

---

## E-Learning or a-Gimmick? Evaluating the use of rich media in Geography fieldwork

Dr James Newman<sup>1</sup> and Dr Richard Jones<sup>2</sup>

<sup>1</sup> Department of media communications and film studies, Bath Spa University

<sup>2</sup> Department of Geography, University of Exeter

### Abstract

This paper provides a report on our evaluation of the use of rich media in Geography fieldwork—a project funded by the GEES Subject Centre's small-scale project funding grant.

### About the project

This project set out to tackle a number of questions related to the use of mobile devices and rich media (a combination of text, audio, still images, animation, video) in the context of geography fieldwork.

- Which is the best mobile platform to deliver rich media to support student fieldwork learning?
- Distracting or enhancing? Does the use of rich media in fieldwork make students more or less sensitive to their physical surroundings?
- Digital media vs paper handouts? e-Learning or a-Gimmick?

In order to answer these questions, the project team created a bespoke audio-visual tour of Historic Bath to be tested on a variety of mobile digital media devices (MDMD). The evaluation was undertaken by volunteer undergraduate students whose comments and observations on the usability, suitability and effectiveness of the various systems form part of the evidential basis for our assessment of the merits of the platforms. The opinions of lecturing staff across the GEES community were also taken in the hope of gaining an insight into the negative / positive implications for the expanded use of MDMD in higher education. Finally, the project team offer their observations on the issues surrounding the creation of the audio-visual tour materials and their translation and conversion to each of the target platforms and devices. By presenting an authoritative evaluation of these popular and widely used MDMDs, this project seeks to build on Stott's (2007) work and contribute to the debate surrounding the use of (mobile) digital media devices in learning and teaching.

### Learning with – and despite – digital media

Recently some universities have realised that the popularity of portable digital media amongst undergraduates presents the University with a mechanism to enhance student engagement with their taught courses by tapping into the skills of the 'multi-media savvy' generation (e.g. Anderson and Blackwood 2004, Armatas *et al* 2005, Duncan-Howell and Lee 2007). There is more to this than fashion or populism. Regardless of their ability to irritate in certain situations, in others, these devices appear to offer genuine affordances by placing rich media in the hands of students in a form they are comfortable with and with which they may engage at their own pace and in their preferred times and locations.

Fieldwork is an obvious area where mobile media can help to improve the student experience. Depending on the specific affordances of the device, they offer the potential to provide students with detailed site information and even to facilitate students' recording of their fieldwork activities through notetaking applications. Perhaps most importantly, site information and learning support materials may be made available as rich multimedia that combines images, audio, and video and while the initial costs of deploying such devices might seem high (compared with paper-based solutions) the cost of adding multiple images and hours of video is comparatively small. As such, MDMDs seem highly suitable for the use in location-specific contexts. However, selecting a specific platform or device from the myriad available remains a significant challenge. As such, as well as assessing the current generation of iPods, our project is motivated by a desire to harness other popular and pervasive media devices such as mobile phones – precisely the kinds of devices owned and used by our students rather than the PDAs and smartphones typically wielded by our managers (HEFCE 2005).

## Project design

The project was split into three main sections

1. Selection of MDMD and production of material
2. Student – Staff evaluation of MDMD
3. Project Tutorials

### *1: Selection of MDMD and production of materials*

A number of projects and studies that have considered the use of m-learning ('mobile'-learning) have turned their attentions to the use of PDAs (see the Dewesbury examples -HEFCE 2005, Stott 2007). While it is true that PDAs typically offer considerable power and flexibility, a survey of Exeter Geography Undergraduates indicated that very few possessed these devices, preferring to spend their money on cheaper mp3/games consoles. Moreover, with power and flexibility comes complexity. For lecturers, teachers and tutors, the demands of creating even the simplest JAVA applications to run on the proprietary operating systems is a significant and possibly insurmountable barrier.

The three devices used in this study were chosen on the basis of their commercial success, the high incidence of personal ownership among University of Exeter and Bath Spa University students and the provision of a wide range of formats for distributing the audio-visual material. It should be noted that we are in no way claiming that any of these devices enjoy ubiquity and we are aware of the significant financial barriers to entry as well as the marked differences in IT literacy between and within generations of school-leavers (see Facer et al 2003 for instance on contemporary 'digital divides'). The devices evaluated in the field test were mobile phones (Samsung D900i, Sony Ericsson W800i), a games console (Sony PlayStation Portable -PSP), and media players (Apple iPod touch, Apple iPod – 5th generation).

A walking tour of the Bath's centre (podtour) was devised and a series of waypoints defined. For each point on the tour, a package of audio-visual materials was created (images and video, ambient audio, as well as a specially recorded voiceover). The audio-visual materials were assembled using freely available software included with all new Macintosh computers ('GarageBand' and 'iMovie 08'). As with our choice of target MDMDs, these software applications were selected because of their widespread availability and familiarity.

## 2. Staff and student evaluation

The project evaluates e/m-Learning resources alongside traditional paper-based solutions such as workbooks and handouts, polling student opinion and tutor appraisal of the learning process, and considers methods for integrating new media resources and 'traditional' learning and teaching materials. Providing a basis for a comparative analysis was considered to be vital so students were presented with the opportunity to use each of the devices under scrutiny along with the paper-based worksheet. Students were given a brief tutorial explaining the aims of the exercise, outlining the key questions for consideration, and running through the basic operation of the various MDMDs. With this completed, the students were left to undertake the tour using each device and the paper worksheets. While we were keen to allow students to input as fully as possible and direct the course of the subsequent discussions, we had a number of key areas we wished to address in the semi-structured interviews that followed the fieldwork exercise. These included:

1. Overall ease of use (hardware and software). We were specifically interested in the experience of locating and navigating materials.
2. Visibility of displays in a variety of conditions (this is a function of screen size, resolution, and brightness).
3. Audio quality (use of headphones versus built-in speakers).
4. Suitability for task (e.g. form factor, robustness, battery life).
5. Suitability as an input device (note-taking etc).
6. Distraction. Specifically, our interest here was whether the use of rich media and 'fashionable' modes of delivery made students more sensitive to their surroundings and the tasks at hand.

All but the last question above, centred on assessing which of the devices were most suitable. With the last question, we maintained our scepticism, by being careful to consider the general suitability of digital media devices in these fieldwork learning and teaching contexts.

### **Results and discussion**

Overall, each of the devices performed successfully and students reported satisfaction, identifying no critical problems with any platform. Full details of the functionality and usability of the devices (quality of the displays, audio, response times and system navigation as well as issues with developing media), along with the paper based materials, can be found in the full report at:  
<http://www.gees.ac.uk/projtheme/smallfund/2006/projs06.htm#evalrichmed>

### **General comments – Students**

It was evident that the students enjoyed the process of field testing new technologies and felt that the rich audiovisual materials had enhanced their learning experience, increasing their awareness of surroundings and the issues relating to a task. Broadly, there was consensus that participation and engagement were increased by the use of the audiovisual tour materials and that the temptation to 'skip through' passages of printed text was obviated. Interestingly, a number of students noted that the visual component of the virtual tour guide proved somewhat distracting as it commanded their undivided attention thereby drawing their focus away from their physical environment. As we discuss below, the use of visual elements requires careful consideration and in some cases may have a detrimental effect compared with audio-only materials.

In addition to these general comments, the students raised a number of specific issues and questions, including:

1. Who would provide the equipment? Although the MDMDs were provided in this field test, students expressed a number of concerns that centred on the potential misconception of widespread ownership of such devices; a general reluctance to use their own devices in fieldwork contexts (one student commented that this was tantamount to funding learning and teaching innovation); liability for the use of equipment both in terms of students using university equipment and any damages students might incur if required to use their own devices.
2. Is this just a way of reducing staff-student contact time? Although the experience of using the devices was broadly positive, there was some concern expressed that the driver for such innovation may be practical rather than pedagogical. As such, there is a clear need for a 'marketing campaign' to ensure that the pedagogical value of the approach is fully appreciated by the target audience.

### **General comments – Staff**

For staff, a number of issues arise. Beyond convincing oneself of the pedagogical merits of using MDMDs, the ability to embed their use in the learning and teaching fabric of the fieldwork exercise, not to mention the need to effectively communicate this to the student body, has a number of implications. First, although like Stott (2007) the devices we have selected here are comparatively inexpensive, once the costs are multiplied to accommodate a large group of students, the total outlay can be considerable. As we note above, students who own these devices

themselves can be reluctant to use their own personal property in fieldwork contexts where they might be subjected to extremes of weather.

A decision needs to be taken on the issue of upgrades. Without doubt, one of the attractions of the devices arises from their newness. The cachet that this brings potentially reflects favourably upon the department. However, the ground is constantly shifting and new media do not remain new for long. It is essential to strike a balance between upgrading for the sake of functionality and for the associated benefits of fashionability and cultural currency. Moreover, while there may be implied value in the use of MDMD in geography fieldwork, it is important to consider the converse. In situations where MDMD are not deployed – perhaps for entirely pedagogically sound reasons – student perception may be unfairly tainted in believing such activities lack the forward-thinking innovation of their 'teched-up' counterparts.

Perhaps the greatest challenge for staff, however, remains the production of the materials, particularly in relation to SENDA (disabilities issues) and also the maintenance of the devices. Based on the concerns of some of the GEES community practitioners we interviewed throughout the project, we have created a number of tutorials that document the production processes for both Mac and Windows operating systems. However, even these tutorials require some basic IT proficiency as well as data management skills (to organise the images, audio, and video materials). Maintenance issues also present a challenge to departmental budgets. If departments are to supply MDMDs for students, it is paramount that they be kept in good working order, the integrity of the files is maintained, and that software updates and patches are applied. This is in addition to more pragmatic matters such as ensuring that batteries are fully charged and headphones are supplied.

### **3. Project Tutorials**

Based on feedback from staff and students, a series of tutorials have been produced to guide practitioners through the simple process of producing rich media resources for MDMDs. These tutorials can be found at:  
<http://www.gees.ac.uk/projtheme/smallfund/2006/projs06.htm#evalrichmed>

### **Conclusion**

Students reported higher level of satisfaction and engagement with all of the digital devices and rated them more useful and enjoyable than the traditional paper-based worksheets that acted as

our control. The delivery of rich media and the translation of printed text into spoken voiceover was welcomed by all the students who found that these media added richness and nuance to their understanding of the tour.

More negatively, several students reported that they felt somewhat conspicuous when using the MDMDs in public due to the high monetary value of the devices and the fact that they were University property. The cost of the equipment was also highlighted in our staff interviews by those concerned about high levels of expenditure, especially when deploying the devices for large groups. Additionally, we echo the comments of a number of our respondents who drew attention to the importance of maintaining and updating the hardware and software for the devices and the associated costs that this brings to bear. The varying levels of IT competency and the demand for training and support for staff was also a common discussion point.

One area in which paper-based materials scored more highly, however, was in their facilitation of notetaking. While mobile phones and the iPod touch may allow this as we comment above, this means dropping out of the media player and into a separate Notes application. With paper, notes may be easily jotted in the margins and annotations added to images, for example. For the GEES community, this may be of particular concern as the maintenance of field notebooks and research diaries may be considered a critical element in the learning, teaching and assessment processes.

It is clear from our study that there are benefits to incorporating rich media into contemporary fieldwork practice and although there is an element of fashionability surrounding mobile phones, PSPs and iPods they are far from being a-Gimmick.

## References

- Armatas, C., Holt, D., & Rice, M.** (2005). 'Balancing the possibilities for mobile technologies in higher education'. Paper presented at the 22nd ascilite Conference, Brisbane, 4-7 December.
- Anderson P and Blackwood A** (2004). 'Mobile and PDA technologies and their future use in education'. *JISC Technology and Standards Watch*: 04-03.
- Duncan-Howell, J. & Lee, K.T.** (2007). 'M-learning: Finding a place for mobile technologies within tertiary educational settings. In *ICT: Providing choices for learners and learning*'. *Proceedings ascilite Singapore*. <http://www.ascilite.org.au/conferences/singapore07/procs/duncan-howell.pdf>
- Evans, C.,** (2008). 'The effectiveness of m-learning in the form of podcast revision lectures in higher education'. *Computers & Education*, 50 (2), 491-498.
- Facer, K., et al** (2003). *Screenplay. Children and computing in the home*. London and New York: RoutledgeFalmer.
- France, D. and Wheeler, A.,** (2007). 'Reflections on using podcasting for student feedback'. *Planet*, No. 8, 9 – 11.
- HEFCE** (2005). 'Innovative Practice with e-Learning: Case Studies Empowering learners'. <<http://www.elearning.ac.uk/innoprac/practitioner/resources/dewsbury.pdf>
- Maskall, J., et al,** (2007). *Supporting fieldwork using information technology*. *Planet* vol 8, 18 – 21
- McMorrow, J.,** (2006). 'Using a web-based resource to prepare students for fieldwork: evaluating the Dark Peak Virtual Tour'. *Journal of Geography in Higher Education*. 29 (2): 223-240.
- Poland, R et al.,** (2003). 'The Virtual Field Station (VFS): using a virtual reality environment for ecological fieldwork in A-Level biological studies—Case Study 3'. *British Journal of Educational Technology*, Volume 34 (2), 215-23.
- Stott, T.,** (2007). 'Evaluation of low-cost Personal Digital Assistants (PDA) for field data collection and fieldwork leadership by students and staff'. *Planet* No. 8, 12 -17.
- Winterbottom, S.,** (2007). 'Virtual lecturing: Delivering lectures using screencasting and podcasting technology'. *Planet* No. 8, 6 – 8.