BRINGING CHANGE IN SECONDARY SCHOOLS: CAN MOBILE LEARNING VIA MOBILE PHONES BE IMPLEMENTED IN MALAYSIA?

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ABSTRACT

Innovations in mobile learning can lead to a change paradigm in education; mobile technologies are believed to have the potential to be used in teaching and learning in schools. This paper discusses the feasibility of employing mobile phones for mainstream schooling in Malaysia. The paper describes the various perceptions of the use of mobile phones for learning by reflecting on the positive opinion from educational researchers around the world, including Malaysia. The justifications of employing mobile phones for teaching and learning in secondary schools in Malaysia are examined. Current initiatives in the use of mobile phones for teaching and learning together with the examples of schools which utilise mobile phones in educational activities are explored. Challenges and opportunities in the realisation of mobile learning through mobile phones in Malaysia are examined by consultation with stakeholders based on the current social, political and economic situation in the mainstream education in Malaysia. The paper concludes that there are strong positive arguments for employing mobile technology in Malaysian schools but the implementation is not without critics and challenges.

Keyword: mobile learning, mobile phones, mobile technologies, change

ABSTRAK

Inovasi dalam pembelajaran mobil boleh menyebabkan perubahan paradigma pendidikan, di mana teknologi mobil dipercayai mempunyai potensi untuk digunakan dalam pengajaran dan pembelajaran di sekolah. Kertas ini membahas kebolehlaksanaan menggunakan telefon bimbit untuk sekolah-sekolah di Malaysia. Kertas ini menjelaskan pelbagai persepsi mengenai penggunaan telefon bimbit untuk pendidikan dengan mencerminkan pendapat positif dari penyelidik pendidikan di seluruh dunia termasuk dari Malaysia. Perwajaran menggunakan telefon untuk pengajaran dan pembelajaran di sekolah menengah di Malaysia diperiksa.Inisiatif terkini dalam penggunaan telefon bimbit untuk pengajaran dan pembelajaran bersama-sama dengan contoh sekolah-sekolah yang menggunakan telefon bimbit dalam kegiatan-kegiatan pendidikan dieksplorasi. Cabaran dan peluang dalam mewujudkan pembelajaran mobil melalui telefon bimbit di Malaysia diperiksa melalui perundingan dengan para pemangku kepentingan berdasarkan situasi terkini dalam bidang sosial, politik dan ekonomi dalam pendidikan arus utama di Malaysia. Kertas ini menyimpulkan bahawa terdapat hujah positif yang kuat untuk menggunakan teknologi mobil di sekolah-sekolah Malaysia, bagaimanapun pelaksanaannya bukan tanpa kritikan dan cabaran.

Kata kunci: pembelajaran mobil, telefon bimbit, teknologi mobil, perubahan

Introduction

"If we look for real change, we need to listen to children, not because they know more but because they can help us question, explore, and have lots of fun with where we're going. They can push us in true directions for change."

(Read & Druin, 2009, pp.330)

In recent times there has been numerous initiatives in mobile learning, the devices vary, from big devices such as web books, note books and laptop computers to small devices like mobile phones. For many, mobile phones are believed to be useful in teaching and learning at schools. While there are debates about the pro and cons of this device, the research and projects in using mobile learning via mobile phones is increasing. It can be seen that people are starting to accept the idea of using mobile phones for educational purposes; some schools are already utilising mobile phones formally in teaching and learning "High school to allow mobiles in classrooms to help learning", (Telegraph, 2009); "Pupils to use cellphones as learning tool", (Bay of Plenty, 2010); "Some Tampa Bay high schools allow cell phones to be used in class", (St. Petersburg Times, 2009) including a trial implementation in Malaysia "Belajar secara maya guna iPhone - Virtual learning through iPhone", (Utusan, 2009).

Bringing change in secondary mainstream schools in Malaysia is not without its challenges. These include the social, political and economic situation in the Malaysian educational system. However, with regard to the economic situation, the proliferation of mobile phones among Malaysians (Malaysian Communications and Multimedia Commission, 2007) is a sign that there is an opportunity to implement mobile learning via mobile phones in Malaysia. Bringing change in secondary schools in Malaysia will require endeavour to meet the perceived and real negative implications of mobile phones towards children.

This paper discusses the benefits of mobile phones for formal education through exploring the initiatives in deploying mobile phones for teaching and learning, and recognise schools that have been the pioneers in mobile phone utilisation for teaching and learning. The challenges and opportunities in the realisation of mobile learning via mobile phones in Malaysia is then discussed. With proper planning, it is now possible to see that mobile phones can become one of the applications for teaching and learning at secondary schools in Malaysia.

The use of mobile phones for teaching and learning: The benefits

Although there are negative perceptions towards the use of mobile phones in mainstream education (Smith et al, 2005; Trotter, 2001; Vahey & Crawford, 2002; Katz, 2005; Shaw, 2005), the potential of mobile phones has been discussed in many literatures. The New Media Consortium and the EDU CAUSE Learning Initiative (2007). stated that:

> Mobile phones also make reappearance, in the same horizon as last year but nonetheless a year closer…….Clearly, the use of mobile phone as an educational tool is becoming more widespread and accepted.

The main motivation behind the deployment of mobile phones in education is mobility. With mobile phones, students can access their lessons almost anywhere and at anytime (Quinn, 2000; Mellow, 2005). They are compact and can be transported with ease.

The introduction of bite size lessons through mobile technology is also compatible with students' hectic lifestyle. Bite size lessons, as defined by Mellow (2005), are the result of breaking down large and more complex teaching materials into smaller chunks. Mobile phones could assist learning by providing learners with bite size lessons that they can learn in shorter periods of time (Kenning, 2008, pp. 192-193). For example, while traveling on the bus on the way home, a student might be able to study access notes through his or her mobile phone. Students do not have to depend on access to desktop computers to conduct e-learning activities.

What is more, through her research, Kolb (2008, pp. 1) believed that mobile phones, which are popular among students, could be considered as a motivational tool for learning. She has conducted many learning activities with mobiles and these activities have shown positive outcomes.

Furthermore, Williams (2006) mentioned that because of the affordability of mobile technologies such as handheld computers and mobile phones, together with the various functions that this device offers for teaching and learning, he believed that this device is a sensible choice for educational investment. Hirsh (2005) mentioned that "As a start, consider the use of student-based technology to be a transformer you can put in place quickly at minimal cost". This is also true for developing countries, where mobile phones are perceived as affordable devices to many people. Motlik (2008) posits that mobile phones are beneficial for both instructors and learners in developing countries, because of its cost-efficient method. Mobile phones are relatively low cost and accessible in low-income communities which will bring positive impact in developing countries, including Malaysia.

Naismith et al (2004) believed that there may also be an opportunity to leverage technologies that students own such as mobile phones for SMS messaging. As mentioned by (Naismith et al, 2004) and Mellow (2005), SMS technology offers push system in the delivery of learning materials. Push system as defined by Naismith et al (2004) and Mellow (2005) is where through SMS technology, moderator pushes out lesson messages to students as reminders to revise. Therefore, the push system promotes students to have regular study time, especially for students who lack motivation to learn, are not organised or have conflicting pressures.

In a report by Shuler (2009), it stresses the importance of mobile phones enabling personalised learning experience. Because not all learners are alike, lessons should be customised according to students' level of performance. This is one of the features that mobile phones can support, which Shuler referred to as "supporting differentiated, autonomous, and individualized learning through mobile devices."

SMS through mobile phones is also suitable as a media for repetition or drill and practice. Levy & Kennedy (2005, pp.76) mentioned the advantage of mobile phones in supporting repetition:

> Repetitions undertaken across a period, usually at ever-increasing intervals, are a more effective way to learn and retain new words than sustained repetition during a single, continuous period. SMS messages sent at intervals via a mobile phone have a potential to meet this requirement as well.

A statement by Epic Group plc's M-learning in (Dawson, 2007 pp.7) also supports this opinion:

> Repetition is…the most powerful of learning factors. And by spacing that repetition over time you significantly minimize that forgetting. This may be the primary reason for considering m learning. At last we have the means to deliver content, participation and regular reinforcement to learners whatever they want, wherever they are and whenever they want it.

Therefore, through SMS students would obtain the benefit offers by SMS, which support drill and practice activities. This is particularly important for students in preparing for examinations.

Another advantage of the use of mobile phones in education is that students could get immediate feedback through it. For example, when students revise vocabulary through SMS quizzes, students would be able to get answers immediately from the SMS. Only when students need further explanation, they would refer to their teacher. The benefit of immediate feedback for learning is not only beneficial in terms of interactive learning, it also promote students to become more independent in their learning. Students would have the opportunity to explore knowledge by themselves without over depending on teachers. The opinion regarding the benefit of immediate feedback towards independent learning has been stressed by Savill-Smith et al (2006, pp. 6):

> The tutors considered that mobile learning impacted on their students' learning and interest in learning in the following ways, ie it could: Provide immediate feedback for SMS quizzes, which enables students to become more autonomous in their learning and to monitor their own progress.

The above mentioned benefits justify the reasons of integrating mobile phones in Malaysian school. Mobile phones could be used as a teaching learning tool for various subjects as being suggested by Kolb (2008, pp. 23-167) and Williams (2006, pp.125-211). The next section will continue with the current mobile learning initiatives and deployment of mobile phones for education.

Currents mobile learning initiatives and mobile phones deployment for teaching and learning

Initiated by seeing the benefits of using mobile phones in education, researchers from around the world have actively developed applications for mobile learning (Cooney & Keogh, 2007; Stockwell, 2007; Thornton & Houser, 2005; Levy & Kennedy, 2005). In Malaysia, the development of mobile learning among scholars in Malaysian universities has become increasingly apparent. In vocabulary learning, scholars from Universiti Technical Malaysia have developed an application to learn Malay idioms for the use of Malaysian primary schools students (Salam et al, 2008). This application applies cartoon and humour like approach developed using multimedia technology. The outcomes of this mobile application are positive, where most of the participants agreed that the application assists them in learning the subject.

Another application is a mobile lesson for learning mathematics targeted to primary schools' student aged 11 and 12 years old (Mahamad et al, 2008). The application uses open source technology complete with mobile graph to track the student's progress and performance. The application also brought positive outcome, where it has been reported that the students who used this system performed better in their examination.

Shiratuddin & Zaibon (2009) developed an application to support a mobile game based learning for secondary school students. The application is game-based and follows the activities of a local character called LidiMan. The name comes from two words “Lidi” and “Man” where “Lidi” is a Malay word which means stick. It is a very simple type of drawing but is both attractive to young children and efficient to render on the screen of the phone. The finding concluded that the mobile content motivates students to use it because of the local uniqueness which are being incorporated in the application.

The results reveal that a majority of the surveyed students have access to mobile phone. Most of them played mobile games, and female student played games too. The finding also disclosed that, in order to make the mobile game based learning successful in a learning environment, it should embrace both entertainment and education purposes. In addition, students preferred learning through mobile phone rather than other devices (consoles). Moreover, 83% stated that they preferred local designed characters with local culture based contents. (Shiratuddin & Zaibon, 2009 pp. 692)

Regarding the trial efforts in adopting mobile phones in mainstream schooling, the figures are very promising. One of the most successful projects is the Learning2Go project which is based in several schools in Wolverhampton, United Kingdom (Learning2Go, 2010). In this project, mobile devices such as mobile phones are recognised as an effective learning aid at schools involved. Among the key applications which have been used are E-books and E-dictionary, which have been made available on students’ mobile phones.

In Malaysia, a school known as Cempaka International Ladies’ College or Sekolah Cempaka which is located in Kuala Lumpur has become the pioneer in the trial towards using mobile phones in educational activities “Belajar secara maya guna iPhone - Virtual learning through iPhone”, (Utusan, 2009). 200 students have been chosen by Maxis Communication Berhad, a leading telecommunication company to receive iPhone™ 3GS as part of its Virtual Learning Environment program. Mobile phones are used in various activities such as posting notes to students’ project files, recording videos or interview for project work as well as accessing notes. However, to eliminate disruption, mobile phones are not allowed to be used during lessons at schools.

In addition to these trial efforts, there are schools which have already moved forward in employing mobile phones for teaching and learning formally. One of the examples is Notre Dame High School in Sheffield, United Kingdom which has announced that mobile phones will be used in the classroom and around the school “High school to allow mobiles in classrooms to help learning”, (Telegraph, 2009). As a preparation towards the implementation, the school is developing a policy as a counter measure so that mobile phones can be used productively for teaching and learning.

In the New Zealand, Otumoetai Intermediate School will be the pioneer in the deployment of mobile phones as part of everyday learning at school “Pupils to use cellphones as learning tool”, (Bay of Plenty, 2010). The school principal believes that mobile phones can be a powerful assistive technology if used in the appropriate context. However, like Notre Dame High School, students in this school are also required to abide by the rules to use mobile phones appropriately.

In the United States of America, Wiregrass Ranch High School is one of the schools that is utilising mobile phones for educational purposes “Some Tampa Bay high schools allow cell phones to be used in class”, (St. Petersburg Times, 2009). These include using mobile phones in literature class, mathematics class as well as note takers. The

response among the stakeholders; parents, staffs and students are positive and they praised the management of the school for its effort in the implementation.

Despite the opposition towards the use of mobile phones at schools, the above mentioned schools embraced the positive sides of the device. The reasons are based on the benefits of mobile phones for teaching and learning that has been discussed in the previous chapter. It can be seen that these schools have answered a well-thought questions by Prensky (2004, no page):

> So, rather than fight the trend of kids coming to school carrying their own powerful learning devices—which they have already paid for—why not use the opportunity to their educational advantage?

Another statement by Mellow also raised the same opinion:

> Phones are no longer toys; they are powerful communication tools, if we choose to use them. Whether we like it or not, whether we are ready for it or not, mobile learning represents the next step in a long tradition of technology-mediated learning (Mellow, 2005, pp. 470).

In Malaysia, although the introduction of mobile phones for learning in Malaysia is considered as a new idea, there was a forecast that mobile phones or specifically smart phones would be used in secondary schools in Malaysia from the year 2016 to 2020 (Siraj & Saleh, 2003). In other paper, Siraj (2004) estimated that Malaysia has a huge potential to implement mobile learning in its curriculum in five to seven years on, which is what she literally means by the year 2009 to 2011.

Furthermore, Dr Norrizan Razali, Senior Manager, Smart School Department, Multimedia Development Corporation in Malaysia (UNESCO, 2010) agreed with Siraj & Saleh statement regarding the future of smart phones in Malaysian schools:

> One of the key emerging technologies that will transform schools is mobile devices. Hybrid devices which are a mix of mobile phones and personal notebooks.

Razali elaborated that such mobile devices have great impact for students especially to the students in rural area (UNESCO, 2010). However, she further stressed that the devices must first be durable and affordable, below RM 1000 (about US$300) each.

As mentioned in previous section, the benefits of mobile phones in education are manyfold. The keywords of the advantages of mobile phones for teaching and learning includes; mobility, bite size lesson, motivation, affordability, personalisation, drill and practice, interactive learning and independent learning.

Based on the benefits of mobile phones, many projects have concentrated on the deployment of these devices. Like other people in the world, the Malaysian projects illustrate that Malaysians also believed that mobile phones have the prospects to be used in education. While it is very tempting to deploy mobile phones in formal education in Malaysia, there are challenges ahead that need to be addressed in order to make it a reality. The next section will continue with the discussion regarding the challenges and opportunities in implementing mobile learning in Malaysian schools.

Challenges and opportunities in the realisation of mobile learning via mobile phones in Malaysia

Malaysia faces several challenges when employing mobile phones for teaching and learning – they are cultural, political and economic in nature. First of all, it is based on the cultural norm in the mainstream education in Malaysia. Like in education worldwide, stakeholders in schools in Malaysia, especially teachers, perceive mobile phones as distractions. Mobile phones are believed to cause various discipline issues among students.

In Malaysia, the pioneer of the mobile technology deployment at school is E-book project, which is based in the State of Terengganu, located in the east of Peninsular Malaysia. According to (Kumar, 2009):

> Projek Buku Elektronik (electronic book project) is the brainchild of the Terengganu state government and represents a first step towards harnessing the benefits of technology to make education more efficient by delivering the school curriculum in a digitised format as an alternative to heavy textbooks.

However, the implementation of this project is not without issues. During the early phase of the implementation, there were problems with the misuse of the technology. Students downloading indecent material to their e-books and accessing malicious content from e-book are the issues, “Bahan lucah dalam e-book - Pornography material in e-book” , (Kosmo**,** 2009a). In confronting these issues, a bespoke software are being used to monitor students’ e-books, “RM30 juta tapis e-Book, pantau kelas - RM30 million filter e-book, monitor class”, (Kosmo, 2009b). Moreover, special technical personnel known as Executive Information Officer (EIO) are being provided at every school to maintain and manage devices as well as to monitor students’ usage of the devices in the implementation (TESDEC, 2010).

It is a concern that the same scenario may occur if mobile phones are used for educational purposes at school. But with proper solutions, such as employing acceptable use policies as exemplified by Notre Dame High School’s initiative to allow mobiles in classrooms to help learning, “High school to allow mobiles in classrooms to help learning”, (Telegraph, 2009) and Otumoetai Intermediate School allowing pupils to use cellphones as learning tool, “Pupils to use cellphones as learning tool”, (Bay of Plenty, 2010) as well as equipping schools with technology solutions which is being practised by e-book implementation in the State of Terengganu, “RM30 juta tapis e-Book, pantau kelas - RM30 million filter e-book, monitor class”, (Kosmo, 2009b), the integration of mobile phones for teaching and learning would be implemented smoothly.

Another challenge is the political situation in the mainstream schooling. Initiated from the social problems raised from the distraction caused by mobile phones in schools, the Ministry of Education Malaysia has come out with a circulation to all schools in Malaysia which prohibited the use of mobile phones in schools (Circulation Letter Number 2/2009). The reasons include mobile phones theft issues, fighting among students, spreading malicious message among students and distracting students from their lessons. The reasons are parallel to numerous opinion that mobile phones is being regarded as a disruptive technology at schools (Rosile, 2007; Technology Education, 2006; Bauer & Ulrich, 2002; Clyde, 2004; Tatar et al, 2003).

Therefore, in the effort to introduce the use of mobile phones at schools, a step by step approach should be taken to compensate the existing policy at schools. Kolb (2008, pp. 12) suggested that because changing policies and perspective from school communities towards the use of mobile phones is challenging and will take time; she suggested that at

an early stage, schools might consider adopting mobile phones for the use of learning activities outside school hours; for example for the use of field trips and homework assignments. This is suggested so that students do not have to bring the device to school to eliminate some school-based negative consequences as well as not violating current policies in many schools. Similarly, Hartnell-Young & Heym (2008, pp.3) suggested that mobile phones should be adopted gradually in school until mobile phones are accepted as a common learning tool:

> While the eventual aim could be to replace policies that involve blanket bans on device, we do not recommend whole-school change at the outset, rather a gradual adoption as attitudes and behaviours align with purposeful learning, until the school (and the community) reaches the tipping point, and mobile phone use is as natural as using any other technology in school.

The above advice should be considered if mobile phones are to be introduced for teaching and learning at schools. To support the deployment of mobile technologies, there is also a need to formulate an implementation strategy which consists of policy and procedures in the use of mobile phones for teaching and learning as a guideline towards the implementation. Currently as posited by Valentine (2004), there is a lack of policy and procedure for mobile learning implementation because the field is relatively new and more research into this area is needed. Therefore, Malaysia should develop its own implementation strategy, which caters the local situation at schools towards the deployment of mobile learning.

In contrast, with the economic situation, there is an opportunity to adopt mobile phones in teaching and learning. Currently, it can be seen that mobile phones are becoming increasingly common in Malaysia. In a recent survey conducted by Malaysian Communication and Multimedia Commissions on the Mobile Phone Users Survey 2007 indicated that in 2008 among 100 Malaysians, there are 90.6 mobile phones (Malaysian Communications and Multimedia Commission, 2007). This is parallel to a study conducted by Open University Malaysia, which stated that 90% of the population in Malaysia have mobile phones and they believed that it is a sensible choice to use mobile phones for mobile learning (Yusoff et al, 2008). What is more, findings from studies conducted by Universiti Technical Malaysia and Multimedia University Malaysia also suggest that university students have positive attitude towards mobile learning via mobile phones (Hashim et al, 2008; Hassan & Sethuramagalingam, 2004). At school level, students also showed positive attitude towards mobile learning (Mohamad, 2007; Mahadi, 2005).

High penetration of mobile phones together with positive attitude towards mobile learning could be regarded as a positive sign that Malaysia has the potential to implement mobile learning in its educational system. However, the challenge in social and political aspects should be confronted with appropriate solutions in order to deploy mobile phones for teaching and learning in Malaysian secondary schools.

Conclusion

The challenges facing the deployment of mobile phones to support teaching and learning in Malaysia are both social and political. The literature suggests if those challenges could be met then a positive change could occur in secondary schools. The advantages of using mobile phones for teaching and learning are endless despite of the drawbacks that these tools bring. Like other technologies in the world, there are benefits as well as the

disadvantages. It depends on how we use it; if we use it wisely, the outcomes will be positive.

A quote from a BBC outstanding documentary, The Virtual Revolution by Stephen Fry who is a writer, comedian, actor and technology enthusiast (BBC, 2010) is a good example of balancing opinions of the advantages and disadvantages of technology:

> When cars first arose people were horrified at the deaths on the road, horrified they couldn't believe it, I mean there were, there were hundreds of people being, being squelched every day. It was grotesque and any you know if you just braked in a car at 30 miles a hour you'd kill yourself on the steering wheel you'd break your neck. People were dying all the time. Did they say oh that's it then? We can't have cars sorry……..there's a risk reward ratio here and for us the reward is so great, that whatever the risk is we try and contain it and understand it at best but what we don't do is say the risk is too great.

There is a risk reward ratio with any technology utilisation. It is the same with mobile phones, although there are risks in the use of mobile phones in education, but the reward is great if we use it sensibly. As mentioned by Coetsee (1993), there are things which are usually seen as something negative, but when applied positively to the advantage of the school it can bring positive impact. This is true with the case of mobile phones. As a conclusion, it appears that it is a long way ahead for Malaysia to implement mobile learning via mobile phones, but with a proper study and plan, the integration of mobile phones as part of technology application in mainstream schooling in Malaysia will become a reality.

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