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CHAPTER 3

Using a smartphone to create digital teaching episodes as resources in adult education

Anthony Herrington

Abstract:
Creating digital narratives or stories is a pedagogical approach that has a great deal of potential for learning in higher education. This chapter outlines adult educators' use of a smartphone to create digital narratives to be used as a resource or teaching episode in their teaching and training. The task was part of an adult education postgraduate subject designed to assist adult educators integrate the use of technology in their teaching. The study involved observing and documenting students' use of the devices and follow up interviews to determine how they went about the task, and what they perceived as the strengths and benefits of the technology and the pedagogical approaches involved in such a task. All students successfully completed the task and highlighted the benefits of the technology for use in spontaneous contexts across time and space.

Introduction

While mobile technologies are not yet widely and routinely used in education, they have the potential to be used in a multitude of pedagogical and other contexts in higher education. For example, Patten, Sanchez and Tangney (2006) have identified several categories of use:

- Administration, e.g., the use of calendars, exam reminders, grading software;
- Referential, e.g., dictionaries, e-books and office applications;
- Interactive, e.g., quizzes, response software;
- Microworld, e.g., simulations, games;
- Data collection, e.g., data logging, note taking, audio recording, eportfolios
- Location aware, e.g., augmented environments, gps navigation and tagging; and
- Collaborative, e.g., pod/vodcasting, blogging, instant messaging.

The aims of this research were to evaluate the technological and pedagogical affordances of using a smartphone (combined mobile phone and personal digital assistant) as a data collection tool to create digital narratives or stories designed to be used by adult educators as curriculum resources in their teaching and training. In this study, video, pictures and audio were captured with a Palm Treo smartphone.

The New Media Consortium and Educause 2008 *Horizon* report uses the term 'grassroots video' to describe the new and emerging way that video is currently being created with mobile phones and used in education:

> Over the past few years, the ways we produce, use and even think about video have undergone a profound transformation. Literally millions of videos are just a click away for any internet-connected user. As the numbers and quality of user-produced clips have increased, our notions of what constitutes

> useful or engaging video have been redefined—and more and more, it is a two to three minute piece designed for viewing in a three inch browser window or on a mobile phone. That same phone is often the video capture device, with surprisingly high quality when viewed on a small screen. (p.10)

McGreen and Arnedillo Sanchez (2005) suggest the use of mobile phones to create digital narratives or stories where learners collaboratively plan a story, either fictional or non fictional, then create and edit the story using mobile phones and movie editing software, finally sharing the story through social networking sites such as YouTube. The major reasons for the use of mobile phones in this context have been the ubiquitous nature of the technology and the minimal cost of production and distribution (NMC & Educause, 2008).

Creating digital narratives is shown to be a successful authentic learning approach for K-12 schools (Kearney & Schuck, 2006) and typically involves students planning a story, acting it out, recording it using a digital camera or video and presenting it to an audience. This approach has been described by Patten, Arnedillo Sanchez and Tangney (2006) as one that 'embodies a collaborative, contextual, constructionist approach to learning with handheld devices' (p. 303). As such, the activity was chosen not only as a way of helping adult educators learn about mobile learning and how to integrate it into their teaching but also because it provided a social constructivist alternative to knowledge construction compared to the didactic approaches that are more commonplace in adult education even when new technologies are utilised (Alexander & Boud, 2001).

Context

The study involved students enrolled in an Adult Education postgraduate subject titled *Design and use of New Technologies in Adult Education/VET and Higher Education*. The subject consisted of four equally weighted modules each having an assignment. One of the modules, the context for this study, was concerned with mobile learning having an assignment that required students to create a teaching episode using a mobile phone. The teaching episode needed to reflect an 'authentic' activity (Herrington & Herrington, 2006) found in the students workplace or professional life. During the semester students completed three other assignments that involved the creation of a web site to present ways in which technology is used in adult education; an essay describing issues around the use of learning objects; and an analysis of online communities of practice relevant to the student's profession.

Research questions

The study was guided by the following research questions:

- How do adult educators use a smartphone in creating a teaching episode within an authentic learning environment?
- What are the affordances of a smartphone for creating a teaching episode? What was possible with a smartphone that would have been difficult or impossible without it?

- What pedagogical strategies were required to assist the students' use of the smartphones as data collection tools for their teaching episodes?

Methods

The research was carried out with a class of 14 students from a variety of backgrounds including school teachers, vocational educational trainers, nurse educators, educational designers and correctional services employees. Students could attend face to face classes as on campus students or enrol at a distance. An online subject website was available for all students to access and enabled links to electronic resources, group email and communication via threaded discussion boards. Students were required to engage in the module readings and complete the following assignment task for the mobile learning module:

Assignment task

Create a 2-3 minute teaching episode (digital narrative) following the procedure below:

- Choose an adult education skill you teach
- Write a storyboard demonstrating the skill
- Capture and create pictures and videos using the smartphone
- Download multimedia into movie editing software (e.g., iMovie)
- Record audio narration, and insert music and sound effects (e.g., using GarageBand).
- Upload and share video using social networking software (e.g., TeacherTube)

To assist in completion of the assignment, on campus students were given the option of attending a 90 minute workshop on using a smartphone to collect multimedia. Students were shown how to obtain audio, pictures and video; how to save media to an SD card; how to transfer the media to a computer via a USB card reader: how to download the media into iMovie editing software and how to create a short movie. Students were given a simple template and shown how to developing a storyboard to assist in planning for the task.

Students were asked to post their storyboard to the threaded discussion forum on the subject web site and to post peer feedback on two other students' storyboards. One student, for example, chose to create a teaching episode demonstrating the use of Audacity that is software for converting analogue to digital data. His storyboard is shown below:

> My project is an instructional video on how to convert analog audio (from a cassette tape) to a digital format (mp3) using the freeware computer recording program Audacity. Basically, this is what I plan to include:
>
> - An explanation of the differences between analog and digital audio;
> - A description of the hardware and software that I'll be using for the conversion (using still and video shots taken with the mobile phone);

- A description of the setup I'll be using (cassette player, soundcard, laptop, etc.), this will be done with short video clips (taken with the mobile phone) of me making the physical connections (player to soundcard, soundcard to laptop, and so on);
- A short description of the recording/conversion process (using screen captures of the software);
- Finally, a short description of what can be done with the finished product (send via e-mail, upload to an mp3 player, etc.), using short video clips and jpegs.

Other students presented their storyboards in a more visual manner as suggested by the template. All the students followed the request of posting feedback on their colleagues' storyboards. In the above case two responses suggested to the student that he keep it simple for those lacking expertise in technology and to show greater relevancy for the procedure:

> I find the idea of this video interesting. As a person who is not as computer literate as you I look forward to an explanation of this process (hopefully using language I can understand!)
>
> I like that you'll show how the end product can be used (not only in the workplace).

The assignment task was planned to cover three weeks of the semester, however, on campus students were each given a smartphone for a period of six weeks. This enabled them to spend three weeks getting familiar with the device and if they wished inserting their own sim card and using the device as their regular phone. Students studying at a distance used their own phones.

Following the completion of the subject, after grades had been finalised, all students were interviewed individually about the activity. Each interview lasted approximately 20 minutes, was digitally recorded and involved the following questions:

- Can you describe your use of the smartphone in your creation of a teaching episode?
- What were the advantages of using the device?
- What were the disadvantages or challenges of using the devices?
- What were the most difficult aspects of creating a teaching episode?
- What were the most positive aspects of the task?
- How would you use smartphones with your students/ colleagues?
- How useful were smartphones as a tool for teaching?
- What advice would you give to other adult educators wishing to conduct similar teaching episode activities?
- What principles of good use can you suggest that have emerged out of your use of smartphones during the course of the activity?

Each student's teaching episode was viewed and analysed along with postings to the website forum.

Findings

The results of the interviews and observations of the final products are considered and discussed below in relation to each of the research questions:

How do students use a smartphone in creating a teaching episode within an authentic learning environment?

Even though the majority of students found the task initially quite overwhelming, each student managed to successfully create a digital teaching episode in either iMovie or Moviemaker and were surprised at how easy the task became. One student commented that: 'Had I not done it I would have thought it much harder to do.'

Roles in the episodes involved themselves, colleagues, students and in some cases family members. A wide range of topic areas was developed reflecting the diversity of the group, these included risk analysis, medical procedures, using explosive tools, oriental massage, navigation, citizenship, customer service and so forth. The students' products incorporated audio, pictures and text, and were in general either demonstrations of a skill or developing skill awareness.

All students managed to successfully submit their finished product to a social networking site which included YouTube, TeacherTube and Blip TV. On reflection, students commented on their enjoyment of the learning process, the relative ease of the task and how rewarding it was to achieve such an outcome as expressed by one student: 'I never thought that by using a phone you could create something as good'.

The following link provides an example of one student's teaching episode: http://au.youtube.com/watch?v=kcQ3-Q73hjE. The video was created and uploaded to YouTube to motivate a group of adult migrant learners in a community college setting studying to pass the US citizenship test. This video shows some of the technical difficulties with the device, for example, the difficulty of filming in low light situations. Nevertheless, the video also shows the affordances of the device to record unscripted dialogue collected at different times and in different places. This supports some of the observations discussed below that indicate the benefits of using the smartphone to capture spontaneity in contexts across time and space.

What are the affordances of a smartphone for creating a teaching episode? What was possible with a smartphone that would have been difficult or impossible without it?

Students saw the portability and ease of use as the smartphone's main advantages as one student indicated she could 'easily pull it out, use it, get what I needed and transfer it to my computer.' other benefits included spontaneity of use; as one vocational education teacher commented 'I see somebody doing something that is so good and so current that I don't have the opportunity to go and get the camera so I have my phone in my hand and go on and record it'. The expansion card enabled adequate memory for the purpose and the picture quality for the purpose was also seen as sufficient which surprised one student who said that when 'I was shooting it (the image) it didn't look as

clear on the phone but when I transferred it to the computer it was very clear'.

The main disadvantages centred on the lack of video format compatibility between the smartphone and PCs; the incompatibility between the mobile image aspect ratio and that used with the video editing software; lack of resolution in low light situations; and audio recording difficulties in some cases where interviews occurred for example, capturing children's voices. One student noted 'Sometimes when you're filming and somebody's talking at a slightly different angle you don't pick up the audio as well'. Another disadvantage identified was that the smartphone video does not have a zoom capability.

Students expressed the view that taking video or photos with the smartphone could be done spontaneously without the planning that would be needed if one relied on a digital camera or video. And in some situations the smartphone was seen as less intrusive than using other devices.

What pedagogical strategies were required to assist the students' use of the smartphones as data collection tools for their teaching episodes?
Because the device was new to most students they reacted positively to being able to 'play around' with the device before having to concentrate on the assignment. In the words of one student 'Having the time to play with it, to see what it does made one more comfortable with it so that when it was time for the assignment it felt like an easier process'.

One student commented that the smartphone phone initially appeared cumbersome, but after having the time to use it, he found that the displays were easier to read and texting much easier that his current mobile phone saying that '[my] perception totally changed when I was actually using it to when I was given it to evaluate [initially]'. Planning the task, for example, using storyboarding, was seen as essential for successful completion of the task. Although minimal directions were given on how to collect the media and transfer it to movie editing software most students appeared comfortable in tackling the challenge even with limited scaffolding from the teacher and their peers. However, some students indicated the need for some advance warning of the problems they were likely to encounter.

Students indicated a number of pedagogical affordances such as using the smartphones to evaluate students' skills: 'Being able to film each other, or for me to film them, then evaluate it themselves will give them that perspective they don't normally have'; to assess students in a real situation for example on a building site; Other suggested engaging their students in similar digital narrative projects. Creating teaching episodes for professional development was seen as useful, albeit time consuming.

Students suggested some guiding principles which involved 'keeping it simple', getting only one message across in each scene, and getting used to the technology by finding out what you can and can't do with the smartphone. One student recommended that the learner needed to 'look around at what others are doing around the world and locally using video sharing sites for inspiration'. Planning was seen as critical

especially if there are limited chances for filming, planning the scenes considering lighting, audio and the form that the presentation will take. Students also suggested taking advantage of spontaneous situations and being aware of the need for participants' consent.

Being able to share concerns and issues with other students on the website forum was seen as important allowing for sharing of ideas and recognising that others had similar problems. As one student noted: 'To see that others had the same problem meant that I didn't have to persist down that path'.

Conclusion

The students saw the affordances of multimedia available on the smartphone as powerful enablers for the task. Most agreed that they would continue to develop similar tasks for professional purposes for students in their own classes. One student is now planning an activity for her neophyte nursing students that would involve them videoing nursing procedures for placement on a workplace intranet.

One major limitation involved incompatibility issues involving video files. Interactions on the course LMS forums demonstrated students' willingness to engage with the problem and their peers to solve these issues. The incompatibility of technology can cause problems particularly when video taken on the smartphone as 3gp is incompatible on some PCs. It was necessary for many students to access sites such as http://www.miksoft.net/mobile3GPconverter.htm to convert the video to compatible avi files.

On reflection, and as a result of similar workshops with adult educators, it may have been even more motivating for students to conduct an initial group activity where students create a fictional digital narrative or story, by first constructing a storyboard using prompts. This way the students quickly get to know how to take and save pictures and video, and to piece them together using movie editing software to create an outcome that can be displayed to others in the class. However, this option may be less effective for those studying at a distance.

One of the main affordances of the technology suggested by the students appeared to be its spontaneous use. Only a few of the teaching episodes seemed to acknowledge spontaneity, as for example, in 'street interviews'. Similarly, few of the episodes involved using the technology in circumstances where the learner was mobile. It may be that the nature of the task and the requirement for planning would seem to lessen the need for both these features of the technology.

Nevertheless, for adult educators who are overly familiar with teacher centred transmissive approaches to teaching and learning, this activity provided an introduction to the application and awareness of authentic learning enabled through mobile technologies, albeit in contexts where learner mobility was not emphasised. The affordances of mobility will be considered in future implementations, recognising the current view of mobile learning as the convergence of mobile technologies and the mobility of the learner (Sharples, Taylor & Vavoula, 2007).

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