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Contents

Preface

anzMLearn Transactions on Mobile Learning 2012 represents the first volume in what is hoped will be a long line of publications featuring research by mobile learning researchers and scholars from Australia, Aotearoa and the Pacific. It is an annual, peer-reviewed journal published by anzMLearn, the Australian and New Zealand Mobile Learning Group, founded in 2009. It is available as an open-access online journal from the anzMLearn website:

http://research.it.uts.edu.au/tedd/anzmlearn/publications.

The primary mission of the journal is to provide a forum for researchers in this region to share their research findings, experience and insights into mobile learning and the development of sound pedagogical practice around mobile technology. Educational environments vary across the globe and *anzMLearn Transactions on Mobile Learning* creates a means for developing a body of knowledge that is truly applicable to our part of the world. Articles include evidence-based research, theoretical explorations, critical reflections on practice, and analyses of how mobile learning *is* being implemented and how it *could* be implemented better. It is hoped that it will stimulate further research and improved practice in mobile learning in the Australian and New Zealand context.

Peer Review Process

All papers were double-blind peer reviewed by experienced members of anzMLearn. Authors have acknowledged their manuscripts to be original and not previously published elsewhere. The editor thanks the reviewers for their time in undertaking the reviews and making suggestions for improvement of the articles prior to final publication.

Laurel Evelyn Dyson
Editor
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Reflections: Glass & Mobile Learning

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ABSTRACT
Project Glass is a research and development program by Google, which may provide educators and learners with new possibilities for hands-free first-person perspective media capture and augmented networked learning experiences. This paper provides a reflective account of mLearning research projects and resultant praxis conducted in the Asia Pacific region over the last decade that have involved the use of cell phone and location enabled body-worn technology, preceding and informing what is likely to be a game changer in the heady politic of contemporary educative arrangement.

Keywords
wearable, computer, mlearning, education, point-of-view, body-worn-video, location-enabled, cyborg, augmentation, networked-learning, first-person-perspective, Mann, bearable, sousveillance, surveillance, data, google, MOOC

INTRODUCTION
Mobile applications that connect users with high-speed networked services are now almost entirely ubiquitous when less than a decade ago mobile broadband and seamless mobile services seemed relegated to science fiction.

The plethora of mobile device types now available has had a profound impact on how we communicate with others, our transactions with financial institutions and the manner in which we can engage with services on the move. Our cell phones are no longer hand held dumb terminals limited in functionality, rather ambient sentinels constantly connected to a fleet of services that persuade us to consume and apply in an everyday context. This connectivity now transcends the boundaries that we once set for screen-time for our children, abandoned amidst the swamp of social networks they often frequent.

The 'Internet of Things' (Kranenburg, 2008) that intelligently connects our environment with our mobile devices and serves data on demand has enabled us to set-and-forget much of which we once undertook with a conscious division of daily labour.

The onset of body-worn technologies that enables hands free interaction with others within a connected network learning and mobile enabled ecology are poised to influence the way we interact with each other and in turn how we engage, retain and motivate learners in an educational context.

Access
A mind numbing array of functionalities are now possible through our mobile technologies that match our user identity with a corresponding access privilege. Our willingness to reveal our whereabouts or to surrender our personal profiles in API hand-throughs (authentication protocols) from service to service in a seamless and dazzling variety of ways is marketeer's dreams come true.

Screen size is no longer a boundary or pre-condition for many applications to function, or are we confined to accuracy of interaction with our mobile devices using a stylus in monkey mode. The constancy of connectivity and the plethora of device types that we use to access these services heighten our awareness of how dependent we have become upon networked connectivity to function in our post-modern daily life.

Amidst the buzz of 'flipped classrooms' the rapid development in mobile technology service provision and supporting infrastructures has correspondingly brought about greater possibilities for educators actively engaging learners in mobile learning (mLearning) activities as part of the greater curriculum.

Connectivism

Stable networked connectivity and consumer access to smart technologies is an affordance that educational organisations and institutions now harness as a diversity of delivery points and new market opportunities by virtue of networked connectivity.

> *Today there are over 5.9 billion mobile phone subscriptions worldwide, and for every one person who accesses the internet from a computer two do so from a mobile device. (UNESCO, 2012)*

The bygone edict of 'turn your mobile phones off' signage in classrooms now looks decidedly defunct amidst QR code activity cards and rows of networked computers. As (Attwell, 2010) attests our cell phones have become integral to our identity and as such have become an extension of that identity commensurate in the main due to their ubiquity.

MLearning correspondingly has shifted markedly from a fanciful creative concept of a few lead innovators to a recognised, embedded and mainstream practice of many educators facilitating learning experiences in an educational context using a dazzling array of device and connectivity types. It is also abundantly clear that the place for learning is no longer relegated to solely a defined time and location equation as educators set about ensuring learners have access to content and support wherever they may be located.

Networked connectivity has also enabled MOOCs (Massive Open Online Courses) to flourish and so we have entered a decidedly post-constructivist era of connective knowledge (Downes, 2012). The elephant in the room is undeniably the technology that the learner now bears and wears as these initiatives move quickly into the MobiMOOC arena (MobiMOOC2012, 2012) and the result of these global interactions are reshaping pedagogy accordingly.

Educative Arrangement

Upon reflection, as lead Facilitator in 2004 of an outreach program for learners through a community based service in Midland Western Australia, it struck me at the time that all of my students were avid users of mobile phone services in stark contrast to their general living conditions. Intriguingly many of the students had chronic health issues, lack of suitable accommodation, and other life based challenges yet they still managed to maintain a pre-paid cell phone plan and in some cases owned several cell phones.

It became apparent very early in the program that there was a correlation between absenteeism and in-class communication with these hand held technologies so I set about designing an 'always on' curriculum, permitting learners to preference their personal hand held connectivity in exchange for limited and identifiable learning outcome communications as their teacher. The complexities of this shift in curriculum were not purely of a techno-social affordance rather as part of a suite of curriculum design changes to accommodate a challenging learner cohort.

To permission synchronous communication connection in the learning setting meant negotiating a continuous collaborative adaptive etiquette with learners who had previously only encountered didactic rules that prevented such in-class connected behaviour. Within a curriculum design context it also provided an opportunity to re-negotiate competency based assessment activities and better

address the needs of learners as they experienced life-based challenges outside of the primary learning setting.

Subsequently absenteeism dropped, learning activities successfully incorporated mobile enabled communication and many students reported a far more flexible mode of delivery that better met their life challenges. I was still subject to the expectations of management to meet curriculum milestones and outputs as well as moderation and peer review hence, in reflection, I also consider that my adoption of this mLearning methodological approach to be that of an implicit change management activity where I lead by example.

National Vocational Elearning Strategy (formerly AFLF)

My participation in the Australian Flexible Learning Framework (AFLF) 'TxtMe' research project (Bateman, 2004) further substantiated claims by (Herrington, 2009) that even simple communication such as text messaging harnessed as a means by which to engage, retain and motivate learners must remain limited and cognisant of the privacy of the individual, contextualised within sound design principles for mobile learning.

Travel to rural and remote Australian communities as a member of the 'Mobdeadly' and 'Digital Outback' (Australia, 2005) project teams also provided evidence that rich media data gathering by students as part of learning activities employing the use of these networked mobile devices challenged vocational organisations ICT policies as to the disaggregation of user content, cultural observations that prohibited certain activities and the sensitivities surrounding occupational health and safety to name but a few.

Pedagogy and policy that is inclusive of networked and mobile learning since these foundational research projects has matured considerably, as have mobile enabled services brought about fundamental changes in the manner with which educators can engage with learners in activities that involve the use of mobile learning in a supported global community of practice.

Learner Whereabouts

The challenge remains however for educators to better understand how to inform individuals and organisations alike of how to manage the onslaught and future impacts of feeding our daily digital activities to often unknown data monitoring facilities.

Evidence of this onslaught is no more apparent than in our acceptance of user conditions of technologies that require revealing our physical location (location based services or LBS) in order to provide us with information that would have once remained trapped in analogue (Michael, 2011).

A nostalgic example that elucidates how we now take LBS services for granted is as simple as contemplating what services we access through our mobile devices and to what extent we could function for any given length of time in our jobs or daily life without them altogether.

The very same transposition could be applied to the many devices both static and mobile that we employ everyday as part of our work or other activities that are supported and owned by the institution or organisation we work for that rely on GPS and GIS functionality.

We have also as a result of this expectancy of connection become avid and often brand loyal consumers, accustomed to trading our user identity for access to free services such as email, social networks and entertainment, co-joined through what is now undeniably a wearable computer (Mann, 2012).

Likewise, user identity is now as important to the consortiums that manufacture and equip these technologies as profits margins are to their shareholders. In essence, mobile based services and the technologies that connect to that service are now 'closer' to the user than ever providing service providers with valuable user behaviour data in return.

It is evident that a valuable opportunity for educators who critically engage with learners using an mLearning pedagogoy includes informing learners and educators alike of self management strategies in the face of the trajectory and function creep of emergent technology.

Google Glass

Point-of-view (PoV) or body worn video (BWV) prototypes have been trialled extensively in a cross-sector education and training context across Australia and New Zealand since early 2005. A national snapshot conducted in 2010 (Hayes, 2010) revealed an avid interest in how location enabled body worn technologies could be used in an educational context.

Google Glass is now set to be as much a game-changer as SMS messaging was via first generation cell phones was to a legion of mobile consumers a decade ago.

> *We think technology should work for you—to be there when you need it and get out of your way when you don't. We started Project Glass to build this kind of technology, one that helps you explore and share your world, putting you back in the moment. (Unknown, 2012)*

The Google Glass device is a head worn technology that essentially connects the wearer to their network, records video and still imagery, displays information in a smartphone format while acting on voice commands ensuring a hands free connection as they go about their daily chores and duties.

The release of prototypes of this innovation by Google has been compared with the EyeTap device developed by Professor Steve Mann as early as 1981. Mann is also credited with coining the term 'sousveillance' to describe the act of recording that these body worn devices enable from the first-person perspective.

> *By its very nature, wearable computing evokes a visceral response, and will likely fundamentally change the way in which people live and interact. In the future, devices that capture our lifelong memories, and share them in real-time, will be commonplace and worn continuously, and perhaps even permanently implanted. (Mann, 2012)*

Hands free, Internet connected, networked and aug-mediated (Mann, 2012) body worn technologies are now poised to flood the consumer market as fashionable must-have service oriented accessories. This emergent technology is likely to have a considerable impact upon learning and teaching as it re-positions a hand-held user network to that of a wearer network.

CONCLUSION

The creative potential for location enabled body-worn technologies in the educational context is seemingly limitless yet, as with any new technological innovation, the benefits are as rich as the risks are great.

Organisations and educators alike will now have to pause and consider the personal security; privacy and identity challenges that are inherent with this location enabled body-worn technology that will again surface in the educational setting.

Once dismissed as a trans-humanist pipe dream these head worn technologies that connect the wearer to a string of internet enabled services are likely to provide substantial change management and mLearning pedagogical challenges for those engaging learners in an educational context.

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mStories: Exploring Modes of Participation in a Creative Storytelling Project

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ABSTRACT

Innovations in information and communication technologies (ICT) have emphasized new 'non-text' forms of literacy that include still and moving image. To date such new literacy practices have been researched largely within formal learning environments and through the use of typically desktop technologies. However, as mobile devices become increasingly ubiquitous, technologically convergent, and supportive of multimedia practice, there is a need for research and research methods that support understandings of mobile practice and literacies formed outside the classroom. In August 2011 a participatory creative digital storytelling project *mStories* was established with nine participants from across the UK and Australia. This paper reports on how participation in the project was shaped and structured by its participants and how participatory methods need to be adapted to accommodate the mobile complex and users' existing and intended practices.

Keywords

Mobile learning, creative, participatory project, methodology, digital storytelling

INTRODUCTION

In August 2011 *mStories,* a creative participatory action research project, was established by the researcher. Working with nine participants from Australia and the UK, *mStories* facilitates the creation and sharing of user generated stories created with mobile devices. In addition to supporting new creative practices, this project contributes to understandings of new multimodal and multimedia literacies as practiced with mobile technologies. Participants created their stories using multiple modes; and the project stories were showcased collectively on the *mStories* website (Figure 1).

Participatory action research is well suited to studying *practice* as a social phenomenon (Kemmis & McTaggart 2000) and similarly aligns well with one of the central research assumptions in which language and other meaning making systems are conceived of as a *social* semiotic system. However whilst it is important that research methods should align with both the philosophical assumptions of the research and the specific needs of the study (Myers & Avison 2002) *mStories* emerged as a project that called 'for the researcher to bend the methodology to the peculiarities of that setting' (Miles & Huberman 1994, p. 5). In the case of *mStories,* the participatory action research model had to be changed and adapted to suit participants' needs for modes of interaction that were inherently part of what Pachler et al. refers to as 'the mobile complex' (Pachler et al. 2010a).

This paper reports on the different modes of participation found within the *mStories* participatory action research project and how these shape how we research new multimedia practices when participants' mobile behavior is so at odds with traditional participatory approaches.

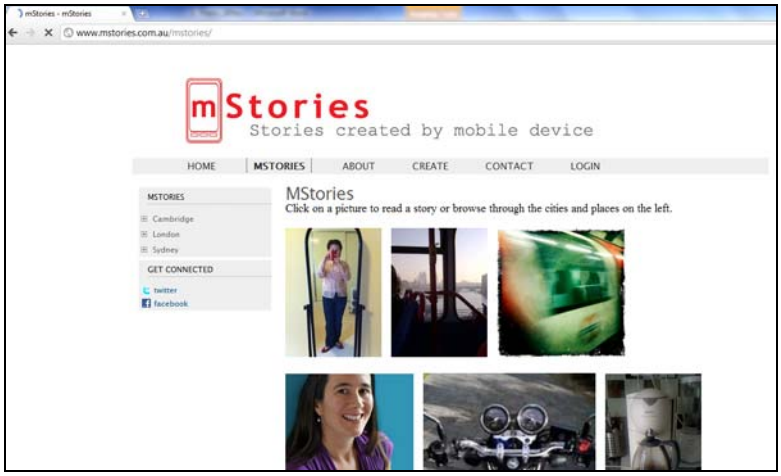

Figure 1. mStories Website, www.mstories.com.au

BACKGROUND

Literacy and the Mobile Complex

Traditional discussions on literacy have focused on the reading and writing of alphabet and character-based texts. However, innovations in information and communication technologies (ICT) have emphasised new forms of literacy that include still and moving image, and new modes of document reception and production (Clark & Mayer 2003; Pailliotet & Mosenthal 2000; Reinking et al. 1998). Where producing, printing and transmitting behaviours were once limited to the domain of the expert or specialist, new technologies have enabled individuals to make such authoring behaviours part of daily life. As a result much of our encoded language is multimodal (Kress 2000; Kress & van Leeuwen 2006). Discussions on literacy have expanded beyond the traditional concept of printed text to encompass digital multimedia artefacts; this nexus between technology and literacy has emerged as an important area for research (Mills 2010).

Recent developments in mobile networked devices, such as the emergence of multimedia Smartphones, tablets and e-book readers, have led to changes in the way people use mobile devices. Mobile devices, such as smartphones, now enable everyone to produce and communicate text, image, audio, video and multimedia culture and meanings (Dyson, Litchfield & Raban 2010). Though people use their mobile devices to engage in new meaning-making practices, new literacies research to date has been focused largely on desktop technologies and formal educational environments. Recent research has begun to explore adult engagement with new literacies, and the informal learning of 'design' as a literacy practice (Sheridan & Roswell 2010), however little is known about how a device's mobility affects literacy practice. As smartphone ownership continues to increase (Llamas & Stofega 2010) and the semiotic landscape becomes increasingly visual and multimodal (Kress 2003) there is a need for understandings of multiliteracies research to be applied and extended to the multimodal meaning-making afforded by mobile devices.

Researching the Social through Participatory Projects

Though there is a need to understand how mobile literacy practices emerge, researching the mobile complex is difficult. For if research into the mobile complex is to avoid technological fetishisation it needs to focus not only on the technical innovation but on how such technologies are embedded into the everyday lives of its users and the socio-cultural conditions in which they exist (Pachler et al. 2010a). Understanding new literacies and the role the mobile complex plays in it has to understand a person's practice within its socio-cultural context. Furthermore, any study that attempts to understand new literacies, will bring with it assumptions on the nature of language and what constitutes human communication.

Taking its theoretical perspective from social semiotics this paper conceptualises language as a social semiotic. Drawing on the understanding that Halliday's (1978, 1985) social semiotic theory of language can be extended to non-verbal semiotic resources such as still image (Kress & van Leeuwen 2006), art (O'Toole 1994), film and moving image (Iedema 2001), music (van Leeuwen 1999) and action (Martinec 1998), this study is grounded on semiotic resources enacting the social. Though as a study in literacy in the mobile complex this paper also aims to connect such semiotic resources with social practice and adopts participatory action research.

In a study that attempts to understand not only understanding human *practice* and mobile meaning making, participatory research methods are advantageous for empowering and engaging people. Participatory action research is well suited to studying *practice* as a social phenomenon (Kemmis & McTaggart 2000) and similarly aligns well with one of the central research assumptions in which language and other meaning making systems are conceived of as a *social* semiotic systems. However, as Miles and Huberman (1994, p.5) acknowledge, methodologies may have to be flexible to the peculiarities of that particular setting. In this case, it is the mobile setting that tests the typical modes of participation normally found within more standard action research projects.

mStories: An Evolving Project

Grounded in the participant's experiences and semiotic products, this *mStories* develops an understanding of literacy from the underrepresented adult user and the mobile technology that they use. Whilst there has been a significant focus on existing social networking platforms as a place for communication and expression, by building a site together and allowing participants to create their content without the social networking skeleton it was hope to explore potential and unexplored behaviours. However in identifying mobile meaning-making practices as ones that is situated, locative, and experiential in nature (Frawley 2011) this project had to be flexible to modes of participation that participants asked for, even if these modes of participation differed from those typically used within participatory action research methods.

FINDINGS

Preliminary phase

In line with more traditional methods of participatory action research, *mStories* was designed to be run over a set four-week period through weekly meetings, each of which was intended to be an iterative part of the participatory action research project cycle. Whilst this initial project design was methodologically sound, it failed in practice, as the meeting-based design did not accommodate the needs of participants, and their situated mobile practice. Despite this, this first phase of the project generated the participant interest and feedback that determined the identity and methodological approaches used in the final project (Figure 2.). As the first phase of the project provided the motivation and feedback for the final project design, this section describes both preliminary and final phase of the project design.

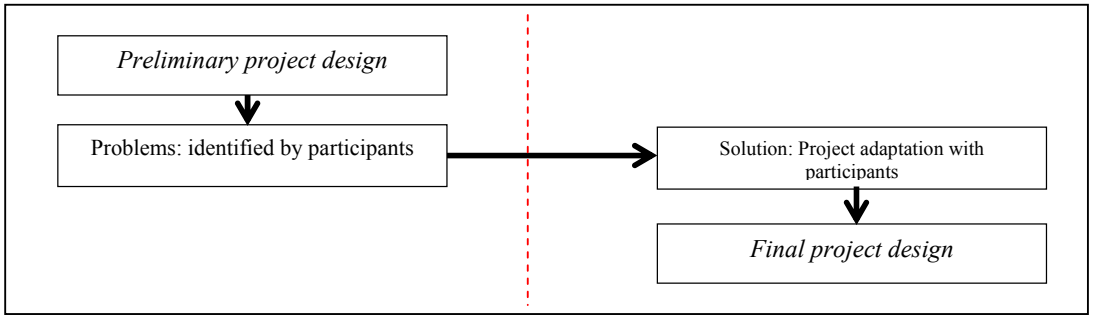

Figure 2. Participant Driven Project Design in Two Stages

Preliminary Project Design

The project was initially designed to run over a four-week period, focus on participants from local Sydney writers' networks, and be executed through a series of participatory weekly meetings that would be recorded. During this phase of the project, participants for the project were approached through the following sources: Sydney community writers' groups, independent northern beaches writers' groups, fellowship Of Australian Writers NSW Inc. (Northern Beaches Sub-branch).

As the project explored mobile multimodal practices through story production, writers groups were initially approached. The decision to focus on writers from a specific locale was based on the initial meeting-based project design. This phase of the project design generated interest from several writers, but also highlighted several problems with the meeting-based project design. Firstly, facilitating meetings proved difficult: both the meeting times and geographic focus restricted who could be a project participant. In addition some people did not want to attend meetings as though a survey found that they had never previously created an 'mStory' that they already had an idea of what they wanted to create. Secondly, during this recruitment phase several people from different locales who were not writers also expressed interest in being part of the project. These factors and participant feedback from this phase changed the methods of participation.

Final phase

Based on the issues identified by the participants and the researcher in the preliminary project design, group meetings were replaced with electronic means of individual to researcher participation. Instead of contributing to a group directed project, participants worked individually in producing their mStory and communicated with the researcher through electronic channels, such as: phone calls, email, text message, videoconferencing, online survey tools, the mStories website

The move from physical meeting-based participation, to electronic participation changed the project significantly. With no geographic focus, there was no need to limit the participation to one country. In addition to this, the project was also extended to non-writers through informal channels such as Facebook, email and word-of-mouth. Though writers were initially targeted as a group with an interest in creative story writing, many writers approached were hesitant about writing a story on their mobile phone: one potential member described the project as 'experimental'. When the project was extended to non-writers, an unanticipated level of interest was generated. One non-writer participant was recruited indirectly through hearing about the project from another participant; as a result only three out of nine participants were from writers groups. In this way the digital approach to participation not only suited the needs of the participants and their mobile practice, but changed the dynamic and identity of the project.

Final Participant Group

The final *mStories* project team was composed, in total, of nine people. Participants were from Australia (n=5) and the UK (n=4), the age range spanned from 21-25 to 46-55 and included male (n=4) and female (n=5) participants. Though writers groups were initially targeted, the final group contained only three participants who engaged in creative writing, either professionally or in their spare time.

CONCLUSION

In supporting the study and practice of mobile literacies, *mStories* attempted to use traditional participatory techniques such as face-to-face meetings, and iterative project development. However, participants of the *mStories* project wanted more autonomy, self-direction and distance support both their existing mobile practice and their new *mStories* practices. Emerging from this study is a need for methods that better embrace idiosyncratic practices and new practices that are emerging from mobile literacy practice. Participants of multimodal mobile stories were largely not from writers groups, and though none had produced an mStory before all had 'something in mind' and wanted a participatory project that permitted such new practice. Through adapting participation to include

distance and digital support the *mStories* project was able to support different modes of participation and research exactly how such stories are constructed within the mobile complex.

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Student-Generated Mobile Learning: A Shift in the Educational Paradigm for the 21st Century

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ABSTRACT

User-generated content represents a major shift in the way that people are engaging with technology in the twenty-first century and this change has its educational parallel in student-generated content. Though student-generated content can be produced on a desktop computer, there are a number of characteristics of mobile devices, in particular, that lend themselves to this approach, namely convergence, portability, the digital and networked nature of devices, and their affordability. By exploiting these characteristics mobile learning can support a paradigm shift in learning to suit the needs of our students, moving away from more passive learning approaches, as exemplified by the traditional lecture, to active, learner-centred modes in which students produce their own knowledge. Three examples of student-generated mobile learning are presented and their advantages discussed. Affordances of this approach which contribute to a good learning experience and outcome include the high levels of engagement and motivation, the contextualization of learning, and the support that multimedia presentations provide for learning conversations, peer learning and multiple meaning-making.

Keywords

Student-generated learning, user-generated content, learner-centred education, mobile-supported fieldwork, podcasts, slowmations, learning conversations

INTRODUCTION: FROM USER-GENERATED CONTENT TO STUDENT-GENERATED MLEARNING

From the Information Superhighway of the 1990s to Web 2.0 in the 21st Century, there has been a major shift in the way the Internet is now conceived and used. The Internet has moved from a medium largely for information access, where passive consumers of content download information provided by others, to a platform where users upload content they have developed themselves, view content created by fellow users, in addition to selectively choosing information from the traditional information providers. The term 'prosumer' has been coined to describe this new type of Internet user who is both producer and consumer of content (Mundy, Stephens & Dykes 2010). Many of the world's most visited websites, such as YouTube, Facebook, Wikipedia, Flikr and MySpace, are now hosts for user-generated content.

Convergence of technologies has been attributed as the main enabler of this phenomenon. This refers to the union of multiple functions within the one device, usually a mobile device. The 3G (third generation) mobile phone and tablet PC or iPad exemplify the converged device, combining as they do computing, Internet connectivity, note-taking, photography, sound and video recording functionality. Table 1 summarizes the characteristics of the new mobile technologies which have fuelled the rise of user-generated content. It can be seen that convergence alone is insufficient, but is supported by other common characteristics of mobile devices, such as their portability, the fact that

they are digital and networked, as well as cheap enough for most people in our community to buy so that everyone can become part of this user-generated revolution if they choose.

Table 1. Characteristics of Mobile Technologies Supporting User-Generated Content

Characteristic	Contribution to User-Generated Content
Convergence of multiple functions into one device	Creation of multimedia content
Portable	Capture of content anywhere and at any time
Digital	Storage of user-generated content
Networked (by Internet, Bluetooth, telephony or cable)	Sharing of content with other people
Affordable	Most people own one

The paradigm shift from expert-generated content to user-generated content has its parallel in the educational sphere in student-generated content. Mobile learning (mLearning) is especially well suited to supporting student-generated content as it offers greater opportunity for multimedia content production and the capturing of learning events outside the classroom. Student-generated mLearning involves learners actively creating their own content using a range of digital portable devices, usually while they are away from the classroom environment. Devices include those mentioned above – mobile phones and tablet PCs – but also PDAs, digital cameras, video cameras, digital sound recorders and laptops. Normally the mobile device captures the content while a desktop or laptop computer is used for editing purposes: a computer provides greater processing power, larger storage for multimedia files, more sophisticated editing software and a larger screen on which to undertake the sometimes complicated task of editing which is often required to meet the needs of the learning task, for example, by adding titles and captions for explanation purposes, or removing material which does not meet the learning objectives. Once created, the content can be uploaded to a website or more often to the learning management system employed by the educational institution, particularly if there are issues of privacy which need to be maintained. Content can then be accessed by other students and by the teacher on either a computer or a mobile device.

Student-generated mLearning offers the possibility of reforming our education system from an often teacher-centric model to one in which students take centre stage. If we compare it with the lecture format, which continues to dominate in disciplines which attract large numbers of students for reasons of economy, we can see a major transformation in the dynamics of the learning experience offered. Changes that characterize this mode of learning are summarized in Table 2.

Table 2. Comparison of Traditional Lecturing and Student-Generated mLearning

Traditional Lecture	Student-Generated mLearning
Passive learning	Active learning
Teacher talks, students listen	Students do and create
Teacher-centred	Learner-centred
Students as consumers of expert information	Students as producers of knowledge
De-contextualized in the classroom	Contextualized in real-life settings or by complex tasks

EXAMPLES OF STUDENT-GENERATED MOBILE LEARNING

There are many examples of student-generated mLearning. One can think of student-designed and programmed games for use on mobile devices, vodcasts (video podcasts), digital stories created using mobile devices, and screencasts for viewing on either mobile or desktop devices. Here, three examples will be presented briefly in order to demonstrate the nature and advantages of this type of learning.

Student Photographs in a Field Study of Information Systems in Business

Fieldwork has long been identified as a powerful method of learning, providing highly contextualized and motivating learning experiences as students study phenomena in the field (Manning, Harris, Maher & McQueen 1998). Discussions between students and teacher both in the field and back in the classroom can be supported by students' use of digital cameras, mobile phones or iPads to take photos of the phenomena being studied. In addition, students can record interviews in the field with video cameras, digital sound recorders, mobile phones or PDAs to consult later when preparing reports or class presentations of their work. This multimedia content is far more powerful in supporting the sharing of ideas and the development of learning conversations than traditional field notes. The use of modern technology and student-generated content further enhances the motivational aspect of the learning activity for students who, for the most part, participate in such technological practices. In an Information Systems subject, the author had teams of students use their own devices to take photos of technology being used in a small business such as a video store, bookshop or gym (Dyson, Lawrence, Litchfield & Zmijewska 2008). The learning objectives focused on students gaining a complex understanding of how technology supports the work that people do and the challenges of deploying systems in a real-life context. The photographs were used to increase the interest level of students' class presentations and to illustrate a discussion in their business reports about the context of use of the technology.

Student-Produced Podcasts for Language Learning

Podcasts are being deployed widely in education but some of the most interesting uses involve podcasts created by students. Switalla (2009) asked her New Zealand primary school Maori language learners to create a traditional speech of greeting (*mihi*) and then record a podcast of this on their MP3 players. The children then played the podcasts back to listen to themselves and improve their pronunciation and also benefitted from peer feedback from a critical friend in their class. Important learning objectives which were supported by the podcasts included encouraging the students to respond to and reflect on their own and others' feedback and to take control of their own learning. The podcasts were also shared with the students' families and contextualized in a cultural program, which further invited student creativity through, for example, the making of a cloak (*korowai*).

Student-Generated Slowmations of Science Concepts

In order to deepen trainee primary school teachers' knowledge of science, Hoban and Nielsen (2010) invited them to create 'slowmations' (slow animations) of science concepts, working either individually or in teams. To do this trainees researched their topic, drew up a storyboard of their proposed slowmation, modelled objects and backgrounds in preparation, moved the models slowly through the background as they took successive photographs with a digital camera, and then linked the photos together to create a simple stop-go animation, supported by an audio explanation and titles. Analyzing students' learning, they discovered that students' engagement with diverse representations of the subject matter had supported a process of multiple meaning-making and deepened their learning. Further they proposed that learners moved through a 'semiotic progression' as they engaged with the subject matter in diverse representational forms.

WHY IS STUDENT-GENERATED MLEARNING SO POWERFUL?

Factors that contribute to the effectiveness of this approach in supporting engagement and learning, as demonstrated by the three examples above, are summarized in Table 3.

1. All of the examples represent student-centred activities and comprise students actively involved in creating their own knowledge, rather than passively following the direction of their teacher. Traditionally, this type of learning is viewed as highly motivating and engaging.
2. The use of mobile devices lends itself to students' undertaking activities in or out of the classroom, often moving between the two. This is most pronounced in the Information Systems fieldwork example given above, but is also present in the student-generated language podcasts where students take the podcasts they created in class to their family at home. The mobility of the learner has obviously been a focus of discussions of mLearning since its inception because of the inherent affordance of mobile devices for learning across locations (Sharples, Taylor & Vavoula 2007). Learning becomes situated in a context appropriate to the knowledge being acquired (Lave & Wenger 1991).
3. The capture or creation of multimedia content in all three examples provides the basis for learning conversations. Sharples (2003) points out how the creation of externalized, shared representations of students' understandings facilitates these conversations. Externalized representations of great immediacy and descriptive power are exemplified by the photographs, podcasts and slowmations created by the students.
4. The semiotic progression and multiple meaning-making that Hoban and Nielsen (2010) have argued so persuasively for explaining the deep learning they observed when students create slowmations can also be argued in other cases of student-generated learning. For example, the Information Systems students took photographs and then re-used these, firstly by embedding them in slides to support a class presentation and finally for centring a discussion of context of use in their written reports. The children learning Maori transformed their written speech of greeting into an oral form, which was recorded for critique and reflection, and then re-recorded if necessary until the children were satisfied with their pronunciation. These multiple attempts at the task and the changing forms that the created content takes must contribute to more effective learning.

Table 3. Factors Contributing to the Impact of Student-Generated mLearning on Students' Learning Experience and Learning Outcomes

Characteristics of Student-Generated mLearning	Effect on Learning and the Learning Experience
1. Active, student-centred	High levels of engagement and motivation
2. Mobile – moving in and out of the classroom	Contextualized learning outside the classroom
3. Capture and sharing of multimedia content	Learning conversations and peer learning to build shared understandings through externalized representations
4. Affordance for multiple and diverse representations of the subject under study	Multiple meaning-making supporting a semiotic progression to deep learning

CONCLUSION

Student-generated mLearning represents a marked change from the traditional, teacher-centred delivery of information that typifies much of our current educational provision. It also constitutes a highly innovative approach compared to some older forms of mLearning that see it as merely a platform on which to push further didactic content onto students, for example the podcasting of lectures. The presentation of three examples of student-generated mLearning has attempted to demonstrate that this type of learning can be highly engaging and motivational, offers the possibility of contextualization in real-life settings, provides common externalized representations to support

learning conversations and peer learning, and has an affordance for multiple meaning-making and deep learning.

Though student-generated content is an extension of the user-generated content hosted on so many file-sharing websites, there are several important differences. It should be emphasized that for student-generated mLearning to be successful it should focus on one or more key learning objectives, and not be activity for the sake of activity. In addition, student-generated content may not be able to be hosted on an open website for privacy reasons, and it nearly always requires the editing of multimedia in order to fulfil the learning objectives and for students to make explicit how they have attempted to meet these. Teachers must think carefully about how they design student-generated activities for their students and not assume that good learning will automatically come when students are presented with the task of content capture. However, with thoughtful educational design, excellent learning outcomes and improved learning experiences can be achieved.

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Reflections: Two Mobile Learning Strategies under One Organization (Institutional vs. Local)

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ABSTRACT
Higher education institutions in Australia are mostly using Blackboard Inc as a learning management system (LMS). As trends follow from one university to the next, most universities today are enabling an out-of-the-box mobile solution called Blackboard Mobile Learn (BBML) to activate their mobile learning strategy. This paper represents the researcher's own reflection on dealing with two similar mobile learning strategies at the same institution (the organization level vs. the local school or faculty level). The recommendations outlined focus on the ease of uptake by the end users (students); design challenges for staff; and simplified transparent strategies for mobile learning roll-outs.

Keywords
mLearning, Business School, Blackboard, Blackboard Mobile Learn, BBML

INTRODUCTION
In the past Mobile Learning (mLearning) often sounded a complex and expensive process to establish, however today the usage of an enterprise application such as Blackboard Learning Management System (LMS) integrated with the new system extension Blackboard Mobile Learn (BBML) equates to an easier and much more affordable strategy for any educational institution to implement as an out-of-the box mobile solution. This process complements the existing IT infrastructure and the support needed for both student and teaching staff alike. Student demands and expectations for mobile accessibility to course materials at their fingertips (anywhere and anytime) are clearly evident from the two latest implementations of mobile learning strategies at the University of Sydney main campus and locally at the Business School.

WHY MOBILE LEARN?
Martin (2011) described the third screen (the mobile device) as a revolutionary movement of the 20th century, moving away from TV firstly to Desktop computers, and now to Mobile devices such as smart phones and tablets. Martin also outlined the need for "Constant Content" and the change of the end users' behavior that connects to online information using a mobile phone 24/7; "Mobile content consumption is continuous. There is no beginning, middle, or end" (Martin 2011). The expectation from school leavers who are used to using console and networked games from their own living rooms is that they need the same speed, connectivity, and security of access as well to campus / course information (such as online course information, grades, discussion board, wikis, lecture recordings and the like). This poses many critical questions such as a) is the organization ready for mobile learn? b) is there enough student demand for mobile learn? c) above all, are the teaching and support staff equipped with skills needed to re-develop constant content creation?

Based on those questions and in order to improve students' engagement and participation, the Business School linked the third, mobile screen to the existing Blackboard LMS as a natural progression towards offering mobile learning. The school's main strategy was to enhance the experience of learning and teaching through the use of technology by complementing rather than just replacing *What's already working*:

> *Generally speaking, mobile technology can be used in class for exercises or outside the classroom for ease-of-access or flipped classroom models. (eLearning, OLT, 2012)*

Outlined are some of the examples of how the mobile learn strategy at the Business School level is being used to enhance the learning between students and peers:

- Students respond or post comments to discussions boards; blog posts; Wikis and online journal entries easily using a smart phone
- Students' uploading of photos; videos; sounds files and hyperlinks to discussions boards; blog posts; Wikis and online journal entries
- Students' checking of announcements; online grades for submitted assessments; online quizzes and presentations
- More opportunities for Business School students to interact with one another by participating in mobile experiential activities.

Demand

Student access to Blackboard through a mobile device was high and successful from day 3 of its release on 3rd of September 2012. The majority of users used an iPhone with almost 444 unique weekly visitors climbing to 1199 unique weekly visitors by day 40 as of 22/10/2012 (see figure 1).

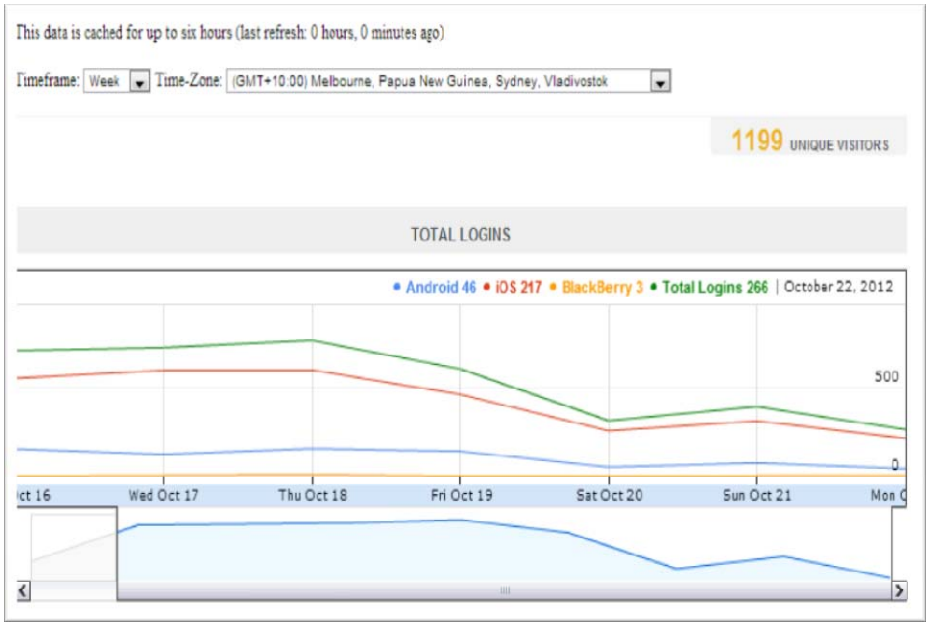

Figure 1. Mobile Learn Analytics (day 40)

Unique Users by Platform

The smart handheld devices that are supported by Blackboard Mobile Learn are iPhone, iPad Touch, iPad, Android, Blackberry and WebOS. Most staff and students accessing Blackboard Mobile Learn were using the IOS (Apple) phone (1550 clicks); then Android (328 clicks) and only 24 users with Blackberry phones (see figure 2). It is clear that any future course development and testing will need to be thoroughly done on Apple devices as a priority.

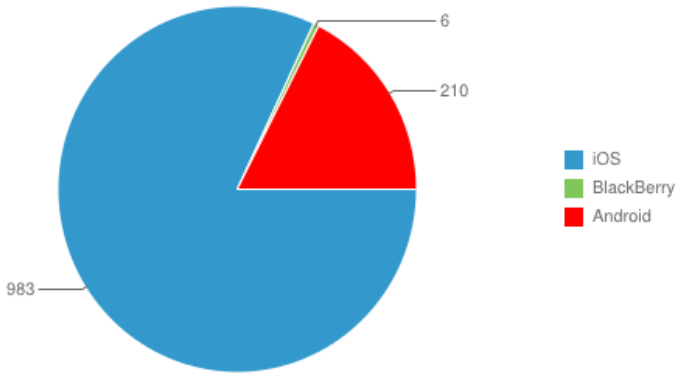

Figure 2. Unique Users by Platform

When's a Goof Day?

The highest period recorded by student logins using a mobile device was Monday; then each of the days of the week ranging between Sunday, Tuesday, Wednesday and Thursday had an average of 700 user logins (see figure 3); whilst that figure drops slightly on Friday and the lowest recorded was Saturday. Interpretation of such data suggests that any submission of assessments and high level activities such as online home quizzes should be avoided on weekends mainly due to the fact that a) students are not interested in logging in during the weekend (especially Saturdays) b) support hours from e-learning support teams or IT helpdesks are only available during working hours from Monday to Friday (8:00am-6:00pm).

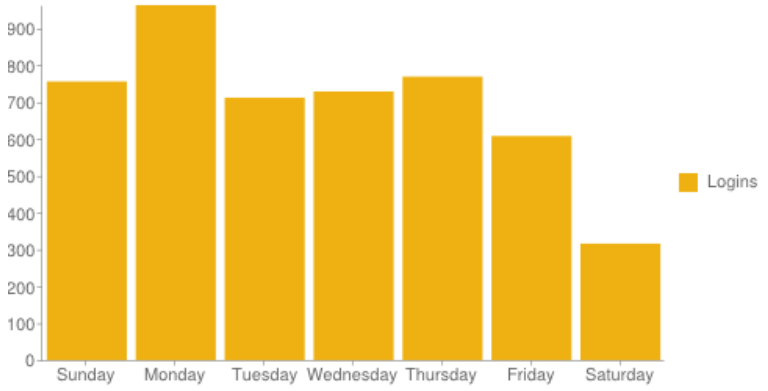

Figure 3. Login by Day the Week

CHALLENGES

As the Business School hosts its own Blackboard system and now Mobile Learn, the University has another Blackboard system with its own rolled out Mobile Learn and app for the rest of the university community to use. This has caused many challenges and confusion for end users at all levels.

User Experiences

Having too many mobile strategies co-existing between the Organization vs. Local levels (University vs. School levels) could be easily resolved to ensure the user experience is not tarnished with technical issues and political arguments within the organization. Simple integration of both Mobile Learn implementations into one cohesive system would be a way forward. The existence of two names appearing in the "results" when searching the app "University of Sydney" and "University of Sydney Business School" (see figure 4) has confused the majority of students.

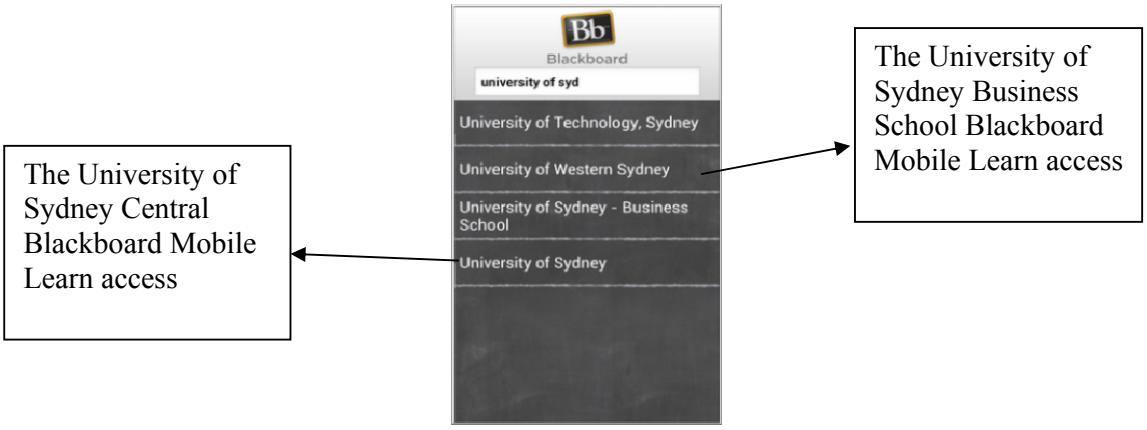

Figure 4. Blackboard Learn App

Where To GO?

The confusion was also caused by Business School students trying to access the school's LMS by going into the main university app which linked directly to the University Blackboard LMS and not the Business School LMS; both Blackboard Inc and the University IT areas were not able to create (or strategically reluctant to create) another unique button to allow access to the Business School LMS from the native mobile app. There are now discussions at both the university level and the school level for centralisation of both systems to be under one license agreement proposed for late 2013.

SYDNEY UNI IN AN APP

The Sydney University app uses specific modules such as Maps, Events, Current University News, University Dates, the Library, Finding Staff, Finding Units of Study and access to the Blackboard LMS system. There has been a high percentage of downloads to the university native app, however the reviews stated on the Android Market Place rated the app quite low (average of 2.9 out of 5) (see figure 5). From the user's perspective, the app needed much rework to include linkage to areas such scheduling and timetabling that could be embedded directly into each Blackboard course for finding room allocations, times and schedules.

> *"Find staff a very useful feature, maps also good but Camden map could include more of the other farms. Unit of study feature should change into view personal timetable with links to uos info, as bookmarking subjects soon becomes blank for some reason and you can't remove them...not sure if anyone else has that problem :/ don't see much use for the photos though" (Review by a student - August 2, 2012)*

Since 23 July 2012, 1,000 – 5,000 downloads were recorded for version 1.0. Most reviewers have indicated that it is a good enough app considering it's the first version 1.0 and they have higher expectations from the app if the university decides to move forward with future versions.

Figure 5. Users' Reviews and Average Ratings – University of Sydney App

Design Challenges

The majority of academic staff in the Business School will not be aware of some of the design issues that are associated with mobile content, or with the web design challenges given that different screen

resolutions must be able to co-exist. Most content will be added by staff into Blackboard hoping that it will work for all students on any device using any browser. The technicalities will be left up to the eLearning teams and the IT helpdesk to sort out by making sure the sites and content work, especially when it comes to online exam periods.

To counter these issues, a proposed future one-hour lunch-time workshop for academic and support staff is scheduled and will focus on specific areas in developing "mobile accessible content". The workshops would focus on areas such as:

- Assisting staff to consider screen resolution; connection speed (ie WiFi); different availability of hand held devices on campus; and barriers to learning for users who struggle with swipe screen and the complex menu system on mobile devices
- Design issues such as text size, image file formats, document formatting – what is the best practice?
- Embedding media files such as movie clips, sound files and interactive animations into the content
- Creating mobile compatible tests for students (true/false, multiple choice, short answers)
- Providing access to and building eBooks and online content from publishers such as Pearsons and McGraw-Hill.

THE FUTURE

The implementation of mobile technology at both the university level and the school level are pre-mature and there needs to be a cohesive and strategic approach to mobile learning that would be agreed upon by all faculties and stakeholders. An Enterprise Strategy for Mobile Learning would include:

1. Strategy for use of mobile devices by all faculties and schools that could be adapted to their local needs
2. Making content and websites "mobile device ready" (eg. Flash on iPhones) and using best practices
3. Specific mobile learning content for students' own tablets or phones readily available for users – (bring your own device – BYOD) approach
4. Availability of both technical and teaching staff to be involved in projects to explore and test mobile learning.

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Reflections on mLearning in Creating Awareness in the Study of Local Culture in the Malaysian Context

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ABSTRACT
This paper presents the researcher's reflections on the study of local culture and makes recommendations for creating awareness in the light of qualitative research conducted in Malaysia. The recommendations address student-generated local content in mLearning using mobile phones; culturally appropriate design guidelines for mobile applications; and managing privacy, personal security, and data management by educational organisations. In addition, connections with learning theory are made which apply to the study of local culture in the Malaysian context at institutions of higher learning.

Keywords
Study of local culture, student-generated content for mLearning, culturally appropriate design guidelines for mobile applications, data privacy and security management

INTRODUCTION AND BACKGROUND
Mobile learning, or mLearning, is about using handheld devices both inside and outside the classroom, and even for learning in remote locations. The affordances and convergence of multiple functions in handheld devices can support a dynamic learning process.

In managing the advent of new technological mobility and this new approach to learning which constitutes mLearning, connectivism (Siemens, 2005) is more pragmatic in that it connects humans and technology and supports decisions about what is appropriate in the dynamics of learning. In connectivism, the knowledge can be outside the learners: they do not necessarily know everything about the subject, but essentially know how and where to access the information online on their own.

This research focuses on the study of local culture, in the form of humanities-related subjects, such as History, Cultural Heritage, Cooking, Wood Craft, etc., that focus specifically on Malay culture, highlighted in the National Cultural Policy as Malaysia's indigenous culture (JKKN, 2010). This research focuses on local Malay culture, as it is the dominant culture of practice and communication, including within the Malaysian public university system.

The researcher's interest is in exploring mLearning, particularly the study of local (Malay) culture (Ariffin & Dyson, 2011) in the Malaysian university context. However, the current study suggests a lack of awareness in Malaysia from students and academics about what mLearning can contribute to the study of local culture (Ariffin & Dyson, 2012). The researcher found that there is a lack of mobile applications having to do with cultural content (Ariffin, Dyson, & Hoskins-McKenzie, 2012).

Second, mobile phones are underused in mLearning in general (Kukulska-Hulme, 2010), and specifically in the study of local culture. Moreover, there is a lack of culturally appropriate design guidelines for local information and communication technology design that can inform the use of technology in education. This lack is evident particularly in the absence of a bridge between human-computer interaction and specific local requirements (Young, 2008), and in the absence of user interface design guidelines (Nielsen, 1990) for mobile applications (Nielsen, 2012). Lastly, one of the challenges in encouraging student-generated content for mLearning is in managing data and information. Privacy, personal security, and data management can play a huge role in connectivism in order to protect data in the mLearning environment. However, there are limited published guidelines for best practice in mLearning, which can include privacy, personal security, and data management (Al–Shehri, 2011).

The issues and challenges of mLearning awareness are exacerbated by the fact that mobile phones are banned in primary and secondary schools in Malaysia, although they were permitted in universities at the time this paper was written. This paper reflects the researcher's perspectives on creating awareness of ways to use mobile phones (Dykes & Knight, 2012) in the study of local culture.

CONNECTIVISM THEORY

Connectivism is a practical approach and a catalyst for managing this new modality of learning (Siemens, 2005). Kim, Caytiles, and Kim (2012) demonstrate the benefits for students of wireless technology in ubiquitous learning encapsulated with connectivism learning theory: in a distributive learning environment, students can gain experiences and interactions in their own learning communities.

CREATING AWARENESS FOR LOCAL CONTENT DEVELOPMENT

This researcher has observed no connection at all between content development and student-generated activities in mLearning within the Malaysian context. However, many researchers contend that local-content development can be aligned with student-generated activities (Kukulska-Hulme, Traxler, & Pettit, 2007) to mLearning content (Dyson & Litchfield, 2011; Litchfield, Dyson, Wright, Pradhan, & Courtille, 2010; Dyson, Lawrence, Litchfield, & Zmijewska, 2008).

Classroom teachers must take responsibility for promoting the use of mobile phones in creating mLearning content. Depending on students' background and level of software literacy, teachers can recommend that their students use their own mobile phones to create local content.

Students with Basic ICT Knowledge

Students may develop local content, for example, to aid their mastery in the study of local culture using software provided with their mobile phones, such as taking photos, recording video and audio. At the most basic level, the students could take photos to integrate into their assignments. Peer learning could be incorporated by having students with better ICT skills help those who lack the skills to carry out more demanding tasks.

Students with Advanced ICT Knowledge

Students may develop local content along the lines of the students who have a basic knowledge of ICT using software provided with their mobile phones along with other, more advanced software. The students in a recent "Technopreneur" class had a multimedia background and used their expertise to collaboratively create local content, for example, about local museums, local histories, tourism sites and the environment (Ariffin, 2009).

CREATING AWARENESS FOR USING MOBILE PHONES

To create awareness of the potential for using mobile phones in learning, lesson-plan objectives must be modified to incorporate the use of this technology. Mobile phones are, ideally, tools for the enhancement of learning, not replacements for instructors. To successfully integrate mobile phones

into learning activities, instructors must assess students' readiness, including how many own mobile phones and how many can use the relevant phone functions and software. Although training must be provided, learning from peers is also possible and desirable.

Technology and Infrastructure Readiness

Both students and instructors must be encouraged to use mobile phones in the study of local culture, such as being told to "Bring Your Own Device" (Puente, 2012). Incentives could be given to teachers and students to have appropriate mobile phones for learning. Having a mobile phone must be aligned with hardware and software capabilities; wider screen size; touch screens; wireless hot spots; coverage in rural areas; low-cost or free data packages, smart phones and services; and simple, brief and informative mobile applications for the study of local culture.

Activities Using Video

Video recordings using mobile phones are important, not only to produce files that can be viewed later but also to develop material for assignments. Teachers should be aware of assignments for which mobile phone video recordings might be appropriate, for example, real-life situations, people interacting, interviews, experts doing cultural demonstrations, etc. Other capabilities of mobile phone applications are video streaming and video calling, which could be useful in improving the study of local culture. Students might later edit the videos, for example to create vodcasts (Litchfield et al., 2010) or screencasts for publishing on the Internet. .

Activities Using Audio

Students can use mobile phones to record people telling their stories, interviews, or speeches. Instructors need to keep in mind the capabilities of mobile phones, such as audio streaming and audio calling. Similarly to video, audio content can be used to generate podcasts for publishing on the Internet (Nataatmadja & Dyson, 2008).

Activities Using Photos

Taking photos is one of the most common activities by students using mobile phones. Students already use photos widely as evidenced in their studies of local culture in Malaysia, and this could also include the editing of photos and making them available for sharing, particularly as photos have the advantage over either video or audio content of smaller file sizes. A series of photos can present chronologies or stories for later use either in assignments or in final reports.

Activities Using Portal

Mobile phones can be used for both searching and sharing information such as audio, video and photos on mobile portals (for example, a blog or other social media). Students may interact with their friends and instructors via a mobile portal. Teachers may benefit from using a mobile portal by sharing learning content with their students, making announcements, and generally interacting with students. For example, in this study students and academics used both Facebook and blogs in these ways.

Training to Use Mobile Phones

Teachers need to be trained before they can demonstrate to their students how to use mobile phones for learning activities. Once trained, the teachers should use scaffolding to demonstrate techniques for using mobile phones effectively for recording video, audio, and photos. Brighter students will then be expected to train those of their peers who find the technology difficult.

CREATING AWARENESS FOR CULTURALLY APPROPRIATE DESIGN

Kukulska-Hulme (2007) stressed that usability aspects are ignored in mobile-technology research: specifically, there is no connection between mobile applications and the users evaluating the application.

Consequently, the needs of both students and teachers must be considered when designing culturally appropriate mobile applications, particularly user-interface design principles (Nielsen & Mack, 1994) for mobile applications (Nielsen, 2012) that focus on local culture (Reinecke & Bernstein, 2011).

Because the subject is related to the local culture, the design principles must emphasise local aesthetic values (Hussin, 2010; Jamal, 1992). The mobile application – including its content and its philosophical and intellectual basis – must accord with Malay culture in a design that is appropriate to the subject.

Local Aesthetic Values

One of the aesthetic values is the application of motifs (Hussin, 2010; Jamal, 1992) that portray local cultural elements. Motifs such as local flora to represent traditional Malay philosophical values can be incorporated into the mobile application's user interface (Ariffin & Dyson, 2011) in either contemporary or traditional ways without losing their philosophical value.

Local Language

Since local language is important (Mastor, Jin, & Copper, 2000) in mobile applications employed in the study of local culture, it is advisable to use either bilingual text (English and Malay) or solely Bahasa Malaysia (known as Bahasa Melayu). The words used must be subtle, respecting the values taught in the study of local culture.

Local Context Sensitivity (Moral Value in Malay Culture)

When designing mobile applications for different subjects in the study of local culture, it is necessary to incorporate local context sensitivity. This includes the moral values of the Malay culture, what is right and what is wrong (Mastor et al., 2000; SKMM Guidelines, 2012).

PRIVACY, PERSONAL SECURITY, AND DATA MANAGEMENT BY THE EDUCATION ORGANISATION

It is crucial that administrators identify which groups are involved in issues of privacy, personal security and data management, so that safety measures can protect the privacy of, and reduce the risks to, the relevant groups (Ugray, 2012). Training is required to provide awareness in protecting data privacy and security for student-generated mLearning content.

CONCLUSION

The paper concludes that mLearning can contribute significantly to the study of local culture, as long as education organisations and instructors are aware of its potential. Since managing new technology and the use of handheld devices such as mobile phones require the development of new pedagogies, it is recommended that the concept of connectivism in mLearning management is applied, including the introduction of student-generated mLearning content. Students can collaboratively develop local content and disseminate it on mobile portals to improve learning access and maintain learning-content equity. However, it is crucial to answer privacy, personal security, and data-management concerns, including the need to manage data created by students using mLearning for the study of local culture. The instructor's role as facilitator to embed mLearning activities in the lesson plan is vital. This awareness must be based on sound learning theory including the idea of connectivism, the primacy of student-generated content, embedding cultural appropriate design and consideration of issues of privacy, personal security, and data management.

The contribution of this paper is to make recommendations for creating awareness of mLearning in the Malaysian context from a holistic perspective, with the aim of making a significant learning intervention in improving the study of local culture.

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