popular models that students use in schools daily. Unless the apps are created to function across multiple platforms, the teachers are often limited to using only devices that are compatible with the classroom needs. For instance, some applications that are available on a Samsung device may not be available on an iPad. In a research by Karsenti, (2013), students were afforded an iPad to practice math facts, but also had access to chrome books in class. They opined that the touch screen feature provided a very big difference between the two devices. The students had to type out the answers that took longer to respond in the chrome book as compared to the iPad.

### Steps to integrating mobile technology in learning

1. Identify target skill. Teachers should use existing screening assessment data to identify the specific target skills they want to impact e.g. fluency with text or sight word reading as the focus of technology-based learning session. The assessment scores serve as a baseline on students' current level of competence with the target skill.

2. Identify a progress-monitoring tool. Measuring tools such as *DIBELS*, *Aimasweb*, *Intervention Central* offer a myriad of resources with regards to the curriculum-based measurement for academic skills. The teacher should then establish a frequency for assessing the students' progress dependent on available time for testing purposes.

3. Develop protocol for practice. The protocol for designing could include the rules for the use for the use of devices, step-by-step rules on skill practice and program completion. Another rule would be the format for technology use e.g. students grouping in smaller pairs or whether they should work independently. A very important protocol would also be the time allocated for studying using the mobile devices because the students could get easily carried away. The time taken will have to be determined using a trial test by the teachers to determine how long each cycle should take for individual students depending on their academic competencies. A study by Mango (2015), stipulated that an iPad intervention using the sight words App was effective in improving the sight word fluency of six first grade students that were subjected to the App three times a week.

4. Provide students training. The teachers having done assessments and established protocols, need to set aside one or two class sessions to teach students how to effectively use the device. It is imperative that the learners know why they are using the App, how to handle the device, utilizing it across various learning environments. Other training directives should include the general routines on where to access the device and materials for the learning sessions.

5. Gather procedural integrity data. This refers to the extent to which the intervention designed is implemented as desired. It is imperative that a checklist of items be made that students must adhere to strictly.

6. Monitor progress periodically. The teacher should monitor the progress periodically to make sure the use of the mobile device yields positive results in the classroom. The data gathered should be used to change, modify, or continue the intervention.

Not only will the quality of the mobile learning improve when the right material and strategies are put in place, but the quality of the users will also improve. Therefore, both the learner and the teachers should be subjected to some programs according to the Bloom's Digital Taxonomy. These include:

- 1.giving teachers the right training, especially primary teachers, on how to search materials on the internet, create an email and subscribe to a we address
- 2.training teachers on how to download relevant content from the internet, operate the materials using mobile technologies and possibly share files
- 3.training the teachers on how to develop content materials using the available mobile device technologies
- 4.training the learners on how to google, email or just search the web
- 5.trainig for downloading and operating mobile applications relevant for various class instructions.

As per pedagogy point of view, supporting content of the utilization of mobile learning sustain the system. Those supports are as per the following:

1. The updated versatile innovations utilized will bolster the openness of learning resources; The further developed the cell phones utilized by clients, the simpler the clients can get to the substance of mobile learning.
2. The applied pedagogical approach, resources, and strategies will bolster the manageability of the teaching/learning using mobile technologies; A capable teacher is an educator who

supplements oneself with science and craft of instructing. By applying the science and craft of educating, the teacher can assume a job in executing at least one instructional strategy (Teo, 2012). In executing learning by utilizing mobile devices, there are three methodologies which can be applied. The methodologies are self-coordinated/5As methodology (Ask, Access, Analyze, Apply, and Assess), Mentoring approach (coaching understudy after self-coordinated learning), and Collaborative methodology (helpful learning among peer groups). Resources are any kinds of substance required in learning. As they are required for learning, the resources become the primary components to accomplishment for students. Unfortunately, they in some cases can't be introduced in class. Thus, teachers ought to encourage the students to get the resources by themselves. The teacher can request that they get to the substance by utilizing their mobile devices, or give them the substance by utilizing their cell phones. The usage of mobile learning, obviously, relies upon his or instructing system.

3. The selected aptitudes and abilities which ought to be procured by the students likewise fill in as one of the academic variables to help the utilization of mobile devices; With the advanced features offered by mobile devices, it is conceivable to make all materials of learning in the form of multimedia. However, the effectiveness of the material could be very low. To beat it, it is smarter to choose the abilities and the capabilities expected to grow, especially multimedia contents in mobile devices.

4. This learning framework supports learning at whatever point and any place it happens. Since learning is a sort of communication between an educator, students, and learning materials, it very well may be set up in a classroom or outside. This condition goes with meaning of classroom which expresses that a classroom is various people or things viewed as shaping a group by regular properties, attributes, characteristics or qualities, Alluding to the definition, the

parts of a classroom are people (educator as well as students), things (learning substance to ace), media or gear use, specific group, with respect to quality being accomplished, and strategies applied. For this situation, mobile learning is the undeniable decision because of its adaptability to be utilized inside or outside the classroom.

### **Benefits of Mobile Technology for Teaching and Learning**

The mobile technology devices that have proven very useful in the educational set up include cell phones, Netbooks, iPods, e-readers, and even PDAs. According to Park (2012), students are generally positive in utilizing mobile devices for learning in the current era. These devices have been found to provide the students with the ability to control their individual learning and switch the learning environment from formal to informal while retaining information on a higher rate. The devices keep the students alert, focused, keen, engaged and motivated all through the lesson. There is enough evidence to suggest that teachers have benefited from the mobile technology in the sense that they are able to notice the individual student needs and allow the students to share information amongst themselves (Ally, 2014). The mobile devices are easy to use because of the larger screens, variety of apps, video recording capabilities and a higher processing. Research shows that due to these capabilities, students spend more time and effort in learning tasks of interest to them (Karse). During activities and discussions facilitated by the mobile devices, student find learning to be more fun as compared to a typical lecture-based teaching session.

When tablets and iPads are used in classrooms, they have had a significant effect on learning according to Kenny (2012) the apps available enable the students to work independently and also in groups, developing on their own the necessary skills that they otherwise have not acquired in a normal classroom set up. Mobile devises also help foster a strong connection

between the student and the teacher through the interactions where both parties want to share information with each other. The ease with which the teachers, students and even parents can communicate with each other on the mobile devices has created a routine around active communication which fosters good relationships between the parties. In addition, with the multitude of apps available, the teachers can simply update the students' data even when outside the classroom. Mobile devices have also been of major learning enhancement for the students with special needs such as autism, dyslexia, visual impairment, motor skills impairment and attention deficit hyperactivity disorder due to the special feature fitted within them like the accelerometer, touch screen, on-screen typing, cameras, video and audio recorders, and talkbacks. Also, the mobile devices have enabled learning anywhere and anytime, allowing a shift from the traditional way of learning in an enclosed place driven by an instructor with limited knowledge. The teacher professionalism also improves because before mobile technology, the teachers used to teach traditionally. Now they prepare their teaching material with multimedia, constructing them to become their new personalized teaching material and apply that in class. By doing this, they improve their professionalism in teaching.

### **Challenges facing Mobile technology in teaching and learning**

With the rapid advancement of technology, there are very many apps available for education purposes. This has put the education managers at a level of stress in the dilemma of which app is best suited for learning. According to Hutchison (2011), for an application to be part of an individual's learning pathway, it must be pedagogically sound in design...rather than just focusing on content and engagement alone.

There are a large number of students who have not been able yet to access the benefits of the mobile devices because they cannot afford the devices. This is especially in the developing nations. On the other hand, children who have access to these devices, have developed sedentary lifestyles and poor social habits because they spend most of their time on the screen playing games or communicating with each other. Lastly, the inability to use the mobile devices may frustrate them and they feign from exploring them further. Well, majority of the mobile devices used for education seem to be messy and poorly executed. The outcome would be, when the students lose their confidence, they develop a negative perception on education.

### **Future plans and Implications**

- 1.to develop new collaborative content
- 2.to enhance the quality of teaching aids model
- 3.to increase teachers and students teaching of the use of mobile devices
- 4.to upgrade the developers' capacity in order to develop mobile learning effectively and consider pedagogical outcomes.

### **Conclusion**

The benefits on mobile technologies outweigh the challenges and therefore, should be encouraged in every learning institution. Educational institutions need to find productive ways to integrate mobile learning services into the curriculum.

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**Biography:**

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