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INTEGRATION OFM-LEARNING PRACTICES IN TEACHER EDUCATION

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Abstract

Now a day mobile technology has become a critical asset for many governments in many countriesbecause it has mobility features and mobile devices are used among peoplefor searching information, socializing, reading the news etc.M-learning is based on the usage of mobile technologies and wireless infrastructurewhich is becoming populartrend in the field of education. It has created new wave of educational development for sustainable and viable learning option. Mobile learning offers innovative ways to support learning process through mobile devices such as- handheld and tablet computers, MP3 players, smart phones and mobile phones and notebooks, mobile Tablets, iPod. The purpose of this article is to trace the pedagogical framework of mobile learning according to new trends in developing technology and Experiences on the use of mobile technology, how itis used in teacher training.

Key words: M-Learning,Mobile Pedagogical Framework,TeacherEducation

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INTRODUCTION

"Mobile phones are misnamed. They should be called gateways to human knowledge"

- Ray Kurzweil

We cannot imagine today's society without computer, laptop, palm top,mobile, iPod, internet etc. as everybody is using online technology in day to today working.Over the past two decades, technology devices have become mobile — portable and networked — to the point that they have become pervasive in everyday life. The use of mobile devices has become common among a wide range of age groups due to affordability and availability (Newhouse, Williams, & Pearson, 2006). People around the world currently spend most of their time playing games, searching for information, socializing, reading the news, etc. rather than using the mobile technology to learn. Teacher training and professional development programs must train teachers and professors toUse mobile technology in education; also, Research is needed on the role of the teacherin a mobile world and how teachers can use mobile technologies effectively for teachingandlearning(Aubussonetal.,2009). Teacher support and teacher training have been the least explored topics in mobile learning research (Ekanayake & Wishart, 2014). Mobile learning is especially under-theorized in teacher education (Kearney & Maher, 2013), despite the need to inform teachers of the value of mobile technologies and how to integrate them effectively into their classes (Schuck, Aubusson, Kearney, & Burden, 2013). Challenges related to teachers' adoption of mobile technologies have emerged from the fact that they are not effectively prepared to investigate the advantages or make informed decisions (Kukulska-Hulme et al., 2009; Schuck et al., 2013). UNESCO and Mobile Learning Week (MLW) 2013focuses on three particular of Education for All (EFA) goals as they relate to mobile learning are:

- Improving levels of adult and youth literacy: how mobile technologies can support literacy development and increase reading opportunities?
- Improving the quality of education: how mobile technologies can support teachers and their professional development?
- Achieving gender parity and equality in education: how mobile technologies can support equal access to and achievement in basic education of good quality for all, in particular for women and girls?

While the majority of research on mobile learning has focused primarily on students, recently teachers and researchers have started exploring the potentials of mobile learning and devices within teacher education. By synthesizing the literature on mobile learning and teacher education, this research aimed to address the trends and gaps observed in order to determine current implementation practices.

MOBILE LEARNING (M-LEARNING)

With the evolutionary growth of wireless networks the teaching learning process in classroom and time for learning is no longer prevail because the content is ubiquitous (can be accessed from anywhere, anytime), students can communicate with teachers, other students and anyone else by using mobile devices.The M-learning is one of the innovative trends of educational applications using new moveable technologies**.Quinn (2000)**firstdefined M-Learning as "the intersection of mobile computing and e-learning includes anytime, anywhere resources; strong search capabilities, rich interaction, powerful support for effective learning, and performance-based assessment".

Trifonova (2003) describe m-learning as**"**any form of learning (studying) and teaching that occurs through a mobile device or in amobile environment".

Traxler(2005)state that M-learning is any educational provision where the sole or dominant technologies are hand-held or palm-top devices.

Seppälä & Alamäki(2003)defined mobility from a technical point of view as mobile device, standard laptop, PC and computer adding the hand-held feature to the mobile feature which creates a standard PDA (personal digital assistant) device. These devices (laptop and PDA) offer the required capacity to carry out the tasks, wireless access to the network with the functionality of using a web-browserrepresented in figure 1:

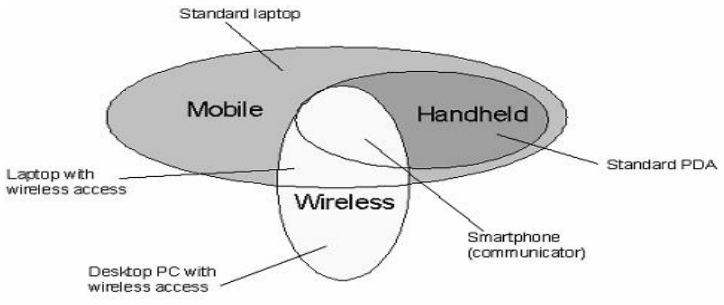

Fig. 1: Defining the mobile device

Vavoula and Sharples (2009) state that M-Learning is a social rather than technical phenomenon ofpeople on the move, constructing spontaneous learning contexts and advancing through everyday lifeby negotiating knowledge and meanings through interactions with settings, people and technology.

Quinn (2010)stated thatthe mobile technology can be used to deliver the Content, Including multimedia content. The Communication features of the mobile Technology allow the learner to communicate with other learners and with the teacher and to share information. He identifies "four C's" (Content, Compute, Capture and Communicate) to analyze the Value of mobile technology for learning. These four C's, learning management systems on mobile devices allows the teacher to Coordinate The learning by tracking the learner's progress, style of learning, learner problems, etc. and Prescribing the appropriate learning activities for the learner. Students are already Familiar with the mobile technologies since they use them to browse, to play games, to socialize, To take photos and search for information, etc. (Kinash et al., 2012).

Stevens and Kitchenham (2011) described m-Learning as "meaningful learning that occursthrough the use of wireless handheld devices such as cell phone, personal digital assistant, minicomputer,or iPod".

Schuler, Winters, & West (2012) defined that"Mobile learning (m-learning) is considered as learning mediated by mobile devices such as smart phones and tablet computers".

Baran, E. (2014) State that m-Learning is perhaps the fastest growth area in the whole field of ICTs in education. It covers any form of learning that is mediated through a mobile or, more precisely, mobilehandheld, device.

Gure(2016) described that **"**Mobile learning is considered when the focuses of teaching-learning process across the contexts and learning is going on by using mobile or any other hand devices that support teaching and learning."

Therefore, M-learning includes all the learning carried through mobiles & other hand devices like handheld devices such as cell phone, personal digital assistant, minicomputer, or iPod etc. uses the multimedia and interactive capabilities of the technology for effective teaching - learning.

MOBILE DEVICE SERVICES IN EDUCATION

In fact, the mobile phones can accomplish many of the tasks of education and services, the most prominent of these services include:

- **Smart Phones**-"Smartphone is a portable mobile phone that includes advanced functions beyond making phone call and sending text messages, many of these smart phones has the ability to display photos and play videos and check and send e-mail plus browse the internet, modern smart phones such as the iPhone and phones depending on the Android operating system that can operate application of a third party which provides limitless functionality (Techterms, n.d.).
- **Tablet PCs-** "Are computers for general purposes joined in a single panel, and its distinctive characteristic is the use of touch screen as input device, and modern computer tablets is operated by the fingers, and the pen (Stylus) just an option after it was earlier an essential requirement"(PC Mag, n.d.).
- **Short Message Service (SMS):** through SMS teacher can perform many tasks related to educational process, he gets the information more easily , as well as communicate and share views freely with the learner at any time, ask questions and receive answers easily , the exchange of words on matters of educational or social .
- **Multimedia Messaging Service (MMS):** MMSService to send and receive picture messages or audio files or video files and text messages, MMS characterized by the content of

messages greater than SMS; they are an extension or evolution of technology in messages as general. Via MMS teacher can exchange audio and video files related to educational activities.

- **Wireless Application Protocol (WAP):** It enabled the teachers to get enhanced and new matters for teaching according to their student's needs and potential regardless of geographic location, to take advantage of electronic libraries, e-books, and databases on demand, direct contact and other information services talks; where many of the E-Learning Institutes - virtual universities evolved.
- **General packet radio service (GPRS)**: General Packet Radio Services (GPRS) is a packet-based wireless communication service that promises data rates from 56 up to 114 Kbps and continuous connection to the Internet for mobile phone and computer users.GPRS is based on Global System for Mobile (GSM) communication and complements existing services such circuit-switchedcellular phone connections and the Short Message Service (SMS)(Rouse, 2007). one of the innovative technologies for the transfer of data across networks (GSM), and is used to access information via mobile phones devices, and distinguishes of this service as it provides constant contact to Internet.
- **Microsoft Network (MSN):** TheMSN network includes web-based programs and services offered by Microsoft Corporation. MSN offers a range of services including news, search engines, user-driven forums, instant messaging, e-mail, and services to connect to the internet. Through msn teacher and learner Receive and forward messages through MSN Hotmail or MSN Messenger
- **Bluetooth services:**This wireless technology enables communication between Bluetooth-compatible devices. It is used for short-range connections between desktop and laptop computers, PDAs (like the Palm Pilot or Handspring Visor), digital cameras, scanners, cellular phones, and printers(Techterms, n.d.).

FRAMEWORK FOR INTEGRATION OF MOBILE LEARNING PRACTICE IN TEACHER EDUCATION

In recent years, we observed an increasing trend towards integrating mobile learning in higher education contexts and, in particular, within teacher education programmes (Baran,2014). Educators are increasing their use of these mobile devices (or'M-devices') due to growing evidence of effective learning across a range of learning spaces (Pegrum, Howitt & Striepe,

2013; Wu et al., 2012), including reports of enhanced collaboration, social interactivity, in situ learning and sharing, communication between peers, teachers and experts, and customisation of learning (e.g. Kearney, Burden & Rai, 2015; Mifsud, 2014). Teacher educators are also engaging with mobile pedagogies, responding to the rapid adoption of m-learning in schools (Herrington, Ostashewski, Reid & Flintoff, 2014; Newhouse, Cooper & Pagram, 2015; Zhang, 2015) and the contemporary mobile digital culture in which many pre-service teachers (PSTs) are immersed in their non-academic lives (Broda, Schmidt & Wereley, 2011). Educators needto design learning materials for delivery on mobile technology so that there is learning in the pocket and on the go (Ally, 2009).Kynäslahti (2003) identifies three different elements for mobility and all of these are valuable to teachers and students whilst they are teaching and learning are as under:

• Convenience

• Expediency

• Immediacy

Baran (2014) describe M-learning practices in teacher education can be categorised into two areas: teacher 'training' about and with mobile learning Teacher education about m-learning involves PSTs learning how to integrate m-devices into their own prospective school teaching; for example, developing their understanding of how m-devices and associated educational applications (or 'apps') can leverage opportunities for more contextualised, collaborative learning in K-12. Teacher education with m-learning involves the enhancement of PSTs' professional learning with m-devices; for example, the use of m-devices to mediate their reflections on/in practice during their professional placements, and sharing ideas and resources with colleagues through social media (see Figure 2).

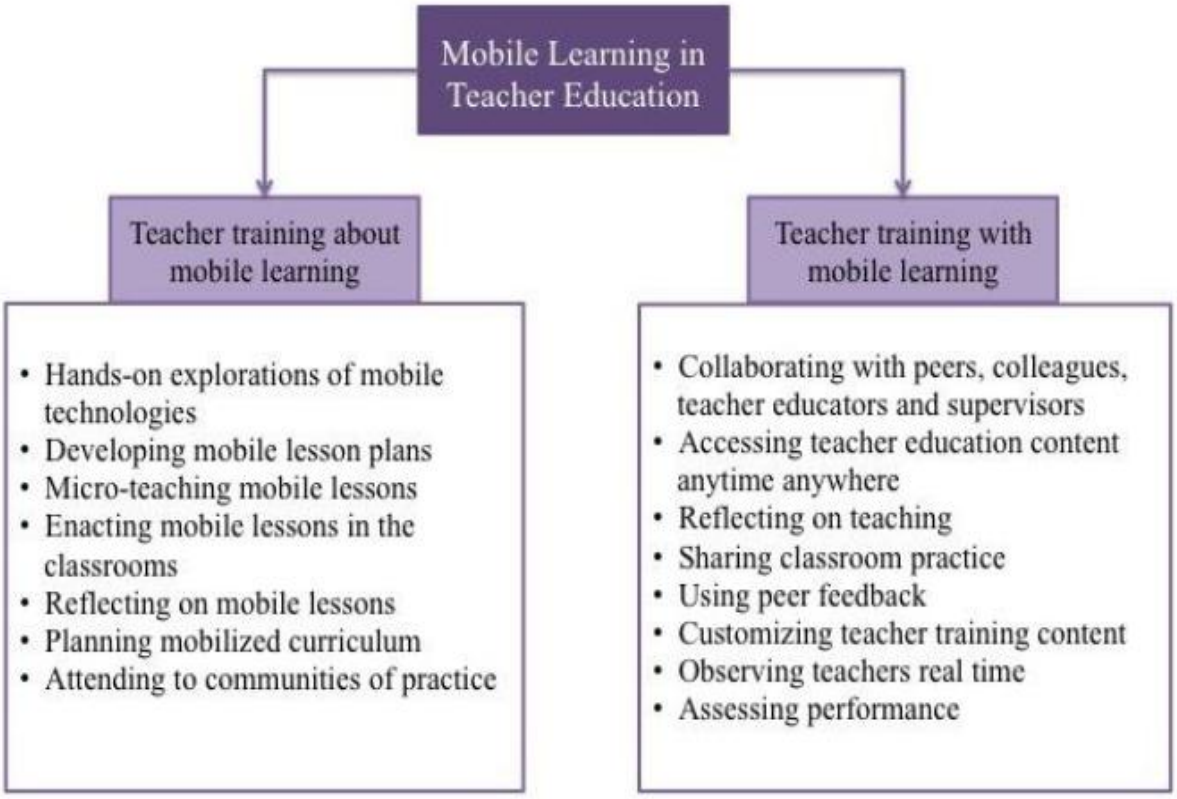

Figure 2: Methods for integrating M-learning into teacher education(Baran 2014, p.28)

Kearney et al. (2012) also proposed a framework to qualify mobile learning experiences through the use of time–space to develop learning and professionalism among students. He stated that Mobile devices create what we term malleable spatial–temporal contexts for learning' (Kearney et al. 2012). It is crucial that we recognise and acknowledge the importance of the organisation of the learning environment in terms of time– space because it profoundly affects mobile learning experiences (Ling and Donner 2009)

The learning activities performed on mobile devices feature a different idea of time–space. Formal learning is traditionally 'characterized by two constants or boundaries: time and space. Learning places occupy fixed, physical spaces which are defined by relatively impermeable boundary objects such as walls, classrooms and school buildings. The theoretical underpinning for the paper is a validated mobile pedagogical framework (Kearney et al., 2012). It highlights three central anddistinctive pedagogical features of m-learning: personalisation, authenticity and collaboration (or 'iPAC'). How learners experience these distinctive characteristics is influenced by their use of 'timespace' (or context), as depicted in Figure 3.

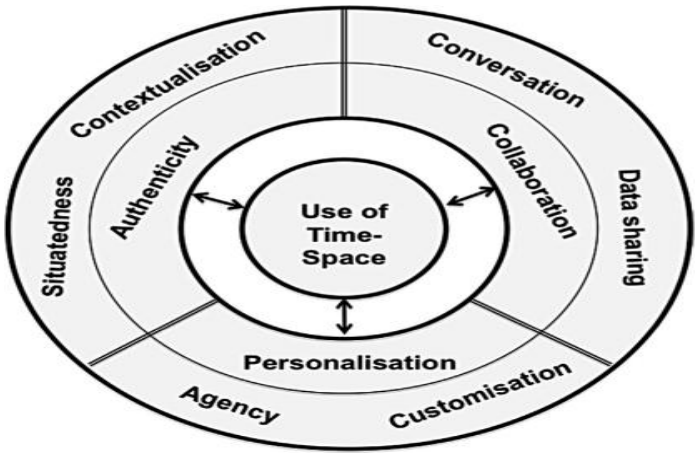

Figure 3: Mobile Pedagogical (iPAC) Framework comprising three distinctive features of mobile learning experiences. (Adapted from Kearney et al., (2012, p. 8)

The three distinctive characteristics of mobile learning experiences, with their respective sub-scales, are described by the Kearney et al., (2012) as follows:

Authenticity represents the possibility of facing real instructional situations in real contexts. In fact, 'mobile learning episodes potentially involve high degrees of task and process authenticity as learners participate in rich, contextual tasks (setting, characters and tools) involving real-life practices' (Kearney et al. 2012). Learners can generate their own rich contexts (Pachler et al. 2009) with or through their mobile devices. Thus, students have the opportunity to contextualize their learning in situated experiences by participating in a real community of practice.

Collaboration among students can be improved through mobile learning experiences because mobile devices support dynamic and just-in-time dialogue and conversation with a high possibility of sharing of material and data that can be retrieved online or generated by students. The collaboration construct captures the conversational (Sharples, Taylor, & Vavoula, 2007), networked features of m-learning. It consists of 'conversation' and 'data sharing' sub-constructs, as learners engage in negotiated meaning-making, forging connections and interactions with peers, experts and the environment (Wang & Shen, 2012).

Finally, **personalisation** refers to the opportunity offered by mobile devices to customize the learning paths of students. Students can use tools and apps to record, organise and reflect on their own learning experiences over time; they can negotiate learning choices (e.g., content and goals); and, ultimately, they can design their own learning paths by selecting, producing or sharing materials.The personalisation construct consists of the sub-constructs of 'agency' and 'customisation'. Highlevels of personalisation would mean that learners can enjoy an enhanced degree of agency (Pachler,Bachmair, & Cook, 2009). The sub-constructs of 'task', 'tool' and 'setting' focus onlearners' involvement in rich, contextualized 'in-situ' tasks, making use of tools in realistic, typicallydiscipline-specific ways, and driven by relevant, real-life practices and processes (Burden &Kearney, 2016).

Thus going through various study it is observed that the iPAC framework has been used to inform research on m-learning in school education (Kearne'y,Burden, & Rai, 2015), teacher education (Kearney & Maher, 2013) and other areas of highereducation (Kinash, Brand, & Mathew, 2012). Schuck (2016) explored ways in whichthe iPAC framework could enhance primary teacher education in Mathematics, using mobiletechnologies, including the challenging of PSTs' beliefs. The framework has recently been used toinform the development of a m-learning toolkit for educators (Burden & Kearney, 2016) aiming tohelp them diversify their mobile pedagogical practices; and to inform the design of an app evaluationinstrument in Science education (Green, Hechter, Tysinger, & Chassereau, 2014) to aid teachers'rigorous selection and evaluation of K-12 Science apps. The theoretical underpinning of the iPACframework fits with our socio-cultural views of learning with technology; and the framework'sconstructs align well with the inherent personalized and networked aspects of learning with PLNs, providing a useful lens to fully interrogate the PSTs' m-learning experiences in a range of formal and informal settings and schedules (or 'time-space' configurations).

EPILOGUE

M-learning provides new pedagogical opportunities for educators to use it in teacher education to make qualitative skill enhancement in student teacher. The above cited pedagogical framework of mobile learning helps the student teachers to achieve new skills of teaching via use of tools and apps of mobile to record, organise and reflect on their own teaching - learning experiences

over time, learning experience outside classroom and negotiate learning choices for using M-learning.Althoughthere are some barriers related to mobile learning like the high costs associated with equipment, small screen, limited battery life, poor connectivity, maintenance, technical support and teacher training apps; health-related issues; a lack of policy support and governmental investment; and/or a lack of interest and awareness on the part of policymakers and the public; and negative social attitudes that see mobile phones as disruptive devices that students use primarily to play games, chat with friends and potentially engage in inappropriate behaviours such as cheating and cyber-bullying but Mobile learning is rapidly gaining popularity because of availability of low cost mobile, wireless devices as well as the supporting infrastructure and technology. It provides a significant opportunity for teacher and learner to extend the arena of educationby teaching- learning outside the fixed classroom, personal learning and make teaching - learning process enjoyable by recording, organizing over time.

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