Post-Web 2.0 Pedagogy:
From Student-Generated Content to International Co-Production Enabled by Mobile Social Media

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ABSTRACT

The advent of web 2.0 has enabled new forms of collaboration centred upon user-generated content, however, mobile social media is enabling a new wave of social collaboration. Mobile devices have disrupted and re-invented traditional media markets and distribution: iTunes, Google Play and Amazon now dominate music industry distribution channels, Twitter has reinvented journalism practice, ebooks and ibooks are disrupting book publishing, while television and movie industry are disrupted by iTunes, Netflix, YouTube, and Vimeo. In this context the authors critique the changes brought about in a case study of film and television higher education from initial explorations of student-generated mobile movie production to subsequent facilitation of international student mobile media co-production teams supported by the development of an international Community of Practice, illustrating new forms of post-web 2.0 pedagogy.

Keywords: Communities of Practice, Global Collaboration, Heutagogy, Mobile, Social Media

INTRODUCTION

Over the past four years the teaching of a higher education Film and Television course has undergone significant transformation as the lecturers have attempted to engage with the impact of mobile devices and new forms of media distribution on the industry. This journey has also led to significant pedagogical transformation, as the lecturers have undergone conceptual shifts in the understanding of their roles and the roles of their students in a post-web 2.0 world. The post-web 2.0 era is not web 3.0, the proposed semantic web (Berners-Lee, Hendler & Lassila, 2001) that is a web driven by artificial intelligence accessed through desktop or laptop computers. Rather the future of the internet is characterized by mobility and the emergence of mobile social media, augmented reality, and technologies such as voice recognition on smartphones and wearable computing. This change of focus away from Internet-connected

desktop computing to ubiquitously connected mobile devices has been heralded by information and technology (IT) commentators such as Jackson (2012):

Social companies born since 2010 have a very different view of the world. These companies – and Instagram is the most topical example at the moment – view the mobile smartphone as the primary (and oftentimes exclusive) platform for their application. They don't even think of launching via a web site. They assume, over time, people will use their mobile applications almost entirely instead of websites. We will never have Web 3.0, because the Web's dead. (Jackson, 2012, p1)

Jackson (2012) postulates that web 2.0 companies (founded from 2002 to 2009) such as Google and Facebook may fade into irrelevance in a post-web 2.0 world unless these companies can make the conceptual shifts that a mobile-focused world brings. This post-web 2.0 world is characterized by in situ (contextual) real-time sharing and collaboration, enabled by today's powerful mobile smartphones. It is a world where Internet use is mobile-first or even mobile-only. Mobile broadband subscriptions out-numbered wired Internet connections in 2010 (Acharya & Teltscher, 2010), the iPhone became the most popular camera used to upload photos to Flickr during 2010 (MobileFuture, 2010), and tablets such as the iPad or Kindle Fire have become a popular medium of choice for reading and media viewing. This shift is illustrated by two significant incidents in 2012:

- Facebook's disappointing share price decline after its entrance to the stock market in 2012. Facebook's flagging IPO share prices have been attributed to its weakness in mobile (Gustin, 2012; Miller, 2012). Facebook has embarked upon a mobile buying spree trying to bolster its mobile presence, such as the acquisition of Instagram;
- During 2012 President Obama made a call for all US Government services to be mobile enabled within a year, and is quoted as saying "Americans deserve a government that works for them anytime, anywhere, and on any device" (Melvin & Bull, 2012, p. 1).

This paper recounts the transformational journey that the lecturers and researcher have been on in forming a Community of Practice (COP) for reinventing a Film and Television course in response to a mobile post-web 2.0 world. Key to this has been the changes implemented within an elective course on emerging technologies, that began with a mobile technology focus, but have now moved from enabling student-generated content on mobile devices to enabling collaborative design of authentic international student co-production teams. This change has been paralleled by a pedagogical shift from teacher-directed content (instructivist pedagogy) to student-negotiated and student-directed heutagogy as well as collaborative learning. Not only has the teaching paradigm been transformed, but the curriculum design process has also undergone a transformation from a course written for delivery by a sole lecturer to the co-creation of a collaborative curriculum by an international community of practice of expert lecturers. This transformation echoes Laurillard's (2012) call for teaching to become a collaborative design science:

A 21st century education system needs teachers who work collaboratively to design effective and innovative teaching, and digital technologies are the key to making that work. Teaching is now a design science. Like other design professionals - architects, engineers, town planners, programmers – teachers have to work out creative and evidence-based ways of improving what they do. (Laurillard, 2012)

Heutagogy

New approaches to collaborative design of education such as that called for by Laurillard require new pedagogies. Curriculum design in

higher education has typically been a solo activity of an expert within the context of the field being taught, and resulting in the generation of teacher-directed content and prescribed assessment activities designed to measure mastery of this content. In contrast heutagogy is used to describe the type of student-directed pedagogy usually reserved for the domain of post-graduate students (Blaschke, 2012), who are actively involved in student-generated content and contexts and negotiating assessment activities. However, heutagogy need not be reserved for doctoral students only. Hase and Kenyon (2000) argue that "heutagogy is appropriate to the needs of learners in the twenty-first century, particularly in the development of individual capability" (Hase & Kenyon, 2000, p. 1). Hase and Kenyon argue that heutagogy builds capability and emphasises the emergent nature of learning: "Capability is a holistic attribute and concerns the capacity to use one's competence in novel situations rather than just the familiar, … being able to work in teams, and knowing how to learn" (Hase & Kenyon, 2007, p113). Hase and Kenyon (2007) suggest that heutagogy can be applied to the design of learning environments by focusing upon: recognition of the emergent nature of learning, involving the learner in the design of activities and assessment, using action research and action learning, collaborative learning, and incorporating coaching for individual learning. Building on this, Luckin et al., (2010) argue that heutagogy can be seen as a progression along a continuum of pedagogical approaches from teacher-directed pedagogy to student-centred andragogy and finally student-directed heutagogy. Mobile learning can be used as a catalyst to facilitate change along the pedagogy-andragogy-heutagogy (PAH) continuum by focusing upon learner-generated contexts "The key aspect of Learner Generated Contexts is that they are generated through the enterprise of those who would previously have been consumers in a context created for them" (Luckin, et al., 2008, p. 3). The Film and Television elective projects aimed to facilitate a shift along the PAH continuum from the previously teacher-directed pedagogy of the course to a more heutagogical approach where the focus moved to student-directed production and collaboration. This shift was supported by the development of a collaborative approach to the development of course content and activities by the gathering together of a group of like-minded lecturers, effectively forming a community of practice of expert practitioners involved in the delivery and development of the course.

Communities of Practice

Communities of practice (COP) is a social learning theory (Lave & Wenger, 1991; Wenger, 1998) that was used as the basis for supporting the Film and Television elective projects by the establishment of a learning community of the participants around each project. COP theory draws upon Vygotsky's (1978) social theory of learning where learners learn from more experienced members and are gradually brought from the periphery of a learning community into its core. Thus initial peripheral observation with limited participation (or legitimate peripheral participation) is part of the process of the project as students are drawn into full participation within a developing international community of mobile film-makers. Key concepts in developing communities of practice include (Wenger, 1998):

- **Boundary objects:** The reified activities of communities of practice that can be shared between groups for collaboration or simply information about the community of practice. Fox (2011) defines boundary objects as "entities that enhance the capacity of an idea, theory or practice to translate across culturally defined boundaries, for example, between communities of knowledge or practice". In our case these included Web 2.0 media such as YouTube videos and blog posts;
- **Brokering:** Transfer of the activities or practice of a community of practice to another, usually mediated by an individual

who is a member of both COPs. Boundary objects are tangible outputs that can be used to broker COP practice. Brokering project concepts became particularly important as the project expanded into a collaboration of international partnerships in 2011 and 2012;

- **Technology stewardship:** The guidance in appropriate choices of technology to support the activities of a community of practice by a member with the essential expertise. In our case the role of technology steward was initially undertaken by the researcher.

The explicit production of boundary objects was integral to our project, involving the use of participants' mobile devices to quickly capture, create and share content relevant to the project across the geographic boundaries. All project documentation and administration tools were also able to be viewed and edited on mobile devices. Mobile devices are inherently social collaboration and communication devices that provide powerful tools for enabling social constructivist pedagogy, and thus enable participation within a global community of learners and expert practitioners surrounding the project. Nurturing global collaboration among students is fraught with difficulties that need to be mitigated within the project design, such as the barriers of: timezones, geography, language and culture. Thus nurturing virtual COPs via social activity mediated by mobile Web 2.0 has been found to be critical to sustaining and developing these international partnerships (Wenger, White, & Smith, 2009). The explosive growth of mobile social networking tools such as Twitter and Google Plus are enabling rich interaction to take place between international teams whose members can collaborate and share experiences and information within authentic environments (Herrington, Herrington, & Mantei, 2009) and learner-generated contexts (Luckin, et al., 2010). Thus rather than expending effort and resources upon mobile application develop-

ment or content delivery to mobile devices, the course lecturers supported the mlearning project within the Film and Television course by the development and nurturing of learning communities comprised of the project participants including the lecturers, the researcher, and the students utilizing a range of mobile Web 2.0 tools. This approach also leveraged the unique expertise and experiences of a range of mlearning experts as they became participants within the project COP, providing the context for authentic learning experiences for the student participants incorporating expert input from across the globe (Cochrane & Keegan, 2012; Keegan, 2010).

Mobile Social Media

Mobile social media leverages the affordances of mobile devices (in particular the geolocation, augmented reality, and instant creation and sharing of multimedia affordances of smartphones) to enhance the collaborative affordances of web 2.0 (O'Reilly, 2005). The researcher views mlearning as a catalyst of pedagogical change (Kukulska-Hulme, 2010) that can be leveraged by lecturers modeling the pedagogical use of mobile social media tools for facilitating reflective reconception of teaching and learning, moving from teacher-directed pedagogy to learner-generated content and learner-generated contexts. Thus mobile social media provides a powerful platform for enabling learner-generated contexts or heutagogy. However, while there are examples of mobile web 2.0 projects that leverage the unique affordances of mobile social media, such as Andrew, Hall, and Taylor (2009), Cook (2010), and Traxler and Wishart (2011), the mlearning research literature has been critiqued for a predominant focus upon teacher-directed content delivery to mobile devices and a proliferation of short term case studies (Kukulska-Hulme, Sharples, Milrad, Arnedillo-Sanchez, & Vavoula, 2009; Rushby, 2012; Wingkvist & Ericsson, 2011). A review of 76 papers from the mlearn2007

and mlearn2008 proceedings revealed that only five percent of the projects represented by these research papers utilized an action research methodology (Wingkvist & Ericsson, 2011). While the context of mobile film making has been around for some time (BBC, 2009; Drummond, 2008; Fulton, 2007; Keegan, Bell, Fraser, & Clay, 2010), in this paper we discuss the iterative development of an mlearning/mobile film action research project that has spanned four years, and has developed into an on-going international collaborative project.

RESEARCH METHODOLOGY

The Film and Television elective course projects were situated within a wider participatory action research (Swantz, 2008) project that investigated the potential to transform pedagogy using mobile social media (Cochrane, 2011). Each of the Film and Television elective course iterations formed a significant action research cycle within the wider research. While this paper focuses upon the context of the 2009 to 2012 Film and Television projects, the wider research has covered contexts from Architecture, Landscape Design, Product Design, Computing, Graphics Design, Accountancy, Business and Law, Civil Engineering, and Journalism (Cochrane, 2012).

Research Questions

A review of the mlearning literature led to the identification of gaps in the understanding of mlearning, and the development of the research questions, which were:

1. What are the key factors in integrating Wireless Mobile Devices (WMDs) within tertiary education courses?
2. What challenges/advantages to established pedagogies do these potentially disruptive technologies present?
3. To what extent can these WMDs be utilized to support learner interactivity, collabora-

tion, communication, reflection and interest, and thus provide pedagogically rich learning environments that engage and motivate the learner?
4. To what extent can WMDs be used to harness the potential of current and emerging social constructivist e-learning tools?

The focus of the paper is upon discussing the implications of four iterations of an action research project and drawing out principles within an action research methodology. Therefore the research questions acted as a guide and evolved as the project developed over several iterations.

Context

The researcher partnered with a Film and Television course lecturer establishing a lecturer community of practice (COP) within the Performing and Screen Arts (PASA) department in 2008 and 2009 to increase awareness of and create momentum for integrating mlearning into the PASA curriculum in 2009. The predominant pedagogy in the PASA department was based upon an apprenticeship model, with very high staff to student ratios, expensive computer-based video and audio editing equipment, and therefore high costs and low profit margins. These factors had led to low investment in the supporting technologies for the courses: there were no dedicated general purpose computer facilities for students, expensive video and audio computer editing suites were not networked, and the school had no wireless network coverage. Consequently teaching methods were face-to-face instruction with no integration of the wider institution's online LMS into the courses, as students had little opportunity to access online material. The researcher and PASA course lecturer therefore saw the introduction of mobile social media into the department as an ideal opportunity to disrupt the status quo, introduce ubiquitous wireless connectivity

and facilitate a move to social constructivist pedagogies using cost-effective mobile social media technologies.
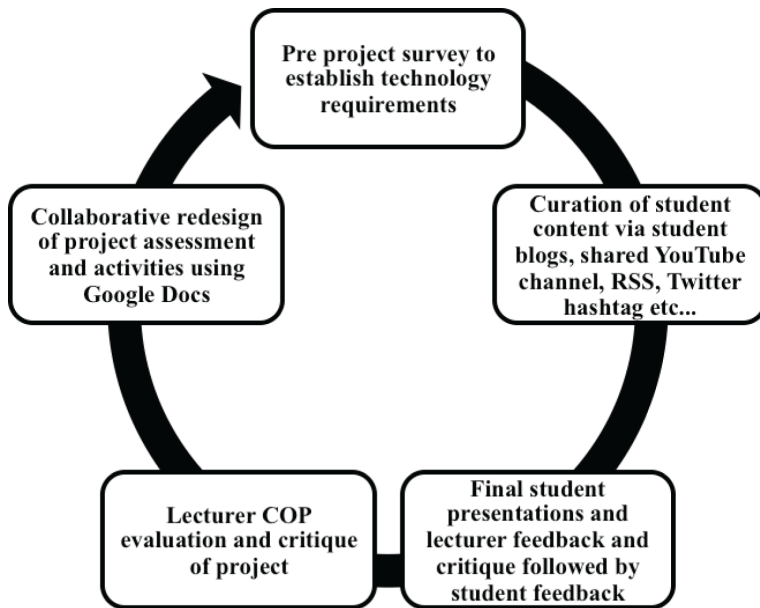
Data Gathering and Analysis

The research was essentially qualitative, but used some quantitative data (pre and post surveys) to triangulate the key themes identified in the qualitative data. A range of mobile social media tools were used across the four iterations of the project to record participant reflections and identify critical incidents. These were collated via rich site summaries (RSS feeds) in Google Reader, and Google Doc spreadsheet lists of: student blog addresses, YouTube channels, Twitter usernames, Gmail accounts, Skype addresses and in 2012 Google Plus contacts. Participants were required to keep a learning journal via their own blog, and to post short video reflections on the project on a project YouTube channel. All participants signed ethics consent forms, and an acceptable use policy. Participants were supplied with information about the research, and participated in both a pre-project survey and a post-project survey. The richest source of reflection was garnered from participant reflective blog posts about the project, which were collated and analysed for emergent themes from each project, that were then used to inform the design of the subsequent project iteration. Some students recorded their reflections as VODCasts – video recordings uploaded to YouTube and embedded in their blogs – these were transcribed, collated and emergent themes were identified. As the community of practice of the project lecturers developed, Google Docs and Google Plus Hangouts were used to facilitate collaborative design and brainstorming of project goals and activities. At the end of each project students presented their finished mobile film projects to the other participants for feedback and critique, which was provided in a variety of modes: face-to-face, and asynchronously via Twitter, blog posts and YouTube video comments. All participants were encouraged to use their mobile

devices to capture, create and share their project reflections, in particular the later use of Google Hangouts archived to project YouTube channels became a rich source not only for collaboration but also subsequent review and analysis. Thus the development of each project was informed by a cycle of reflection upon the results of each previous project iteration as shown in Figure 1.

RESULTS

2009

The outcome of the lecturer COP in 2009 was the development of an ambitious mlearning project within the third year New Technologies course in semester two, involving 25 students and 2 course lecturers alongside the researcher as the technology steward. The resulting project focused upon an investigation of the potential of mobile social media technologies within the field of Film and Television. Timetabling pressures led to a rather different mlearning project COP formation scenario than previous projects facilitated by the researcher. The project consisted of an introductory session by the researcher where the students were supplied with Dell Mini9 netbooks and Nokia Xpressmusic 5800 smartphones and given an overview of their use and web 2.0 applications, followed by a gap of two months, then five guest lecturer facilitated COP sessions covering the Film and TV context affordances of the smartphones within a period of two weeks. The COP timeframe was therefore compressed and intense. Students were very enthusiastic about the project, and reflected about the empowerment of ubiquitously connected mobile devices, but tended to leave their mobile film projects to the last minute due to the pressures of all of their other final year project assessments occurring around the same time. The mobile films that the students created and uploaded to YouTube were very creative, but lacked a depth of collaboration and critique that could have been achieved via a more sustained project timeframe. A collec-

Figure 1. Project data collection and analysis as action research cycles

tion of student-generated mobile videos from the project can be viewed on the following YouTube channel created for the project http://www.youtube.com/user/09unitec. Students experimented with live video streaming via Qik (http://qik.com) on their smartphones, and recorded interviews with industry experts, and created hypothetical scenarios for enhancing Film production productivity via smartphones. Thus the 2009 project focused upon the unique affordances of mobile devices.
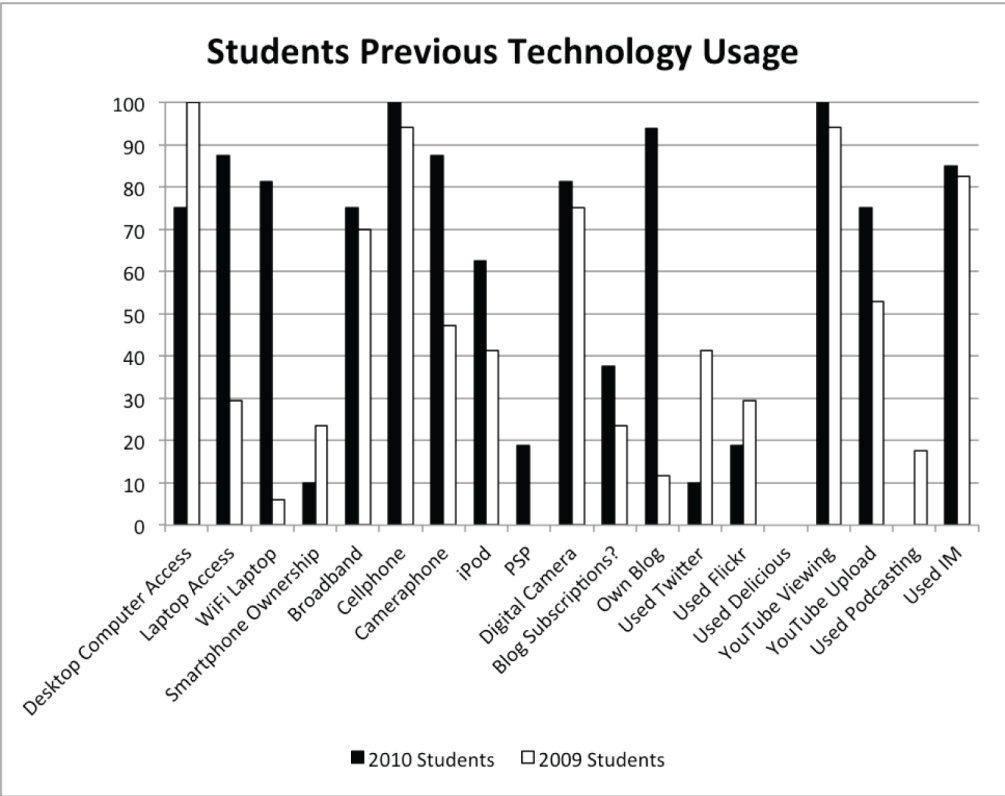
2010

The wave of participating student and lecturer enthusiasm created by the 2009 mobile social media project in the third year of the Bachelor of Screen and Performing Arts course drew in lecturers on the periphery of the community of practice around the project, enabling an opportunity to extend the introduction of mobile social media across all courses of the degree program in 2010. While this was an exciting development it also represented a significant drain on the resources of the researcher and core lecturer as technology stewards across

several new initiatives at once, leaving less time available for refreshing the third year mobile social media project. During 2010 partnerships were established with two international mobile film-making experts who were both invited as guest lecturers during the course and to give feedback on the project. While the focus of the 2010 mobile project was upon the development of students' digital identity utilizing mobile social media, overall the 2010 mobile social media third-year student project was effectively a repeat of the 2009 project. For the 2010 project the students were supplied with the much better Nokia N97 smartphone that included a significantly improved built-in camera. However student expectations and access to technology had changed dramatically in the 12 months between the 2009 and 2010 projects (Figure 2), particularly with repsect to student ownership of laptops and cameraphones. Student blogs were also introduced in 2010 as a course requirement.

Whereas the 2009 project represented a new experience for students with the first introduction of wifi access across the department

Figure 2. Comparison of 2009 and 2010 students previous technology usage

and provision of wifi capable mobile devices, the 2010 students were not impressed with the perceived dated user-interface of the Nokia N97 in comparison to the then available iPhone 3GS and Android-based smartphones. The 2010 third year project failed to establish a sense of sustained community, with students producing mobile film projects at the last minute in order to simply meet the requirements of the course within their busy last semester of their degree. This led to a rethink of how to effectively integrate mobile social media into the course for 2011. A collection of student-generated mobile videos from the project can be viewed on the following YouTube channel created for the project http://www.youtube.com/user/UnitecPASA10. Students uploaded their final video projects and short video reflections upon the project to their own blogs, which were also used as a journal of the project experience and the beginnings of the hub of their online digital portfolios.

2011

The compressed nature of the 2009 and 2010 projects did not facilitate a sustained engagement or the development of a sense of learning community formation. The 2011 mobile social media project was therefore refocused upon a second year Film and Television course where a regular and sustained COP could be established as the basis for the mlearning integration, involving a weekly COP between the students, the course lecturer and the researcher. The lecturer-directed nature of the course was reinvented from a focus on a series of lecturer-delivered

workshops with an attached student-generated project, to a student-negotiated team-based mobile film production project. Students were supplied with a combination of either an iPhone 3G, iPhone 3GS, or iPod Touch4, and an iPad1 each. These mobile tools were then collaboratively explored by the participants as mobile film creation, editing and sharing devices. The scope of the mlearning project was also extended to include a dimension of international collaboration involving the remote participation and presentation within the mlearning COP by a Film and Television lecturer in the UK with experience in mobile film festival projects (Keegan, 2010). The use of Twitter and a Twitter hashtag were introduced with the 2011 ELVSS11 project. This was used for enabling communication and sharing across the time zones and distance between NZ and the UK. Real-time remote lecturer collaboration was enabled via Skype sessions projected on to a large screen for interaction with the entire class. Student response to the 2011 project was extremely positive, and some very creative student-generated mobisodes (short mobile videos) and student reflections upon the project can be viewed on the YouTube channel http://www.youtube.com/elvss11. The 2011 mlearning project established what has now become known as the ELVSS project (the Entertainment Lab for the Very Small Screen) as a successful framework for facilitating student-generated collaborative mobile film production.

Elvss11

This project involved 25 Film and Television students in New Zealand producing and sharing mobile films on iPhones in collaboration with a mobile film-making specialist in the UK. The 2011 Film and television course elective "entertainment lab for the very small screen" (ELVSS11) explored team-based student-generated mobisodes (short mobile video episodes) using iPhones to capture video in unique ways, and iPad1's to edit and upload the mobisodes to YouTube. As the students were learning conventional filmmaking methodologies within their wider programme of study, ELVSS11 was an experiment in acquiring video footage with a whole new set of tools, and preparing their films for delivery in a whole new way for viewing upon mobile devices, and thus exploring a new mindset as regards their film-making craft. The five team mobisodes and student reflections on the project were collated on a project YouTube channel. Using the iPhones students explored and made examples of filming techniques and positions that were unachievable via traditional film making using standard production-level digital cameras and crews. They also critiqued the advantages and limitations of the small screen format. This project not only explored an innovative use of mobile technology, but also enabled the course lecturer to reinvent the course's underlying pedagogy. The course was redesigned from a set of content-delivery lectures, to developing student-negotiated and student-generated team projects that were supported by the input of a range of mobile learning experts, both locally and internationally. Each face-to-face class session involved an overview of an aspect of mobile video production, and was followed by student-led discussions (enhanced with a live Twitter-Wall feed) around the development of their mobisode projects. Class notes and outcomes were negotiated with the students and made available on Google Docs. Remote guest lecturers from Wellington (NZ) and the UK (Salford University) were brought into class discussions via live Skype feeds, with interaction and questions enabled via both the live and asynchronous use of Twitter. A pre-project survey of the students showed that very few were using Twitter, therefore the use of Twitter was encouraged and modelled in class by the setup of dual projection screens to enable a live Twitter stream to be shown throughout each class. This facilitated interaction with the remote guest lecturers, and provided a record of brainstorms and ideas generated during the classes. At the end of the project the guest expert lecturers recorded and shared feedback on the final student videos via ten minute VODCasts on YouTube (for example: http://youtu.be/

I5ohdxS-B_k). The project was structured as follows:

1. An introduction to the iPhone and iPad;
2. An overview of mobile social media: Twitter, Blogging, QR Codes, and Augmented Reality;
3. A series of overviews of mobile movie making techniques;
4. An overview of social media distribution;
5. Formation of student production teams;
6. Negotiation and co-creation of movie scripts;
7. Initial rushes of mobile footage – previewed to the class and lecturers via YouTube;
8. Student team movie production;
9. Presentation and critique of final student team mobile movies;
10. Student reflections recorded and uploaded to YouTube.

This project led to the establishment of an international lecturer community of practice (initially comprised of the lecturers involved in the elvss11 project, and extended by invitation to other interested lecturers) exploring the use of mobile social media within student collaborative co-creation mobile video projects such as the subsequent ELVSS12 project. This lecturer COP emerging out of the ELVSS11 project continued after the end of the ELVSS11 project, and was sustained using Twitter and Google Plus Hangouts as core communication tools, and Google Docs as a collaborative platform for collaboratively designing the subsequent ELVSS12 project.

Elvss12

This project built on the ELVSS11 project to launch an international student mobile film co-production project involving student teams in New Zealand, France, and the UK, (http://elvss2012.wordpress.com/participants/). The ELVSS11 project established partnerships with like-minded lecturers around the world, which in turn led to developing the ELVSS12 project as an international collaboration, initiated and managed by the PASA course lecturer. Thus in 2012, the ELVSS project became a three-country collaboration, including students from Unitec in Auckland, New Zealand, Salford University in Manchester, UK, and from Université de Strasbourg in Strasbourg, France, with a total cohort of 37 students.

The ELVSS12 project was structured as follows:

1. An introduction to the mobile tools;
2. An introduction to the 24 frames in 24 hours (24/24) mini project;
3. A review of the 24/24 footage;
4. An overview of the sustainability theme for the team movies;
5. An international group Google Plus Hangout to introduce the three groups to one another;
6. Assignment of international student teams;
7. Negotiation and co-creation of movie scripts within their teams;
8. Student team movie production;
9. Invitation of student team representatives to participate in the lecturer COP Google Plus Hangouts;
10. Presentation and critique of final student team mobile movies;
11. Student reflections recorded and uploaded to YouTube.

There were two main projects in which the students engaged: 24 Frames 24 Hours, and Mobile In, Global Out. "24 Frames 24 Hours" is a regularly occurring international collaboration in which people capture footage representing a two-hour slice out of a pre-set 24-hour period. They then cut that footage down to a two-minute film and posted it on the 24 Frames 24 Hours Vimeo.com channel. ELVSS participants contributed to this effort individually, as an introduction to the concepts and the practice of collaborative mobile video production. "Mobile In, Global Out" was the major project of ELVSS12, where students formed four global teams, to create four different mobile movies that addressed the topic of environmen-

tal sustainability. Each team consisted of nine members: 2 New Zealand members, 5 UK members, and 2 French members. Each team chose from a provided list of sustainability sub-topics to address and also from a list of story genres through which to shoot. The main collaboration tools used by the teams included: Google Docs, Google Plus Hangouts to facilitate a global team that bridged the timezones between the three countries. Google Docs has more specifically facilitated the heutagogical approach of this project via involving and empowering the students in updating and negotiating submissions deadlines as well as organising meetings and feedback dates and times with all the lecturers. In these synchronous and asynchronous meetings, students' co-wrote the movie script they would be making. The requirements for each team's movie were to be comprised of three sections: a NZ section, a UK section and a France section. Each team was to shoot and edit their own section that was then edited into one central story concept. Teams shared their mobile video footage – both within the team and between teams – using a shared 100GB Dropbox account. The final edited versions were posted to the ELVSS12 YouTube channel http://www.youtube.com/elvss2012. A summary of web 2.0 activity associated with the project was collated via a Google Reader Bundle, providing a simple summary of the activity of the ELVSS12 student COPs for the lecturers to track.

At the end of the project, the project mentors (the ELVSS12 lecturer COP), including the technology stewards and the lecturers associated with the project, viewed the final mobile film versions and gave reflective feedback on video to the students on their individual pieces. Unitec students edited their sections on their iPads so the NZ portions were fully mobile in their creation. The other participating students used their own personal mobile devices for the project. All of the students participated in the creation of a group Wordpress blog for their team movie project, and most of the students also kept a personal WordPress blog, journaling their ELVSS12 experience. These included personal video podcasts that reflected on the process and how their view of filmmaking was transformed by this experience. Examples of these are collated in the ELVSS12 YouTube channel. What was different about the ELVSS12 project in comparison to the previous three iterations of the Film and Television elective was that students from different disciplines and different countries participated in an authentic international collaborative project enabled by mobile and social media. The students also had more ownership of the assignment in deciding collegially about its content, its style, creating a shift along the pedagogy-andragogy-heutagogy (PAH) continuum. The final four videos can be found on the project blog: http://elvss2012.wordpress.com/projects/.

DISCUSSION

Table 1 provides a summary and comparison of the four iterations of the mlearning project within the Film and Television course. The four iterations of the integration of mlearning into the Film and Television course have evidenced a progression from an initial focus upon the affordances of mobile devices to the establishment of student-negotiated projects within international co-production teams. The culmination of these project iterations have led to the development of an international community of practice of mobile media lecturers and experts that was reified in the ELVSS12 project. Thus the discussion explores the ELVSS12 project in more detail than the earlier iterations.
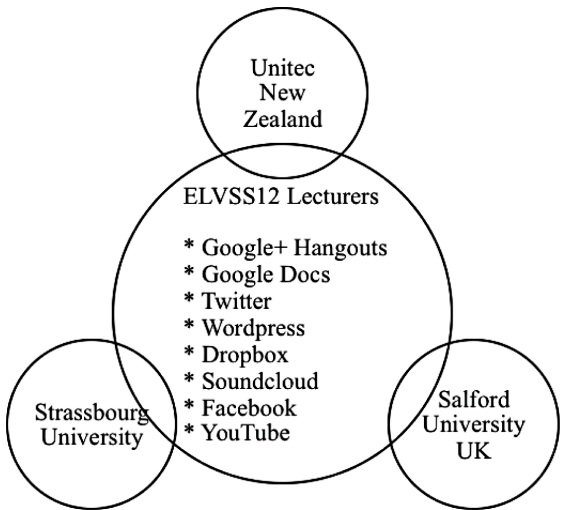
Figure 3 illustrates the interrelationship between the ELVSS12 lecturer community of practice and the three student cohorts in New Zealand, the UK, and France.

Figure 3 shows the key mobile web 2.0 tools used by the lecturers to facilitate international communication and collaboration at the intersecting boundary points of the four communities of practice involved in the project: the foundational lecturer COP that included three course lecturers and three mobile media experts, and the three course cohorts situated in each country. These tools included: Twitter, Google Docs

Table 1. Comparison of four project iterations

Year	2009	2010	2011	2012
Project Title	New and Emerging Technologies	Visual Media Technologies	ELVSS11	ELVSS12
Project Hub	Blackboard	Blackboard	Moodle	Wordpress
Participants	N=25 students N=3 lecturers	N=20 students N=3 lecturers	N=20 students N=3 lecturers	N=37 students N=6 lecturers
Mobile Devices	Nokia Xpressmusic 5800 and Dell Mini9 netbooks	Nokia N97 and student-owned laptops	iPhone 3G and iPad1	iPod Touch and iPad2, student-owned smartphone
PAH Alignment	Andragogy	Andragogy	Heutagogy	Heutagogy
Project Focus	Mobile Device affordances	Digital Identity	Co-production	International co-production
Web 2.0 Tools used for collaboration	Vox, Ning, Qik, Livestream	Typepad, Blogger or Wordpress, Ning, Qik, Livestream	Wordpress, Twitter, Qik, Skype	Wordpress, Dropbox, Twitter, Facebook, Google Plus
Outputs: YouTube channel http://www.youtube.com/user/	09unitec	UnitecPASA10	ELVSS11	ELVSS12

Figure 3. Brokering the ELVSS12 lecturer community of practice

(now Google Drive), Facebook, Soundcloud, Wordpress, Google Plus, and Dropbox. These tools were chosen because of their support for multiple devices and the fact that they each have an excellent free mobile application. The use of these tools reified the activity and flexibility

of the ELVSS12 lecturer COP, resulting in the production of boundary objects that were then used by the participants to broker the concept of an international co-production project to the three groups of students, and to anyone interested in following the progress of the project. This structure became a model for the four international student teams and enhanced students' engagement in general. While initially invisible to the students, the ELVSS12 lecturer COP that formed the foundation for the project was made explicit to the students by three rei-fied activities of the COP: firstly by lecturer commenting and participation in the student team projects via mobile social media (such as Twitter, and Facebook discussions), secondly by two scheduled group Google Plus Hangouts (http://tinyurl.com/8w52vy2), and finally by the invitation of student representatives from each team to participate in the last few ELVSS12 lec-turer G+ Hangouts (http://tinyurl.com/cjgqpye).

There is still much room for improvement in the next iteration of the ELVSS project. The greatest student outcome of the ELVSS12 proj-ect was their international co-production team experience. In comparison to the ELVSS11 videos, there was little evidence of engage-ment with the unique affordances of mobile devices in their movies. For example the ELVSS11 teams created movies that featured QR Codes, and experimental shots and produc-tion techniques that were unobtainable using larger conventional production film cameras. Mobile devices were certainly used extensively for international collaboration via Twitter and Google Plus Hangouts, Facebook chat and text messaging. However the effort required to establish and nurture these international teams meant that there was less time for creative effort to be put into the mobile film production itself. It took time to bring all of the student participants from legitimate peripheral participation within the project COP into full participation during 2012. This COP development timeframe needs to be designed for within the course structure. The four iterations of the Film and Television

elective (2009 to 2012) have all illustrated the need to design significant time within the proj-ects for students to appropriate the educational use of mobile social media for collaboration and communication. We have found that the main limitation with international collaborative projects between the northern and southern hemispheres is the complete inversion of the academic year between the two, making coor-dination of project timeframes very difficult. To mitigate this discontinuity, Google Docs were used by the lecturers to map out critical timeframes and events around the ELVSS12 project. This needs to be done at least six months in advance before the start of such a project to allow synchronisation of times within the col-laborating courses.

ELVSS12 Student Reflections

As part of the project students were asked to provide a reflective blog post at the end of the project. Representative student posts are included here:

I feel that the whole module was a good experi-ence in that it allowed communication and ideas to progress through the use of social media from one side of the world to the other. I feel that this process has many advantages and possibilities because it allows you to learn from people from other cultures and share your ideas to produce something that is unique. (Student1, 2012)

The main thing really to my experience is that doing this project with people from UK, France and New Zealand, there is that CONNECTION ... and RELATIONSHIP that has been estab-lished with everybody. A sort of bonding that is unique in a sense and that I believe is very important. (Student2, 2012)

Students were particularly appreciative of their international team experience during the ELVSS12 project, and the sense of par-ticipation within a community with a similar

vision spanning three countries. The fact that the student expressed some positive feelings about the advantages and possibilities of the process is supporting the focus and the use of heutagogy as a key methodological approach to reconceptualizing teaching and learning.

ELVSS12 Lecturer Reflections

Lecturers also provided reflective feedback on the project in the form of videos for the student teams to watch, and personal blog posts:

What's quite beautiful is the shift towards an emergent CoP model where learners are gradually taking on responsibilities and becoming coordinators...With ELVSS12, it's about the lived experience – it's the students who are experiencing this collaboration, alongside us as lecturers… I do believe that even if the films are maybe not so polished as they had hoped, they've actually taken away something much more valuable from this collaboration – the ability to collaborate, co-create, coordinate a major project with people that they have never met. (Lecturer blog post, 2012)

The sense of relationship created by the use of mobile web 2.0 tools throughout the project was one of the strongest themes running through both the student and lecturer reflections on the ELVSS12 project. The brokering of the lecturer COP to the student teams via the participation of student team representatives in the weekly Google Plus hangouts made the sense of partnership, relationship, and collaboration that the lecturers had built up explicit to the students. We need to note also the "frustration" experienced by the participants as they reacted to the change catalysts embed in the project. As Hase and Kenyon (2007) note, change requires a catalyst, "This usually involves distress such as confusion, dissonance, and fear or a more positive motive such as intense desire" (p112). This is a key component of creating a pedagogy-andragogy-heutagogy (PAH) shift: while flexible and reactive, this approach can

generate frustration and tension as students reconceptualize their role as active participants and self-directed learners.

Answering the Research Questions

In this section we briefly discuss the key implications of the ELVSS project for the research questions. These are discussed in greater detail by the researcher elsewhere (Cochrane, 2011, Cochrane, 2012, Cochrane & Keegan, 2012).

What are the key factors in integrating Wireless Mobile Devices (WMDs) within tertiary education courses? The ELVSS project illustrates that curriculum integration of mobile social media is best achieved by moving away from a focus on the devices themselves towards designing authentic tasks and projects that emphasise collaboration and student-generated contexts. The use of a COP framework around the projects supported the development of a collaborative curriculum design approach, and this also provided a model for students to employ in their own project teams.

What challenges/advantages to established pedagogies do these potentially disruptive technologies present? We leveraged mobile social media as a catalyst to change student conceptions of learning from a passive teacher-directed environment towards a student-directed experience. This reconception was initially met with a variety of responses from students at the beginning of each project, but by the end of the project student reflections revealed an appreciation of the journey of discovery that they had been on throughout the project.

To what extent can these WMDs be utilized to support learner interactivity, collaboration, communication, reflection and interest, and thus provide pedagogically rich learning environments that engage and motivate the learner? The key here is in the design of authentic collaborative projects for students to engage with. This has been a learning experience for the lecturers involved, both in collaborative

curriculum design, and in designing environments that allow students to drive the projects.

To what extent can WMDs be used to harness the potential of current and emerging social constructivist e-learning tools? By focusing upon a common suite of mobile social media tools we created the basis of a student-generated eportfolio that can be accessed and updated directly from the devices that our students own. International collaboration was enabled by a mix of synchronous and asynchronous social media within a social constructivist framework for the ELVSS project. Mobile social media is a rapidly changing environment and we had to adapt to new and emerging tools and devices throughout each iteration of the project. This keeps each iteration of the project fresh and unique, but requires developing a comfort zone around exploring new and emerging technologies and building a sense of relationship and trust among the project lecturers as we work with the unique expertise that each member brings to the COP.

In summary, the development of the ELVSS project from its beginings in 2009 through to its fourth iteration in 2012 illustrate a movement along a post web 2.0 continuum, as shown in Table 2.

Recommendations for the Future

Students were asked to post recommendations for future iterations of the ELVSS project on their blogs (see for example http://bit.ly/13yBAzY). Some of the key issues raised in this student feedback related to managing the difference in course start dates, assessment deadlines, and semester breaks between three different countries – this will always be difficult to manage, but not unsurmountable with appropriate pre-planning. Other issues identified by students related to the scaffolding of the heutagogical paradigm used within the project. Students need time to develop the teambuilding and collaboration skills required to make the co-production teams successful. These teams need to leverage the skills of the participants, identifying early within the project a team leader, and assigning production roles appropriately to team members. A set of common web 2.0 tools for collaboration needs to be agreed upon by all of the teams. Finally the projects need to focus upon student-owned devices for creating a sustainable approach within a variety of contexts where a common device platform is practically impossible. Providing students with an authentic international co-production team experience takes these students beyond their previous learning experiences that have largely been within teacher-directed or andragogical paradigms. However founding the projects within a supporting community of practice of expert international lecturers provides a framework to scaffold these paradigm shifts. We illustrate the key elements of this emergent framework in Table 3.

CONCLUSION

Education in a post-web 2.0 world requires changes in pedagogy. We argue that mobile social media provides a catalyst for a pedagogical shift along the PAH continuum from teacher-directed pedagogy to student-directed heutagogy (Luckin et al., 2010). This is demonstrated by the impact of the ELVSS project. The initial investigation of the impact of mobile

Table 2. Post web 2.0 continuum

Pre 2009	2009-2010	2011-2012
• Web 1.0 • Teacher Focused • LMS • Content delivery	• Web 2.0 • Student Focused • ePortfolio • Student-generated Content	• Mobile • Collaboration • Connectivism • Creativity • Student-generated Contexts

Table 3. A framework for supporting pedagogical shifts in higher education (Modified from Luckin et al., 2010)

	Pedagogy	Andragogy	Heutagogy
Activity Types	Content delivery Digital assessment Teacher delivered content Teacher defined projects	Teacher as guide Digital identity Student-generated content Student negotiated teams	Teacher as co-learner Digital presence Student-generated contexts Student negotiated projects
Locus of control	Teacher	Student	Student
Course timeframe & goal	Initial establishment of a course project and induction into a wider learning community	Early to mid-course: Student appropriation of mobile social media and initial active participation	Mid to end of course: Establishment of major project where students actively participate within an authentic community of practice
Cognition	Cognitive	Meta-cognitive	Epistemic
Creativity	Reproduction	Incrementation	Reinitiation
Knowledge production	Subject understanding: lecturers introduce and model the use of a range of mobile social media tools appropriate to the learning context	Process negotiation: students negotiate a choice of mobile social media tools to establish an eportfolio based upon user-generated content	Context shaping: students create project teams that investigate and critique user-generated content within the context of their discipline. These are then shared, curated, and peer-reviewed in an authentic COP
Ontological shift	Reconceptualising mobile social media: from a social to an educational domain	Reconceptualising the role of the teacher	Reconceptualising the role of the learner
Self perception	Learning about	Learning to become	Active participation within a professional community

devices on the Film and Television industry in 2009 led to the transformation of an elective course from a series of teacher-directed lectures to the nurturing of an international community of practice of expert lecturers who collaboratively design a curriculum that enables students to form international mobile co-production teams. This involves a certain amount of fluidity and risk-taking in collaborative curriculum design. The Film and Television elective projects have leveraged the affordances of mobile social media to enable student-generated content, and facilitate collaboration and communication across geographical and timezone boundaries. The 2012 iteration of the project created the foundation of an international lecturer COP that provides a model for future international collaborative projects. By integrating the use of mobile social media into the fabric of the project each COP results in the production of boundary objects that can be used to broker the concept and interaction between interested groups and has lead to a wider collaborative project in each iteration. As an unfunded project, the glue that has kept this developing international collaborative project alive is the shared interest of like-minded practitioners interested in pedagogical change. In Wenger's (1998) terms this constitutes the domain of the ELVSS COP. Thus the ELVSS project illustrates a pragmatic approach to the type of collaboration for heutagogical design proposed by Hase and Kenyon (2007), echoed

by Laurillard (2012) who argues that a twenty-first century education system needs teachers who work collaboratively to design effective and innovative teaching.

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