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Are Lecturers' Ready for Usage of Mobile Technology for Teaching?

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***Abstract*—**Descriptive statistics was performed with the aim to achieve research objective of to investigate lecturers' usage of the mobile technology for teaching. A representative sample of 20 lecturers from the Faculty of Industrial Art & Design Technology of Universiti Industri Selangor (UNISEL), Malaysia was selected as the respondents. The result attested that lecturers fully accept the concept of mobility in learning and game play is appealing concept to support classroom learning. Subsequently, analogous experience on small size of keypad, screen resolution, and navigation could be the major problematic factors to students and affect their mobile learning process. Recommendation for future research is also presented.

***Keywords*—**Academics, Mobile e-learning, Mobile technology, Readiness.

I. Introduction

MOBILE learning, or m-learning, is a personal, unobtrusive, spontaneous, "anytime, anywhere" way to learn and to access educational tools and material that enlarges access to education for all. It reinforces learners' sense of ownership of the learning experience, offering them flexibility in how, when and where they learn. Consumers have to move from knowledge to learning, from concentrating on content to focusing on understanding concepts and contexts for lifelong learning [1]. Mobile phone is one of the communications devices sparking new modalities of interaction between people. Mobile devices are educationally interesting because its offer: (a) several communications channels on one device, for example, email, voice, and text messaging, (b) cheaper, comparable functionality with desktops or laptops, and (c) wireless access to educational materials, other students and Internet resources. Mobile phone has proved very useful elsewhere that there are 1.5 billion around the world, with half a billion new ones sold every year [2]. In the United States, the penetration of student mobile phones is 40% in many junior high schools and 75% in many high schools [3]; according to a Student Monitor survey, as cited in [4], penetration is 90% in U.S. colleges.

In some countries—including the United Kingdom, Italy, Sweden, and the Czech Republic—cell phone penetration is greater than 100%, which means that individuals own and use two or more of these devices [5, 6]. Mobile phone penetration in Asia continues to climb: Hong Kong and Taiwan have already surpassed 100% according to one prominent survey [7, 8], and several years ago, J@pan Inc magazine reported that more than 90% of Tokyo high schoolers carried mobile phones [9]. Usage is increasing wildly across the globe, notably where relatively inexpensive cell systems bring service to areas without land lines. In Botswana, roughly one of every four citizens owned a mobile phone by 2002 [10]. Moreover, students in China, the Philippines, and Germany are using their mobile phones to learn English; to study math, health, and spelling; and to access live and archived university lectures, respectively [11, 12, 13].

A lot of changes have also happened in the mobile devices available on the market, mobile phones are no longer just telephones; they are increasingly being equipped with extra PDA-type facilities and other facilities such as cameras and multimedia messaging (MMS). These devices are often referred to as smart phones. On the other hand, palmtop computers (PDAs) are also becoming hybrid devices with mobile phone functionality and wireless Internet connections. Future mobile devices are probably going to be even more complex and have even more functions than the devices available today. Third generation mobile telephone networks are currently being launched in several countries but according to market analysers they will not become widely used before the year 2007. Instead, the current 2.5G technology will be sufficient for most users, for accessing information via smart phones and other mobile devices for several years to come [14]. Smith [15] suggests that in the next 3 years mobile phone use by younger students will migrate to smart phones, whereas PDAs or phone-enabled PDAs will not be popular except where they support specialist courses. Despite its growing significance, there is still a lack of research work in many countries in this field, including Malaysia market. This research aims to investigate lecturers' usage of the mobile technology for teaching.

II. Literature Review

Handheld digital devices are becoming more common, and their quality and capability is increasing due to technological breakthrough in miniaturization and advancements in wireless bandwidth and data networks [16]. M-learning can complement other teaching and learning methods or replace them, and can be modelled in the same ways as other methods [17]. Important characteristics for m-learning devices and tools should include that they are highly portable, can be individually adapted to the abilities, knowledge and learning styles of the user, are unobtrusive, available anywhere and adaptable, persistent, useful and intuitive for people who have

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no prior experience with technology. Beyond that we know that portability can foster a greater feeling of ownership over learners' work [18].

Indeed a mobile computer-supported cooperative learning environment greatly enhances mobility, coordination, communication, organization of materials, negotiation, and interactivity over traditional cooperative learning environments [19]. Roschelle and Pea [20] demonstrated five reasons for using wireless devices in cooperative learning: augmenting physical space, leveraging topological space, aggregating coherently across all students' individual contributions, conducting classroom performances, and students' acts becoming artifact. Usability is more elusive. Software tools need to be usable without too much incremental effort. What is the point of automation if it takes more work to do the job with the software than without it? In the often hands-free and eyes-free environments where mobile learning is most appropriate for just-in-time learning support, complicated key controls and difficult-to-read screen presentations will be tolerated only under certain very limited conditions. The rest of consumers are not willing to risk having a bad experience. For broad and long-term adoption, the experience really does matter [21].

Wireless networking connectivity is increasingly built into current handhelds, and can be added to older models with a wireless adapter card. The oldest of these technologies is infrared, now being widely replaced by Bluetooth. Although it only connects with adjacent devices, such as other handhelds or printers, Bluetooth transfers data faster than infrared. Bluetooth enabled handhelds access the Internet by connecting to Bluetooth-enabled mobile phones, which contact an Internet Service Provider (ISP). Smartphones connect directly to an ISP without additional equipment or adapters [17]. As more people gain greater comfort with simple mobile applications like SMS text-messaging and mobile web-surfing, the greater will be the demand for broadband service. And as bandwidth increases and media players like Flash continue to improve users' experiences, the more rapidly will mobile applications continue to increase in number.

III. Methodology

20 lecturers from the Faculty of Industrial Art & Design Technology of Universiti Industri Selangor (UNISEL), a private university located in Selangor state of Malaysia were selected as the respondents. Five open-ended questions were presented to them via the questionnaire. The first question revolves around their opinion on the usage of mobile technology for learning and reliance on the mobile phone in assessing/delivering learning/teaching material such as tutorial, lecture, lab session. Subsequently, in second question, the respondents were asked whether the mobile content and mobile game improve their knowledge from the perspective of learning process from the *`know-how"* aspect to the *`show-how* aspect. The next question ponders about the respondent's opinion whether the mobile learning/mobile game could enhance their knowledge on the subject that they find it difficult to understand. Meanwhile, in question four, the respondents were posed on the problem that they faced in the learning process, namely the keypad, screen resolution; navigation etc that restricts their learning and viewing experience while using the mobile devices. The last question probes on the respondents' opinion on the concept of mobility in learning and game play, the application of this concept in the learning process and whether mobile phone can replace the function of university/college, in order to gain knowledge in the future. In order to achieve research objective, these questions were analyzed using descriptive statistics via Statistical Package for Social Sciences (SPSS) computer program version 16.

IV. Discussion of Analysis

The discussion of analysis on the lecturers' espousal on the mobile technology usage for teaching is enumerated as follows.

A. Reliance on Teaching Using Mobile Technology

As stated in Table I, more than half of the lecturers (55%) rely greatly on the mobile phone in assessing/delivering their teaching material such as tutorial, lecture, lab session in the university. They really like the idea as it is very useful, novel and practical. They find is more convenient to use mobile technology for teaching but it still depends on the learning situation and condition, especially to distance learning students where face-to-face method is also needed in the learning process. It is a good idea to personalize teaching material within handhold. However, reading in a small screen will be the major drawback. There is restriction to its condition of usage due to limited time and session available. Surprisingly, there are 45 % of the lecturers do not agree to use mobile phone for teaching because they perceive that it is better for them to use e-learning system and it is only suitable for infotainment and entertainment only. The face-to-face communication is lacking hence less interaction involves in the learning process. They also disagree to use mobile technology for teaching because of the inconvenient network instability. The mobile technology is only suitable for communication purposes only. Further, they also do not like to rely greatly and have full dependency on mobile technology for teaching.

TABLE I
RELIANCE ON TEACHING/LEARNING USING MOBILE TECHNOLOGY

	Frequency	%
Yes	11	55
No	9	45

B. Improvement of Knowledge through Mobile Content and Game

It is indicated that 70% of the lecturers agree to the statement "Mobile content and mobile game improve their knowledge (from the perspective of learning process `know-how" to the `show-how)" (refer Table II). The learning content can be of any format (media); it could be plain text, audio, video or an image/picture that is delivered to the learner's device such as mobile phone or PDA. The encouraging reasons are that it provide a new interactive

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learning environment that could improves their knowledge from `know-how" to the `show-how and this is the quickens way of thinking where it is fun and interactive medium to learn new knowledge and gives them new perspective on the aspect of learning applicability. They also agree that the mobile content visualization may increase student understanding on the subject matter. However 30% of the lecturers seldom use mobile phone for the lectures because it is suitable for infotainment and entertainment purposes only. It does not improve the knowledge because we are only using the mobile phone generally for communication purposes only. It'll only able to increase the know-how of a particular brand of mobile device unless all come to one standard.

TABLE II
IMPROVEMENT OF KNOWLEDGE THROUGH MOBILE CONTENT AND GAME

	Frequency	%
Yes	14	70
No	6	30

C. Enhancement of Knowledge on Difficult Subject through Mobile Device

70% of the lecturers agree that mobile game could enhance the student knowledge on difficult subject especially on the history of art, if converted to game, the course can be interesting, fun and the student will not get bored. Thus, it could enhance their knowledge on difficult subject. Further they reported that mobile game could be a good tool for learning Mathematic subject. In fact, language and vocabulary subject could be converting into a mobile game. Conversely, as avowed in Table III, 30% of the lectures do not agree that mobile game could enhance the student knowledge. This is for the reason that knowledge is hard to enhance when it involves lab experimentation as it depends on the user friendliness of the subject's instruction. They also have perception that the subject is more difficult to understand using mobile game. It could not enhance the knowledge on difficult subject. Mobile game only being used for entertainment purposes only for example while waiting for flight at the airport.

TABLE III
ENHANCEMENT OF KNOWLEDGE ON DIFFICULT SUBJECT THROUGH MOBILE DEVICE

	Frequency	%
Yes	14	70
No	6	30

D. Restriction in the Learning Process Using Mobile Devices

Mobile phone is being used for the communication purposes. Mobile phone provider does offer the features to type in messages via short messaging services. However, the smoothness of the transaction is depending on the keypad, screen resolution, and navigation features. More than half of the respondents (60%) belief the keypad, screen resolution; navigation of the mobile phone restricts their learning and viewing experience (refer Table IV). Indeed, their learning limitation is due to screen visibility, the screen size is too small and it's hard to see the icon/command for interaction. Thus, they need extra peripheral to connect the mobile phone to personal computer (PC). They find that it is easy to use the computer keyboard rather than the mobile phone keypad to type in messages. Not all mobile phone do have Internet browser inclusive in it therefore this group of mobile phone user could not enjoy the Internet searches via mobile phone after all has restricts their learning and viewing experience.

Other than that, the audio narration quality also another contributing factor to restricts their learning and viewing experience using mobile phone. It is suggested that mobile phone should be upgrade to better quality for language learning using mobile devices. Limited battery power is inclusive as the said factors. It slows the mobile phone performance compared to desktop and laptop. Table IV also pointed up that 40% of the respondents have no idea on the keypad, screen resolution, navigation of the mobile phone restricts their learning and viewing experience as they have limited knowledge and experience in using the mobile device besides do not familiar with the features inclusive in it. On the whole, both respondents agree that there exist numerous restrictions in the learning process while exercising the mobile learning experiment.

TABLE IV
RESTRICTION IN THE LEARNING PROCESS USING MOBILE DEVICES

	Frequency	%
Yes	12	60
No	8	40

E. Opinion on the Concept of Mobility in Learning and Its Application in the Learning Process for Mobile Learning Acquisition

This question requires the lecturer to furnish information on the statement 'the concept of mobility in learning and game play is applicable in their learning processes. Evidently affirmed in Table V that more than three-quarter of the lecturers (90%) provide encouraging feedback to this statement. They find that the mobility in learning and game play via mobile phone is a good and appealing concept. It can be integrated to support classroom learning. Further, they like to explore in greater detail the concept of mobility in learning and game playas it is a supporting tool for current form of learning delivery. On the other hand, result also infers that there still a small portion of the lecturers have inverse opinion on the concept of mobility in learning and game play by means of mobile phone is applicable in their learning process. They have the perception that the concept is similar to self-study approach. They also feel that the concept cannot replace the traditional method of teaching and formal nature of academic institution.

TABLE V
OPINION ON THE CONCEPT OF MOBILITY IN LEARNING AND ITS APPLICATION IN THE LEARNING PROCESS FOR M-LEARNING ACQUISITION

	Frequency	%
Yes	18	90
No	2	10

Mobile phone could not replace the function of university/college as it could only enhance its function. Direct interaction between lecturers is always more effective to have superior knowledge delivery. Mobile phone is only useful as a learning aid for acquiring short information such as weather forecast, etc. Factors such as viewing constraint, connectivity and motivation to use the mobile phone for learning process must be consider by mobile phone service provider to enhance these small group of lecturers to better accept mobile phone as applicable learning aids in their learning process as it could support mobility in learning and game play.

V. Conclusion

A study was performed on the lecturers' embracing of the mobile technology usage for learning. In sum, lecturers agreed that mobile content and mobile game improve their knowledge from the perspective of learning process from the *`know-how"* aspect to the *`show-how* aspect. Furthermore, they confidently felt that mobile game could enhance the student knowledge on difficult subject especially on the history of art, if converted to game, the course can be interesting, fun and the student will not get bored. Thus, it could enhance their knowledge on difficult subject. Beside that, lecturers obtained analogous experience on small size of keypad, screen resolution, and navigation could be the major problematic factors to students and affect their mobile learning process as it is unfriendly to use and the device easily get damage. Lecturers fully accept the concept of mobility in learning and game play is appealing concept to support classroom learning. Room to further analyze the data using regression analysis is open for future researchers by covering larger size of sample with additional variables. Opinion gathering on the usage of the mobile technology for learning from students' perspective also would be beneficial in future research undertakings. Thereafter, a comparative study could be executed for broader discussions.

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