Mobile ELT: East and South of the Red Sea

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Abstract
An exploration of the educational value behind mobile, or cellular, phone utilization in English Language Teaching (ELT), and the Second Language Acquisition (SLA) theory behind effective instructional use of such technology is presented. A number of hindrances associated with learning using these devices are uncovered, as are methods of engaging students at the pedagogical level. This establishes a grounded means of employing mobiles as a language learning platform, and results in support for the foundation of a multi-regional synopsis of mobile phone use in ELT. Several pedagogically significant points regarding the employment of mobile devices with learners across eastern Asia, India, the Middle East, and Africa then emerge in analysis. In particular, the considerations necessary for effective future implementation of mobile learning technologies in Afro-Asian contexts. What ultimately arises is the notion that although the concept of m-learning is still largely embryonic it is becoming increasingly embraced, as mobiles are viewed as an enabling technology that can deliver essential learning opportunities. The article closes by outlining several significant areas of pertinence to next-step research.
Keywords: digital pedagogy, ELT, m-learning, mobile phones, SLA

Introduction

Portable pocket-sized connected devices are ubiquitous, and their use now 'normalized' (Bax, 2003; Anzai, 2009) with the number of mobile or cellular phones, hereafter mobile(s), in northeast Asia seeing South Korea stand at 97.2% of the population (Wireless Federation, 2009b); 62.5% of the population in China (MIITPRC, 2010); and 84.1% of the population in Japan (Wireless Federation, 2009a). In India 56.6% of the population use mobiles (TRAI, 2010), with regional penetration crossing the 50% mark during 2006 in the Middle East (Blain, 2007), and while mobile penetration in South Africa is on par with countries like those of northeast Asia, at 73% (Kaiser Family Foundation & SABC, 2007), Africa overall is at 33% (Vosloo, 2009). Employed well, these devices can allow for the development of truly anywhere, anytime, convenient, connected, collaborative, engaging, flexible, interactive learning content provision that supports immediate sharing and instant feedback in educational environments.

However, before mobiles for language learning are implemented successfully and meaningfully, it is crucial that issues pertaining to the value of engaging such technology be explored (Kim & Chung, 2006). Questions arise, such as, how are mobiles typically employed in classrooms for English language teaching (ELT), and how does this fit with second language acquisition (SLA) theory? What are the hindrances involved with utilizing this technology for learning, and what are the strategic uses for employing mobiles in English as a foreign/second language education? What mobile-based learning contexts are present in Eastern Asia, India, the Middle East, and Africa? What mobile learning (m-learning) initiatives or activities have been undertaken in the ELT sector in these regions as found in the literature? Responding to these questions will come to see this article represent the first multi-regional review and analysis of mobile phone-based learning in the EFL context. Global key points emerging from regional initiatives, along with the important aspects of the future of teaching and learning with mobiles in ELT, will then be presented. A number of concerns impacting the process of next-step research can then be explored.

Background

It has long been recognized that it is not technology or devices themselves that lead to learning, but the pedagogy and design methodology behind use and implementation (O'Hagan, 1999). The educational use of technology from passive retrieval of information has recently shifted to that of expecting learners to actively access information and engage with learning content from digital contexts by increasingly participatory, interactive and collaborative means (Brown & Adler, 2008). The emergence of resulting digital literacy skills, the greater access to information available today, and the ability to engage in life-long, time-independent learning with portable devices now sees mobile technology emerge as suitable for distributing learning content while supporting flexible, collaboratively engaging, socially interactive, and constructivist learning (Sing, 2007).

A vast amount of learning content can be accessed efficiently anywhere, anytime, from mobiles via Digital Media Broadcasts (DMBs) through to educational applications and internet-based material, with the content accessed being both authentic and up-to-date. Abundant means of communication are embedded within these devices, along with the potential of peer-to-peer device communication through Bluetooth and wireless network infrastructure. The provision of content via mobiles also goes beyond simple information delivery, allowing for an unprecedented amount of on-the-go connectivity and interactivity, which can be student-centered and allows for the constant creation of individualized learning networks consisting of links to

resources and access to applications (Kim & Chung, 2006), as well as a continuous access to established electronic spaces for communicating with others of similar needs and interests (Ferdig, 2007). The technology therefore supports delivery of a digital study environment controlled and continuously constructed by learners, with portable learning going beyond e-learning by providing exceptional flexibility in terms of mobility and wireless access to content (Traxler, 2009). This flexibility also extends to utilizing mobiles as portable learning platforms in contexts spanning from tribal villages, desert plains, rice fields and isolated rural areas through to the dense urban confines of overcrowded megacities. Mobils can therefore be viewed as an enabling technology with the potential to provide access to educational opportunities and lifelong learning to all, while simultaneously providing a means to leapfrog the need for wired infrastructure, securing means of bridging the digital divide for much of the world's populace, and potentially providing equitable access to learning. However, the potential for m-learning device adoption will vary amongst individual learning communities. Ultimately, issues regarding the practicalities and realities of utilizing mobiles in such contexts must be uncovered so that this technology can be used in a pedagogically sound manner for ELT.

Main Discussion

Mobile use and SLA pedagogy.

A wide variety of pedagogy is supported through use of mobiles employed as language learning platforms, from behaviorist through to communicative and constructivist approaches. As Joseph & Uther (2009) discuss, behaviorist approaches generally treat learning as a mechanistic, repetitive process. Alternatively, constructivist approaches underscore scaffolding, learner autonomy, and collaboration which promotes socialization. The key to language learning is socialization, and in m-learning contexts so too is noticing (Kukulska-Hulme & Bull, 2009), comprehensible input (Nah, White, & Sussex, 2008), and the promotion of learner autonomy (Peng, Su, Chou, & Tsai, 2009).

If used to support noticing, Kukulska-Hulme & Bull (2009) illustrate that mobiles can encourage development of "explicit awareness of target language features" that could, in a process of adaptive learning, "be used as a basis to prompt further noticing (e.g. by suggesting to learners what they should look out for next, given the current state of their knowledge)" (p. 14). This leads to a need for systems to be built on learner modeling, that

> lead students to notice the mismatch between certain features of their interlanguage and the corresponding target language norms ... [where] highlighting is used to raise learner awareness of the target forms ... to prompt the learner to 'notice the gap' between their output and the target forms (p. 14).

Meanwhile, Nah et al (2008) argue that comprehensible input can be provided through mobile phone use by presenting

> opportunities for negotiation of meaning, by allowing language learners to interact with language learning software containing pre-programmed responses, and with real persons such as language teachers, peers and

> language experts. These features can also help the learners produce comprehensible output by writing, selecting or oral reporting based on what they have learned. They are able to respond directly ... at anytime, anywhere, especially in self-access and self-selected situations outside the normal classroom (p. 334).

Learner autonomy becomes a lynchpin for success as language learners can work both independently and collaboratively. In mobile learning environments,

> collaborative learning can be provided through encouragement, support and guidance from peers and teachers using synchronous and asynchronous communication tools including SMS, mobile email, mobile discussion boards, and mobile messengers. Student-centered learning can also be achieved by these communication tools ... (p. 334).

Learner autonomy itself is then encouraged by providing activities to help students construct knowledge and regulate their own learning, and by establishing an environment where students can begin to determine what resources are most enabling in the learning process (Peng et al, 2009). Stead (2006) sees the potential for learners to be empowered by becoming increasingly communicative participants rather than passive consumers of knowledge. For students in traditional learning environments, mobiles can act as personal gateways to activities and resources located outside the classroom, and students in non-traditional settings can reciprocate by using their mobiles to take educational opportunities found inside the classroom into the community and into remote locales.

Mobile use in the ELT classroom.

Mobiles have been used in a myriad of ways to provide ELT to learners in classrooms around the globe, supporting asynchronous and synchronous communication, assisting students in obtaining real-time help with homework tasks, and providing a multitude of means to disseminate, exchange, and submit learning content (Armatas, Holt, & Rice, 2005; Najmi & Lee, 2009). Further, podcasts have been used in conjunction with MP3 players and MP3-capable mobiles to enhance EFL students' listening abilities, and to present models for speech writing, oral communication, and conversation analysis (Anzai, 2009), with students showing increased motivation and improving fluency skills when hearing what they sound like when reading aloud (Shuler, 2009). In addition, SMS has been used to provide grammar lessons (Chuang, 2008) and vocabulary lists (Lu, 2008) with instant feedback to reinforce material and guide self-paced learners accessing content at convenient times. SMS has also been used to provide quizzes related to the MMS (multimedia messaging service) provision of content (Saran, Cagiltay, & Seferoglu, 2008), while GPS functions provide augmented reality lessons and context-based language learning (Liu, Tan, & Chu, 2010). So too, as Shuler (2009) along with Goh and Kinshuk (2006) highlight, vocabulary learning projects supporting indoor and outdoor learning activities have been developed, along with the provision of mobiles loaded with instructional English games and vocabulary to complement school curriculums, augment out-of-school educational opportunities, and increase digital equity. Mobiles have also been applied to help students learn vocabulary through captions and picture-based game formats as well as providing multiple-choice quiz formats to assist in TOEIC preparation (Kimura, Obari, & Handa, 2009). So

too, as Najmi & Lee (2009) and Yuen & Wang (2004) declare, mobile device allow for live tutoring opportunities, quiz taking, and phrase translation.

Hindrances to mobile use in the classroom.

While there are hindrances to the use of mobiles for educational content delivery, largely inherent to the mobility and flexibility associated with the form factor itself (Fetaji, 2008; Trifonova & Ronchetti, 2003), factors such as limited screen real estate can ensure that content is provided in such a way that it actually reduces cognitive load, with limited input modes necessitating a more focused delivery of content. Increasingly available access to wifi hotspots and wireless transfer of data will ensure concise information transfer and smaller data footprints. School students are generally aware of the strengths and weaknesses of various technologies (Conole, de Laat, Dillon, & Darby, 2006). There have always been problems such as battery life of calculators and the recharging of notebooks, but there are more pertinent issues associated with the use of electronic devices in classroom and learning contexts (Shuler, 2009).

The socioeconomic background of students is one such issue, and it is particularly evident when mobile phone based content necessitates access to paid wifi or cellular networks with the required download of large educational applications. Also, increased frequency in sending and receiving SMS and MMS for learning can impinge upon any data usage caps tied to cell phone plans (Wang, 2008), which may be beyond the means of impoverished families, or render student mobiles unusable until the cap is reset in the next billing period. With m-learning, some students will at times forget their mobiles, some parents may not allow ownership until certain ages or take them away as punishment, or the device may simply be unaffordable. The implementation of any technology by teachers can also prove time consuming, require constant monitoring and increased training, and at times prove disruptive. Learning approaches must accommodate these various in- and out-of class hindrances before any real chance of success can stem from learning with these devices (Shuller, 2009).

A synopsis of mobile use in ELT from eastern Asia, India, the Middle East, and Africa.
Eastern Asia.

Developments in eastern Asia indicate that it is set to become the world leader of mobile provided education (Motlik, 2008; Valk, Rashid, & Elder, 2010). The rise of m-learning in the region stems from the fact that mobile diffusion rates are relatively high in northeast Asia, and appreciable in southeast Asia, with mobile penetration across eastern Asia standing at over 700 million units (Wijayanto, 2006). What emerges, particularly for English language teaching, is a clear difference between nations in the region regarding the way m-learning is used and applied, generally based upon existing ICT (Information Communication Technology) infrastructure and government policies. This holds true for other regions around the globe.

In sparsely-populated Mongolia, SMS has proven to be less expensive than landlines to provide distance education. To this end, mobiles have been explored as educational tools by the English for Special Purpose Foundation (ESPF) to improve the language skills of bank tellers and wait staff (Batchuluun, 2007). The ESPF program consists of audiotape/compact-disc, dictionary, and workbook materials for self-study, and SMS is required for completion of each language module (Valk, Rashid, & Elder, 2010).

In Shanghai, China, interactive mobile learning initiatives for English language learning have been trialed at college level, and with mature-age, on- and off-campus students (Shen, Wang, & Pan, 2008). In this project, classroom teaching was streamed to online students via

mobiles, with SMS support provided for synchronous peer and tutor discussion and feedback. Students were able to participate in polls, quizzes, homework submission, and other class activities.

In Taiwan, Lu (2008) examined the effectiveness of utilizing timed-interval SMSs for the lexical development of high school English students and compared this to paper-based methods.

In Japan, Thornton and Houser (2005) conducted a mobile-based e-mail initiative with EFL college-level students, also conducted at timed intervals, and compared this to internet provided and paper-based methods.

In the most wired country in the world, Korea, there has been limited examination of the use of mobiles to provide English language learning via mobisites. To fill this gap, Nah et al (2008) provided learning content promoting English language acquisition via a WAP-based site accessible by mobile phone to teach listening skills, relying on a mobile forum for discussion and feedback, audio files for provision of main learning content, and short answer quizzes completed by mobile e-mail to solidify learning. Native-speaker EFL teachers have used mobiles with students, which has seen university students shoot English language video guides on campus, promote the use of spoken and written English skills to storyboard, make commentaries, and review and respond to other students' work (Meurant, 2007). Such UGC (user generated content) was then edited on the cell phone itself, before being forwarded as an MMS or directly posted to YouTube for peers to review and make comments.

Heading south to one of the texting capitals of the world, Ramos (2008) observes the educational use of mobiles rising in The Philippines. Valk, Rashid, & Elder (2010) support this, and highlight the viability of using SMS to teach English alongside a workbook, with the completion of each module passed by undertaking SMS quizzes and tests.

In Indonesia, the Urban English Language Learning Program targets school community members and businessmen, offering English language learning via SMS and audio based services. Lessons focus on everyday expressions and vocabulary for a variety of social daily living situations including entertainment, shopping, and eating out (Barton, 2010).

In Vietnam context-aware mobile learning that supports TOEFL (Test of English as a Foreign language) preparation has been undertaken with graduate students (Nguyen, Pham, & Ho, 2010), with CAMLES (Context-Aware Mobile Learning English System) delivered to mobiless as a locally installed application that adapts learning material to student knowledge as well as location, available study time, and concentration span.

India.

With more access to mobiles than toilets (UNU-INWEH, 2010), India stands second in the world in terms of mobile phone subscribers. In rural areas, the uptake of mobiles have proven to be cost effective, assisting villagers in obtaining the best prices for their produce, and keeping abreast of national developments (Sampangi, Viswanath, & Ray, 2010). Villagers no longer need to travel vast distances. Mobile learning can be an effective tool in reaching "the hitherto 'unreached' people in the socially, economically, and educationally deprived classes, by taking education right to their doorsteps" (Sampangi, Viswanath, & Ray, 2010, p. 351) by providing learning services to rural areas that, even if accessed by subscription, are viewed as investments rather than unnecessary expenses (Pahwa, 2009), and allow learners to continue working and to stay committed to the needs of villages and families (Sampangi et al, 2010).

Mobiles are used to keep in touch with friends and family, check bank balances, pay bills, access train/flight timetables, undergo exam tutoring, check exam results, and improve English

through subscription-based services (Venkatesh, Nargundkar,Sayed, & Shahaida, 2006). Mobile-based initiatives for English language learning include *Learn English*, *English Seekho*, Nokia Life Tools, and the MILLEE project.

Learn English is provided by subscription, and aims to teach spoken English through everyday situations and simple stories at basic and advanced levels. After subscribers have listened to and reviewed situationally or professionally related conversations, a summary of important vocabulary is presented so that users can then restudy the content or review daily SMSs and practice tests.

Also offered by subscription is the English phone tutoring system *English Seekho*. Lessons are daily five- to eight-minute audio clips, followed by interactive content in which learners can respond by keypad or speech. In the latter case, speech recognition is used to check user pronunciation and accuracy. At the end of each lesson, a summary is sent by SMS to the learner. Content focuses on social English skills, along with interview, job hunting, and job training topics, and target users include junior level clerks, taxi drivers, wait staff, unskilled laborers, and farmers (Abhijet, 2010; Sapna & Roseliz, 2010).

Alternatively, Nokia Life Tools provides information services in local languages that center on agriculture, education, and entertainment, and are available on all low cost phone models. They are targeted at, and within reach of, economically challenged segments of society, and the educational aspect provides general knowledge, along with English language learning content which is presented using a bilingual method. English words of varying difficulty are transmitted to the learner by SMS with options for viewing explanations in the native language, and this is followed up with periodic quizzes aimed at determining learner progress. A dictionary service for vocabulary development, along with text and exam preparation coaching and advice is also offered, as is the ability to receive notifications of national examination results (Sapna & Roseliz, 2010).

Finally, the MILLEE (Mobile and Immersive Learning for Literacy in Emerging Economies) project seeks to provide educational opportunities to students who do not regularly attend schools, and come from isolated and underserved population areas. Nokia has donated over 450 mobiles to the project, filled with interactive English language content that complements in-school curriculums, and teaches vocabulary to elementary and middle school children through games based on regional practices and traditions (Shuler, 2009).

The Middle East.

Over the 11 years from (1995 to 2005), ICT growth throughout the Middle East rose 541%, due to a rise in oil production and the resultant extensive infrastructure development (Shirazi, Gholami, & Anon Higon, 2009). Wealth generated by oil exporting nations has led states such as Kuwait, Qatar, and the UAE to invest significantly in ICT, and today, the UAE serves as a regional network hub for internet connection. Qatar is home to the Al Jazeera news network, and Kuwaiti investment in mobile telecommunication systems establishes Kuwait as an important mobile provider for Bahrain, Iraq, Lebanon, and Jordan. However, as Ibrahim (2008) notes, "expenditures in the educational sector are probably insufficient to educate users about how to use IT facilities for learning" (p. 1161), and although Middle Eastern countries are starting to embrace IT integration in education and training, "… Gulf countries and Israel are at the infusing level of policy, while the other countries in the region are at the applying-policy level" (p. 1161). This development has come to create a digital divide within the region, and has led to the adoption of m-learning, particularly in the language classroom, to vary across the Middle East.

Nonetheless, several examples of mobile phone-based ELT emerge in Iran, Kuwait, and Turkey.

In Iran, where computer ownership is modest, cabled Internet access limited, and power supplies are erratic, mobiles emerge as the sole mode of communication available for tribal-based or rural students, and are owned by most urban learners. This has led to the development of an informal language learning system as a prototype to teach English to teachers at primary, secondary, and university levels using a combination of mobile web, mobile dictionary, and SMS technologies (Fotouhi-Ghazvini, Earnshaw, & Haji-Esmaeili, 2009). Fotouhi-Ghazvini, Earnshaw, Robison, & Excell (2009) report on teaching technical language learning skills through game-based learning with MOBO City.

In Kuwait, the game-based model for language learning has been proposed to assist in reducing first language interference in universities, particularly for composition classes (Zaulkernan & Raddawi, 2006). Haggan (2010) had university EFL students render peer-composed text messages sent in textspeak in standard English.

In Turkey, utilization of mobiles for vocabulary learning amongst university students has been provided through MMS and supported by SMS multiple-choice based quizzes (Saran, Cagiltay, & Seferoglu, 2008), through mobile-based flashcard use (Basoglu & Akdemir, 2010), and for pronunciation improvement using MMS (Saran, Seferoflu, & Cagiltay, 2009).

Africa.

Africa, the world's second largest continent after Asia, is "a mixture of first world and third world societies" (Butgereit, & Botha, 2009, 1), and many of its countries vary greatly in terms of geography, population, and infrastructure. Educational opportunities are often inaccessible due to one or more factors including violence, remoteness, child labor, and AIDS (Davis, 2010). Schools can have large class sizes, undertrained teachers, sub-standard buildings if there are any, poor road and transport access, shortages of adequate materials for teachers and students, erratic if any electrical supply, and few modern PCs with even less user expertise to accompany them (Traxler, & Leach, 2006). Further challenges, particularly for mobile-phone- based education in Africa, include steep handset purchase prices, prohibitive voice call costs, and access to recharging facilities. Solar-powered mobiles and low-cost SMS services are now available (Zelezny-Green, 2010), but even without them, extensive mobile uptake is one of the most recent and rapid technological changes in modern-day Africa (Shrum et al, 2010), and this has led the region to a point where it can leapfrog "from an unwired, nonexistent e-learning infrastructure to a wireless e-learning infrastructure" (Brown, 2008, p. 863). According to Brown (2008), many m-learning projects can be found in countries like South Africa, but in some it is yet to emerge.

Although there is a lack of studies on the impact of m-learning and technology used specifically for English language learning across Africa (Zelezny-Green, 2010), it is worth noting that the role of m-learning in Africa is being considered for first-language literacy development of Nigerian nomads, where previous initiatives included pack animal or motor caravan collapsible classrooms, and radio and television broadcasts (Aderinoye, Ojokheta, & Olojede, 2007). In Mali, m-learning is supplementing lesson content in the *Road to Reading* program, with teachers accessing lesson plans posted to blogs via web-enabled mobiles and guided through SMS (Burns, Montalvo, & Rhodes, 2010; Davis, 2010). Kenya provides in-service teacher training through mostly automated messaging that is built around SMS-based forums, polls, and quizzes that lead to support through collaboration and discussion (Traxler & Leach, 2006).

In South Africa, Brown (2008) illustrates that mobiles are being used for administrative

support (including access to examination results and registration information) and academic learning support (including assessment, feedback provision, text and voice-based communication and interaction) rather than for language learning. A noteworthy exception is the Hadeda project, part of the MobiLED initiative, a means for primary and secondary school students to practice English language spelling and vocabulary using mobiles (Butgereit & Botha, 2009). The application uses registered parent or teacher created vocabulary or spelling lists created through a web-interface over a mobile phone-based browser or an internet connected PC. These lists are then turned into audio files by text-to-speech software, and are played back to students through mobiles.

Globally.

Although studies involving the use of mobiles for English language learning in the regions above are scarce, recent, and limited, results show that mobiles have had a positive impact on the learning process (Basoglu & Akdemir, 2010; Saran et al, 2009), and that mobile-based learning is generally and readily accepted for all aspects of language learning including test preparation, revision, and various homework tasks. While mobile use promotes motivation and increased engagement with learning material instantly accessible at times and in places of convenience, language learning appears to rely predominantly on the use of mobile applications, as either downloadable or on a subscription basis, mobile browsers and mobisites, or mobile e-mail, SMS, and MMS services. Built-in tools such as video camera and GPS are rarely used by ELT initiatives, as is the primary function: speaking to others over distances, a clear case of the underuse of this technology by the ELT sector.

Ultimately emerging from the various initiatives outlined above are a number of important lessons for the use of mobiles with English language learners, including the distribution of content. The usefulness of the mobiles to augment classroom learning in more developed regions, and its sole use to provide education in less developed regions sees the mobile emerge as a vital tool in providing m-learning across diffuse learner groups around the globe.

In terms of mobile phone use for ELT, regular access and revision of content, along with immediate provision of feedback, is essential for the success of any mobile-based language learning initiative, as frequency of engagement with content shows improved learning gains. Key to this is the promotion of learner autonomy, where each user decides their level of collaborative interaction with peers and instructors, when to access, and when to do their learning, revision, review, and tests or quizzes. The optimal delivery of learning content to mobiles appears to be discrete bite-sized chunks, and this is exactly how most mobile-based language learning content is currently provided to learners by way of SMS/MMS. It also appears that this is a particularly viable option for the delivery of vocabulary lists and quizzes to augment classroom-based learning with extra-curricular material and homework, and serves to engage learners who can't physically attend classrooms due to a need to work or for whom classrooms are otherwise inaccessible.

In terms of content provision, it is essential to provide students with meaningful material that is of a reasonable size for transmission and storage on a mobile phone so that both the device and the students do not become overloaded. Additionally, it is vital to store files on the device, particularly when cell tower locales and conservative battery use are essential considerations, so that even if mobile reception is lost or the user moves out of range, learning material is still accessible. Taking the learner context into account is also important when delivering and

designing learning content as it can serve as a means of pinpointing appropriate resources for students when on the move, and begin to provide situational-based learning opportunities that can be tailored to individuals. Ultimately too, in underserved communities, the mobile emerges as invaluable in establishing core mobile learning solutions as it is capable of acting as a mobile language lab for entire learning communities, or even working complementarily and adaptably alongside existing learning services. A single class, group, or individual project can be run with just one phone. Additionally, initiatives like the subscription based language learning services available to mobile users in India and Indonesia mark the start of provider-led initiatives disseminating fee-for-service wireless m-learning opportunities for those living in the 'middle of nowhere' to those living in one of the megacities of the region. Ultimately, such provision comes to see users increasingly dependent upon handheld-devices for content and educational delivery, bringing us a further step closer to normalizing CALL (Bax, 2003), and doing so without installation or reliance on wired infrastructure. Such initiatives also come to firmly establish the practical application of speech recognition engines in language learning contexts and, combined with the development of increasingly sophisticated mobile-based applications, are opening up exciting future directions for the use of mobile-based learning in ELT.

Future Directions

The future of teaching and learning with mobiles sees the need to deliver pedagogically acceptable content over portable devices, for both supportive methods of education in formal contexts and as primary provider in lifelong learning and distance education contexts. Any language learning initiatives provided on mobiles also need to be viewed by learners as worthwhile and engaging, adaptable to various learning styles, and providing a variety of content that is relevant and readily usable. As such, what must be increasingly considered for the future use of mobiles in ELT is the continued marriage of SLA theory to mobile learning theory, while taking into account aspects of Human Computer Interaction (HCI) and User Interface (UI) design and aligning this to pedagogy. This will see a need to develop content that takes into account dual coding theory, aspects of cognitive load, and principles of multimedia design, while simultaneously accommodating utilization of built-in phone features (including built-in cameras, texting capabilities, voice transmission) with the unique limitations of the device so that best-learning practice becomes the focus. This will ensure that the strength of the mobile phone as a communication medium can provide increasing support to learning paradigms such as social constructivism and problem- and inquiry-based learning, and thereby potentially increase the communicative use of the device in the language learning context as well as being supportive of existing activities based on behaviorist through to communicative and constructivist approaches.

As mobile phone-based learning increases, learners will constantly engage with content while 'on the go,' which essentially means that learning and studying can take place in contexts that are not conducive to learning at all, but arise mostly from convenience and opportunity. Content engagement would take place when learners are tired, distracted, and have taxed attention spans, and be accessed while they commute, stand in lines, go about other daily tasks, take coffee breaks, or change shifts. This aspect of user interaction with device and data heavily impinges upon what kind of material should be delivered to learners via mobile-phone based language learning initiatives, and how learners will be able to interact with other students engaged in the same initiatives. Further studies are needed here, but it may prove for the time being that mobile-based language learning is more serviceable for providing review content rather than initial learning, and for deductive rather than inductive learning activities that are

provided in short chunks. Such provision of content, while remaining flexible in terms of allowing anywhere/anytime access to learning opportunities takes advantage of the fragmented nature of learning on the move. This raises the question of whether students really want or need this kind of learning; particularly poignant for those who have a much stronger preference for extended study periods in quiet places like libraries rather than engaging with content over short spans of time in busy or noisy places where they are unable to concentrate.

Nonetheless, increased acceptance of learning via mobiles may intensify exponentially with the capability, sophistication, and user-friendliness of the devices learners employ in learning. However, any content provided to a new generation of mobiles also needs to be adapted to legacy mobiles, particularly in contexts where recycled mobiles are donated, or in regions where these devices and the cost of service provision are unaffordable to many, and where the mobile is the sole access point to educational environments. This means that multi-varied lesson types will need to be the norm, to ensure backward compatibility, and even though this adds to the complexity of lesson and content provision, it is a necessary step to ensure digital equity to learners. So too, the information that is being provided to learners must be available as and when it is wanted rather than delivered at timed intervals, to ensure that the anywhere/anytime provision and access to education can occur. One roadblock to this access is cost, which can be alleviated in the case of downloadable applications and provider subscription services if educational usage is supplemented by advertising-supported learning content and free trials. Whether this is fully acceptable to learners is yet to be determined.

Although mobiles are still not recognized in the mainstream as a language training tool, it is clear that they will become increasingly important in learning content provision. What will undoubtedly drive this is the availability of cheap handsets and data plans, along with increasing mobile-phone penetration rates world-wide coupled with the realization that use of SMS/MMS and downloadable data combined with voice provides learning benefits at a fraction of the cost of traditional methods for distance education and lifelong learners. It is also certain that mobile use will become economically viable for educational institutions, as it will prove cheaper to employ these devices in classroom contexts instead of large monitors and PCs in terms of initial institutional outlay as well as associated ongoing and content delivery costs.

Ultimately, it is not unreasonable to assume that the future of mobile phone use in education will become increasingly tied to the proliferation of smart phones in the market, which in turn will lead to an increased reliance on the sophisticated built-in functions of these phones to deliver learning. For example, GPS functionality can serve to deliver situated learning by providing vocabulary and sample dialogues to learners based on their locale. The ever-increasing sophistication of downloadable applications, some of which are free, will also drive mobile-based learning and use, with such applications as Google Talk auto-translating environmental text using the built-in camera, and Google Translate translating voice from one language into another or voice to text, while voice SMS solves text input problems which in turn leads to increased user friendliness of the device driving increased use.

Conclusion

No matter in what region of the world we live, technology is continuously playing a significant role in our lives and those of EFL learners, particularly as we become increasingly networked and dependent upon mobile technologies. The increasing use of portable devices in our daily lives will, for those of us that have access to them, bring about an increased level of technology use in our language classrooms, and bring the language classrooms to us wherever we are and wherever we go. However, what we must remain cautious of is that although these portable devices allow us as learners to consume knowledge with little or no effort, and provide us with information in very different ways to other technologies, diverse cultures and learning communities will also adopt this technology differently (Traxler, 2009), and what may prove beneficial and useful in one ELT context may not necessarily prove beneficial to all in another.

For now, the concept of m-learning is still largely embryonic in much of the global ELT sector. What is certain is that, as mobile phone ownership increasingly exceeds PC ownership and internet connection in each country around the world, next step research will need to ascertain: how to increasingly provide effective ELT to students through mobile devices; determine student levels of acceptability in acquiring knowledge from mobile technology, and how they want and need to learn from such devices; how instructors can best employ mobile devices to enhance the learning process and to strengthen and harmonize student learning strategies in their educational context; and more importantly, how to provide mobile language learning initiatives to those that have access to mobile technologies, and enable those learners that don't have access similar content in a similar manner. This will ensure that language learning with mobile technologies is not simply viewed as delivery of PC content ported to mobile devices, or used simply as it is available, but envisioned as delivery of learning content that is needs driven, learner appropriate, and pedagogically sound. More than that, it will be about personalizing language learning content so that it proves to be effective for each individual no matter their location, learning level, or financial and time constraints, while simultaneously aiming to produce skilled learners that are digitally literate, devoted to lifelong learning, and are, of course, increasingly linguistically competent.

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