

Issues and Challenges in Mobile Learning Usage for Technical and Vocational Education

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Mobile learning or m-learning is the latest learning technology to progress through various e-learning methods. M-learning is a mobile technology that assists in focusing attention and promoting self-study among students anywhere and anytime. This paper focuses on the need for the learning of mobile devices. This study addresses the advantages, issues and challenges of m-learning in the classroom based on the needs of users of Technical and Vocational Education Training (TVET) for learners in three aspects; devices, users and social technologies. Consequently, this could improve the limitations of the application and advantages of m-learning in TVET. Notably, mobile learning is essential to enhance the performance of teaching and learning for the learner and simultaneously to diversify other techniques to enhance students' performance on TVET.

Key words: *Mobile learning, M-Learning, E-learning, Technical and Vocational Education Training, TVET.*

Introduction

In recent years, electronic technology has led to increased use of wireless and mobile technology. This has an indirect impact on the teaching and learning process. Development of wireless technology and mobile communication devices resulted in the use of mobile devices in education known as mobile learning (m-learning). On that account, Wu and Wang (2009) defined mobile learning commonly used in higher education for teaching and learning as the “delivery of learning to students anytime and anywhere through the use of wireless internet and mobile devices, including mobile phones, personal digital assistants (PDAs): smartphones and digital audio players (Wang et al., 2009). The authors indicated that m-learning is a continuation of e-learning, the idea of which rooted in distance education. The mobility and ubiquity of cellular units could stop studying from being restrained to a specific time and location.



Mobile gadgets have the capacity to join to the net and deliver directions to students at every time and anywhere. M-learning promotes learner-centered and personalised mastering methods through enabling college students to engage with educational techniques away from regular mastering places such as school rooms and computers. As such, cell units allow both students and educators to manipulate their time successfully (Bidin and Ziden, 2013).

So as to consolidate versatile learning into every day instructing and learning, instructive technologists should think about a useful system to check the educating and learning process. In this way, the exhibition-based versatile learning is urgent to guarantee the nature of educating and learning. This will likewise help in broadening elective techniques to improve understudy execution in TVET. Malaysia is one of the emerging mobile technologies in which the advancement in technologies can be utilised to enhance the quality of teaching and learning through innovation, especially in the field of TVET. Previous studies have shown that TVET Institutions in Malaysia are still practicing conventional teaching and learning methods. Technical and vocational education is essential for human resource development, especially to create skilled workers. Fundamentally, students in the TVET stream require theoretical and practical learning skills. Moreover, the students are required to be proficient in applying technology-based education in their learning. Hence, this paper was conducted to give an overview about issue and trend in m-learning application in TVET (Jeong and Hong, 2013).

Advantage of Mobile Learning

Interactive learning platform

M-learning offers many advantages to TVET students, including interactive learning activities, self-study, corporate learning, personal learning, and effective methodology for sending and receiving knowledge (Bidin and Ziden, 2013) (Jeong and Hong, 2013) (Martin and Ertzberger, 2013). Mobility is considered the most powerful mobile learning feature in contrast to traditional education as it allows students to access and exchange information anywhere and anytime. For example, students can exchange information with their friends from other schools. Eventually, this will aid in solving the problems pertaining to student's transitions to access learning resources. Additionally, m-learning has the ability to manage collaborative learning through interaction, which could be achieved through usage of mobile devices, for example of SMS, WhatsApp, and Viber are some communication platforms that allow this interaction. As a result, this enhances the accessibility of learning materials (Liaw et al., 2010). Three forms of m-learning interactions are interactions between students themselves, between students and educators, or between students and content (Alshalabi and Elleithy, 2012). The aforementioned interactions facilitate the students to exchange and share information, knowledge, ideas and offers an attractive learning process. On that account, the use of edutainment apps, such as educational games and e-books, via mobile technology, enables learning to be more fun and engaging (Ali and Arshad, 2016). As students carry their mobile devices wherever they go, they may be able to capture their own materials using the camera via photos and videos, eventually converting and sharing with other students and lecturers

Improve the quality of learning activities

Mobile learning is expected to increase the learning ability of the users, especially for the purpose of learning delivery in TVET. Furthermore, mobile learning can improve the quality of learning activities. In addition, mobile learning can also assist in the process of supporting material notes and presentations formative evaluation materials, games, simulations and the problem-solving process. This implies that mobile learning is effective for education development in Malaysia. Technical Vocational Education has incorporated non-formal training like games in formal sessions. This is mainly because evidence has shown that effective teaching and learning require various methods and approaches for the trained workers. Mobile learning can be user-friendly and able to improve students' problem-solving skills.

Time-saving

A previous study demonstrated the effectiveness of technology utilisation to promote teaching and learning in Malaysia (Shamim and Raihan, 2016). The study revealed that the technology facilitated effective and time-efficient teaching. Learning in education offers many benefits to the education system, including teaching and learning, management assessment and students. Therefore, the aim is to embed 21st- century learning in contrast to traditional teaching methods. For example, teachers usually experience time constraints in the classroom. With the use of technology, the teachers could upload the contents of the learning with the demonstration in m-learning application. While academic knowledge relies on theory and application, many TVET courses require a multi-disciplinary approach with broader skills. The use of technology in the classroom has shown to assist teachers in offering a variety of complex skills and education facilities for students (Latchem, 2017) (Union, 2007). As such, teachers in TVET education will no longer face time constraints with regard to classroom teaching.

Building students' knowledge

In line with today's student-centered learning methods, m-learning could assist the TVET students to improve their understanding, especially in practical learning. Constructivism learning requires students to build their own knowledge and apply a variety of skills and create a logical synthesis. Currently, many sites are available to provide different functions like conveying information, teaching and handling various activities. In technical and vocational education, for example in community colleges, work-based learning practices require students to explore various websites. To build multimedia applications using cognitive applications, the learning process must involve the active participation of students (Baharuddin and Nik Rahimi, 2008). Eventually, the students could build their own knowledge or concepts actively based on previous knowledge. M-learning also offers students the opportunity to acquire higher thinking strategies that promote creative thinking abilities through guidance from different perspectives.

Students are encouraged to express their opinions and ideas, conduct reflections, explore diverse sources of knowledge and identify their strengths and tendencies. Consequently, this has cultivated higher-order thinking skills. This was in agreement with a previous study (Sanders and Morrison-shetlar, 2001) that demonstrated the web components provided opportunities for students to interact independently with each other. The use of the application in m-learning method could shape more creative minds and understand the concept of effective knowledge, especially in technical and vocational education.

Reduction in the cost

A number of courses offered in the field of training and skills require high cost. Therefore, technological assistance can aid in the reduction of the cost of acquiring the necessary skills. There are four main reasons why education need technologies. These include the improvement of the quality of learning and access to education as well as training, reduction in educational costs and an increase in the cost of effective education. M-learning is useful in substituting the conventional teaching and learning method, which incur high cost and is difficult to manage. On that account, m-learning leads to cost reduction in various applications such as medicine, manufacturing, technical, vocational and military education. Besides, in the learning processes that involve real-life risk, the use of technology can facilitate students, save time and reduce cost. For example, simulation of welding processes in technical education use high-cost material. Ultimately, students can visualise simulation using mobile devices via the m-learning method.

Increases motivation and access

Motivation and emotion could influence executive control in increasing attention and also manage cognitive strategies, facilitating planning and use of knowledge (Tennyson and Nielsen, 1998). The teacher's experience in implementing m-learning developed a sense of enthusiasm for teaching in technical and vocational education (Che Wan, 2007). Through the use of information technology, the learning environment became more attractive and improved the learning quality (Ahmad and Ab Halim, 2010). A previous study revealed that interactive websites attracted students' attention to learning sessions (Mohd, 2010). For instance, the learning applications with appealing colours, the use of animation, video, and audio could increase students' interest. It should be noted that 'interactive' strongly related to responding or individual controls, with high self-motivation to work towards an excellent performance. As such, m-learning using constructivism approach, demonstrated to be effective in improving students' performance, academic performance and formed an effective learning style among students. This depends on teachers' motivation, interest and teaching style introduced by teachers or lecturers in Malaysian polytechnics, community colleges, and universities. Fundamentally, effective learning is fun learning. The mobile device learning approach is user-friendly and attractive to students for meeting the needs of learning resources at TVET (Saunders, 2003).

Issues and Challenges

Technology barriers

The access to mobile phones, technology and the internet could be a barrier for TVET students, especially those living in rural areas. Limited access to the internet prevents students from accessing required information from the internet site. Moreover, students are unable to access any applications or displays such as graphics and video for educational purposes. Limited access would result in limited delivery of learning content. Technology resistance includes extremely slow internet networking, m-learning access and provision of equipment, computer software or repair or repair services. The barriers with regard to technologies include technology quality issues, lack of technical and support skills, technological change and "login" issues. High cost is required in order to equip these technology devices.

Lack of implementation of moral values

Most of the websites or software are developed with a lack of moral values. Without a teacher acting as a facilitator, students using learning technologies would fail to master effective learning methods such as simple note taking (Mohd et al., 2003). For example, without the control of a teacher at a school or parents at home, students inclined to access the internet to view contents, which are not meant for learning. This resulted in the decline in learning achievement, which might deteriorate character, behaviour performance and achievement of today's students. Evidence has shown that technology and multimedia content influenced the process of developing their character and attitude (Abdul Rawi, 2004).

Technical challenges

Technical challenge are critical hindrances in the execution and joining of m-learning innovations in instruction. (Qureshi et al., 2012) recorded a portion of these barriers, which incorporate installation, availability of the latest technology, fast internet connection, and uninterrupted supply of electricity, maintenance, administration, security and absence of technical support (Qureshi et al., 2012). There are numerous technical challenges identified with the infrastructure, mobile devices, application development, technical support, security, and technical knowledge of instructors, students, and other stakeholders that should be considered when employing m-learning project. Moreover, (Park, 2011) uncovered a few specialised constraints identified with the physical qualities of cell phones, for example, little screen size, lacking memory, organising unwavering quality, restricted battery and screen splendour (Park, 2011). Prominently, specialised help is fundamental to all gatherings engaged with the m-learning venture, and along these lines, there is a requirement for dynamic specialised and material help. In any case, (Bakari et al., 2005) demonstrated that a large portion of the created nations need a great specialised help group such as support of data and correspondence advancements (ICT) (Bakari et al., 2005; Shah et al., 2019). A technical problem also observed in TVET in which the use of a small device screen leads to difficulty for students to visualise learning contents. For example, for the subject of engine drawings,



students would face difficulty observing the movement of the engine system if the screen of the device is small (Sharples et al., 2005; Hwang and Chang, 2011; Messinger, J. 2012; Alhazmi and Rahman, 2012) .

Lack of communication

(Abar and Loken, 2010) demonstrated that self-directed learning required students to sustain cognitions and behaviours systematically, in order to achieve learning goals. As the students are apart from instructors, peers, and education providers, they are required to independently acquire skills and competencies to manage the learning effectively. Consequently, this would lead to a lack of communication between learners and educators as well as peers. For example, in the concept of the engine movement system, if the students misunderstand the concept of learning, they could fail in understanding the topic.

Conclusions

Implementation of effective m-learning in the school requires the educators to understand the advantages and disadvantages of the mobile learning, particularly for technical and vocational students. In the technical and vocational teaching, mobile learning serves an important reference for practical work or hands on. The advancement of mobile learning technologies is promising to improve the skills of TVET teachers as well as students and expand the academic source of reference. Technical issues such as internet connection are one of the main barriers to the implementation of mobile learning, which should be addressed by the respective parties.

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