Position Paper for Andy Stone (Kingston University) for the Workshop on Ubiquitous and Mobile Computing for Educational Communities: Enriching and Enlarging Community Spaces

Andy Stone is a founder member of the Mobile Information and Network Technologies Research Centre (MINT), and the Learning Technology Research Group (LTRG), in the School of Computing and Information Systems, Kingston University, UK. He has over 8 years' experience in educational technology research and development experience, in addition to collaborative projects in a number of sectors. He has a first degree in Economics from Salford University and a Masters degree in Computing from Manchester Metropolitan University.

Whilst based at the Institute of Educational Technology (UK Open University) he worked on European Commission projects under the SOCRATES/MINERVA strand (SVM ('Student Virtual Mobility') and TEN-TELECOM strand (SENECA 'Study of a Euro-ISDN network common architecture for a distance learning'). Andy was an active participant in the invite-only European Workshop on Usability and User Requirements (Crete, 1997 – EC TAP Programme INUSE/RESPECT projects, which were used to develop ISO 9241-11: Guidance on Usability).

Oxford University engaged Andy as metadata co-ordinator for the JISC/Elib funded CEDARS project, which explored the boundaries and research issues relating to the preservation of digital objects and resources in the libraries sector. This project was one of the first in the world to explore such issues; with this remit, Andy contributed to a number of international workshops and advisory groups. These included collaborations with NASA (Consultative Committee for Space Data Systems), NARA (US National Archives and Records Authority, and the National Library of Australia.

Since arriving at Kingston University, Andy has published widely in the field of m-learning: i.e. using mobile devices to support teaching and learning, and engaged in a number of collaborations in this and using e-learning materials for teaching and learning online. His other research interests include: rights issues relating to digital objects, using distance education to improve capacity building in developing nations, user-centred design aspects of usability engineering and information architecture, the effective use of learning objects, and how aspects of knowledge management can be effectively used in the education sector.

Andy's teaching experience and interests include: Mobile Applications, Services & Technologies; e-Commerce; Business Systems Environments; and Professional Skills. He was invited to take over and successfully redesign the curriculum for a Business Systems and Environments module at a FE college. Recent industry collaborations have included Manx Telecom and The Other Media (London).

His interest in using mobile devices in a ubiquitous computing context can be seen as far back as 1996: when working on a UK research project funded by BT universities to support SMEs, the candidate technologies being considered were internet and fax. However, at the time, neither of these were totally suitable in the context of an SME workplace environment. SMEs relied on fax for higher priority work (and so could not tie up its use in delivering other

content – in any case, we felt this to be a sub-optimal platform for delivery of our materials). Also, at the time of this work (1995-6), SMEs could not justify the expenditure in getting an internet-capable PC and connection if they did not already have one – and many did not.

However, Andy identified that even at that time, a significant majority of SMEs had a mobile phone, and used it as one of their core communication tools. From a paper presented at the WebNet'96 conference:

> Other interfaces include fax-on-demand, but will not be implemented in the prototype stage due to cost constraints. Similarly, PILOT is being designed so that interactive telephony (through landlines and digital cellular networks, including the exploitation of Short Message Service technology on the latter) can be used as a conduit.
>
> (Stone, 1996)

Andy maintained his interest in the use of mobile technologies to complement other ICTs in the effective delivery of timely, relevant material in teaching and learning support (amongst other applications). His other project work in educational technology, usability, knowledge management, and digital preservation has allowed him to develop a number of complementary perspectives and considerations for the deployment of mobile and ubiquitous computing. In particular, the then-emerging Learning Object standards and developments surrounding XML to separate structure and content from presentation, and interest in the emerging HDML and related mark-up languages, in addition to HTML, TTML, etc. which were in use at the time.

Upon arriving at Kingston University, Andy has been bringing these threads together, publishing widely in m-learning literature from the perspectives of:

- presenting a case for m-learning to educators who are not educational technologists – many of whom were, indeed, initially quite hostile to the concept of using mobile phones in the classroom and library (Stone et al, Sheffield, March 2002)
- using grounded theory as a user-centred means of evaluation of students' perceptions of, as well as their experiences with, use of mobile devices to support work in groups and alone (Stone, Alsop & Tompsett, April 2003, November 2002)
- socio-legal aspects of the use of mobile devices (e.g. Stone, June 2002)
- integrating the notion of flexible delivery of learning objects to multiple platforms (i.e. 2G, 3G, B3G/4G as well as more conventional modes of delivery such as web, print, audio, etc) from a reuse of educational objects point of view (e.g. Stone & Livingstone, May 2003)
- undertaking user-centred qualitative research into establishing which of the applications identified were felt to be most in demand by students, and developing a strategy to optimise take-up and usage of the services
- testing the extent of complexity which can be achieved using SMS (e.g. Stone & Briggs, August 2002)
- use of mobile devices to support community networks in developing countries (e.g. Lynch, Poole & Stone, Dec 2003)

Selected publications:

A case for using mobile internet and telephony to support community networks in Tanzania. Kenny Lynch, Nigel Poole, Andy Stone. ICOOL 2003 - International Conference on Online and Open Learning, Dec 2003 (under consideration)

Designing Scalable, Effective M-Learning for Multiple Technologies. Andy Stone, David Livingstone. Proceedings of Mlearn 2003 Conference, May 2003 (forthcoming)

Towards Implementing m-learning Support for First Year Students at Kingston University. Andy Stone, Jonathan Briggs, Tom Smith. Learning Technology, April 2003. IEEE Learning Technology Task Force, ISSN 1438-0625. http://lttf.ieee.org/learn_tech/issues/april2003/index.html#2

Grounded Theory as a Means of User-Centred Design and Evaluation of Mobile Learning Systems. Andy Stone, Graham Alsop, Chris Tompsett. Presented at "The Social Science of Mobile Learning" workshop, Budapest, Hungary, November 2002. Published as a chapter in "Philosophy, Psychology, Education", Passagen Verlag, Vienna, April 2003

SMS and Interactivity – Some Results from the Field, and its Implications on Effective Uses of Mobile Technologies in Education. Andy Stone, Jonathan Briggs. Proceedings of IEEE International Workshop on Wireless and Mobile Technologies in Education, Vaxjo, Sweden, August 2002. ISBN 0-7695-1706-4

M-Learning and E-Learning: a Review of Work Undertaken by the Learning Technology Research Group, Kingston University, UK. Andy Stone, Graham Alsop, Jonathan Briggs, Chris Tompsett. Mlearn 2002: Proceedings of the European Workshop on Mobile and Contextual Learning, University of Birmingham, June 2002. ISSN 1463-9408

Mobile Telephony and Learning: Nuisance or Potential Enhancement? Andy Stone. Proceedings of 2002 IEEE International Symposium on Technology and Society: Social Implications of Information and Communication Technology, Raleigh, North Carolina, USA, June 2002, pp262-266. ISBN 0-7803-7284-0

M-learning as a means of supporting learners: tomorrow's technologies are already here, how can we most effectively use them in the e-learning age? Andy Stone, Graham Alsop, Jonathan Briggs, Chris Tompsett. Proceedings of Networked Learning 2002 Conference, Sheffield, March 2002. ISBN 0-9028-3141-0. http://www.shef.ac.uk/nlc2002/proceedings/papers/38.htm

Project PILOT - The Application of Telematics in Co-Operative Education. Andy Stone. Proceedings of WebNet 96, AACE, November, San Francisco, CA, USA, 1996. http://ad.informatik.uni-freiburg.de/bibliothek/proceedings/webnet96/Html/536.htm

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