



JOURNAL OF THE  
RESEARCH CENTER FOR EDUCATIONAL TECHNOLOGY

KENT STATE  
UNIVERSITY

[www.rcetj.org](http://www.rcetj.org)

ISSN 1948-075X

Volume 7, Number 1  
Spring 2011

Edited by:

Mark van 't Hooft, Ph.D.  
Editor

A. Quinn Denzer  
Managing Editor

Special Section  
Learning Without Frontiers 2011: Mobile Research Strand





**Editor**

Mark van 't Hooft, Ph.D.

**Managing Editor**

A. Quinn Denzer

**Advisory Board**

Joseph Bowman, Ph.D.  
State University at Albany

Cheryl Lemke  
Metiri Group

Rosemary Du Mont  
Kent State University

Robert Muffoletto, Ph.D.  
Appalachian State University

Ricki Goldman, Ph.D.  
NYU

Elliot Soloway, Ph.D.  
University of Michigan

Aliya Holmes  
St. John's University

**Review Board**

Kadee Anstadt, Perrysburg City Schools  
Savilla Banister, Bowling Green State University  
William Bauer, Case Western Reserve University  
Nicola Bedall-Hill, City University, London  
Lisa Bircher, Kent State University  
Ellen Brook, Cuyahoga Community College  
Helen Crompton, UNC Chapel Hill  
Albert Ingram, Kent State University  
John Jewell, College of Wooster  
Jan Kelly, Mogadore Local Schools  
Cindy Kovalik, Kent State University  
Annette Kratcoski, Kent State University  
Mary Lang, Coleman Foundation  
Mary MacKay, Wake County Public School System

Theresa Minick, Kent State University  
Norbert Pachler, IOE, University of London  
Barba Patton, University of Houston-Victoria  
Lyn Pemberton, University of Brighton  
Scott Perkins, Abilene Christian University  
Jason Schenker, Kent State University  
Elizabeth Shevock, Kent State University  
Karen Swan, University of Illinois, Springfield  
Leonard Trujillo, East Carolina University  
Mark van 't Hooft, Kent State University  
Maggie Veres, Wright State University  
Lin Xiang, University of California, Davis  
Yin Zhang, Kent State University

The *Journal for the Research Center for Educational Technology* is published twice a year by RCET (<http://www.rcet.org>). It provides a multimedia forum for the advancement of scholarly work on the effects of technology on teaching and learning. This online journal (<http://www.rcetj.org>) seeks to provide unique avenues for the dissemination of knowledge within the field of educational technology consistent with new and emergent pedagogical possibilities. In particular, journal articles are encouraged to include video and sound files as reference or evidence, links to data, illustrative animations, photographs, etc. The journal publishes the original, refereed work of researchers and practitioners twice a year in multimedia electronic format. It is distributed free of charge over the World Wide Web under the Creative Commons License ([Attribution-Noncommercial-No Derivative Works 3.0 United States](http://creativecommons.org/licenses/by-nc-nd/3.0/)) to promote dialogue, research, and grounded practice.





Volume 7, Number 1  
Spring 2011

<b>Introduction to the Issue</b> <i>Mark van 't Hooft</i>	1
<b>Considerations in Choosing Online Collaboration Systems: Functions, Uses, and Effects</b> <i>Robyn Parker and Albert Ingram</i>	2
<b>Analyzing HEAT of Lesson Plans in Pre-Service and Advanced Teacher Education</b> <i>Margaret Maxwell, Rebecca Stobaugh, and Janet Tassell</i>	16
<b>Use and Efficiency of Various Technological Methods in the Different Aspects of Teaching and Learning a Foreign Language at 16 Universities in New York</b> <i>Corey Brouse, Charles Basch, and Tracy Chow</i>	30
<b>The Effects of Podcasting on College Student Achievement and Attitude</b> <i>Jeff Francom, Tom Ryan, and Mumbi Kariuki</i>	39
<b>Mathematics in the Age of Technology: There Is a Place for Technology in the Mathematics Classroom</b> <i>Helen Crompton</i>	54
 <b><u>Special Section on Learning Without Frontiers 2011: Mobile Research Strand</u></b>	
<b>Social Mobile Devices as Tools for Qualitative Research in Education: iPhones and iPads in Ethnography, Interviewing, and Design-Based Research</b> <i>Nicola Bedall-Hill, Abdul Jabbar, Saleh Al Shehri</i>	67

<b>Exploring the Effectiveness of Mobile Phones to Support English Language Learning for Migrant Groups</b> <i>Laura Pearson</i>	90
<b>Distance Learning in the Cloud: Using 3G Enabled Mobile Computing to Support Rural Medical Education</b> <i>Ryan Palmer and Lisa Dodson</i>	106
<b>Mobile Augmented Reality for Learning: A Case Study</b> <i>Marcus Specht, Stefaan Ternier, and Wolfgang Greller</i>	117

## **Exploring the Effectiveness of Mobile Phones to Support English Language Learning for Migrant Groups**

**Laura Pearson**

Anspear Ltd., United Kingdom

### **Abstract**

This paper presents a ten-week project that sought to explore the potential of mobile phone-based English language learning within a predominantly Bangladeshi community in the City of London. The project was funded and supported by the Government's Delivery Innovation Team and the City of London Corporation, delivered by Anspear Ltd., and independently evaluated by Bone Wells Urbecon Ltd. An interactive English language learning application was provided on Nokia mobile phones to two groups of learners: a group of women who were already enrolled in a formal language class and who used the phone application as a supplementary tool; and a group of women who were not undertaking any formal classes. The project sought to explore the extent to which the use of the mobile phone resources increased participants' confidence in their English language skills, and whether this contributed to both digital and social inclusion of the participants. The project findings were positive, with increased confidence levels for both groups, and extensive use of the mobile phone resources within families. The findings suggest that the use of mobile phones for learning could contribute to learner confidence in the use of ICT, and in access to employment, education, and public services. A large proportion of participants who had not undertaken any formal language tuition subsequently enrolled in formal English classes. A short video about the project is available at <http://www.youtube.com/watch?v=-BarZlbovJg>

### **Keywords**

Language; ESL; Mobile Phones; Migrants

### **Project Context**

The City of London has one of the highest concentrations of economic activity in the world. However, the Indices of Deprivation compiled by the Department for Communities and Local Government (DCLG) suggest its fringes include some of England's most deprived communities (DCLG, 2007). The ward of Portsoken has higher levels of deprivation compared to other areas of the city, particularly for health, income, employment, and living environment. Portsoken has also been identified as an area with a high level of digital exclusion, where broadband coverage is low compared to other English communities (Everybody Online, 2009).

A high percentage of Portsoken residents belong to ethnic minority – specifically Bangladeshi – communities. According to a resident survey conducted as part of the Everybody Online initiative, 34% of Portsoken residents did not have English as their first language. Whilst there is a range of local support and tuition to promote English language learning amongst local families, some individuals have been reluctant to participate in formal language courses and, as a result, have not been able to improve their language skills (Everybody Online, 2009).

Portoken has a younger than average population, and falls in the top 30% of communities in England for high levels of employment deprivation (DCLG, 2007). Research has shown that a lack of confidence in use of the English language is a major barrier to participation in employment for Bangladeshi communities, particularly among women (Tackey et al., 2006). The City of London's Delivery Innovation Team therefore identified a local need for new ways to support English language learning, in order to improve employment prospects and opportunities for residents to participate more fully in their community.

*Inclusion through Innovation: Tackling Social Exclusion through New Technologies* (ODPM, 2005) notes that a high proportion of many excluded groups own mobile phones, and that mobile technology provides enormous opportunities to improve contact, communication, and engagement with socially excluded communities. The project therefore sought to use mobile technology to support the learning of English language within this community.

### **Mobile-Assisted Language Learning**

Mobile technologies are increasingly promoted to offer opportunities for 'pedagogical innovation' (Conole, de Laat, Dillon, & Darby, 2008), assisting individuals to learn, access resources, and to capture, store and manage everyday events any time and anywhere (Luchini, Quintana, & Soloway, 2004; Sharples, Corlett, & Westmancott, 2002). This potential is reflected in the rhetoric associated with e- and m-learning policy directives internationally (Conole, 2007), and a plethora of projects and studies have seized the opportunity to explore mobile devices' potential as supplementary or alternative learning platforms. With fewer constraints on time and location, mobile learning environments have been identified as offering much educational potential for authentic, context-aware, inquiry-based learning in locations beyond the classroom (Cobcroft, Towers, Smith, & Bruns, 2008; Liu 2007; Peng, Chou, & Chang 2008), and the connectivity of devices has been seen to present real opportunities for enhancing collaborative learning (Lan, Sung, & Chang, 2007, 2009; Zurita & Nussbaum 2004).

The educational potential has been explored in a number of contexts to support language learning (Collins, 2005; Kukulska-Hulme & Shield, 2008). The most frequent uses of mobile technology employ text messaging for vocabulary learning (Andrews, 2003; Levy & Kennedy, 2005; McNicol, 2005; Norbrook & Scott, 2003), and quizzes and surveys (Levy & Kennedy, 2005; McNicol, 2005; Norbrook & Scott, 2003). Mobile-based email has been used to promote vocabulary learning in Japan (Thornton & Houser, 2005). Students have also been encouraged to use mobile phones to access web-based video clips explaining English idioms. Stockwell (2007) links the use of mobile phones for vocabulary learning to an 'intelligent tutor system'. Learners complete vocabulary activities either via their mobile phone or on a desktop computer. The intelligent tutor system creates a profile of each learner and then delivers activities according to the areas they find most difficult.

Whilst these interventions are solely text-based, multimedia approaches to mobile phone-based language learning are also occasionally reported (JISC, 2005): City College, Southampton set up a web-based "media board" (similar to a web-board but supporting MMS and SMS) and supplied learners of English as a Second Language (ESL) with mobile phones with built-in cameras and voice recording facilities. Learners were required to obtain specific information, either oral or visual, from their immediate locality and send it to the media-board, where it could be accessed by tutors and other learners. Here, learners took part in activities that could only be carried out because of the portability of the devices, because they had to visit certain locations in order to obtain the information they needed (Kukulska-Hulme & Shield, 2008). However, whilst educators and researchers have begun to evaluate their effectiveness and reflect on the challenges presented by the new medium for traditional models of learning (Selwyn, 2003), the extent to which mobile technology can result in substantive changes to educational practice remains unclear (Sharples, Taylor, & Vavoula, 2007). This project sought to build on and contribute to the existing literature on mobile-assisted language learning in the context of a Bangladeshi community within the City of London.

## **Project Aims**

The project aimed to develop a multi-media, interactive mobile phone application which provided English language learning resources tailored to the needs of the learners, and to conduct a comparison of the relative impacts of these resources on two learner groups:

- 15 learners already enrolled in weekly English language classes, and using the phone application as a supplementary learning tool; and
- 29 learners not enrolled in any formal tuition, and using the phone application as a primary learning tool.

Specific aims of the project were as follows:

Pedagogical aims were to

- develop and deliver English language learning resources appropriate for the language needs of the learners and relevant to their daily lives;
- analyze the ways in which the resources were used over the course of the project and to gain learner feedback on the suitability and utility of the materials; and
- compare and assess the potential of mobile phones as a medium for learning English within the two learner contexts and to make recommendations for improvements to the pedagogy and delivery of future projects.

Social aims included gaining an understanding of the extent to which

- the use of the mobile phone application increased learners' confidence in their ICT skills;
- learners would be more likely to take part in community activities and employment as a result of their participation in the project;
- learners would be more likely to enroll in formal language classes as a result of their participation in the project.

## **Project Implementation**

The project ran for ten weeks, between January and April 2010. Learners were provided with their own Nokia mobile phone for use at any time over the course of the project. Learners had access to a wide range of interactive language lessons based on the English for Speakers of Other Languages (ESOL) Skills for Life syllabus, materials that covered basic language features including the alphabet and numbers, and additional features such as a picture dictionary. The phone application interface for these features is shown in Figure 1. The resources were developed by Anspear Ltd. to support learner needs identified by the City of London's Adult Skills and Community Learning team. In particular, these needs included spelling and vocabulary practice at ESOL Skills for Life Entry Levels 1 and 2. The mobile phone application could accommodate up to five individual users per handset to enable learners to share the phones with their families and friends.

Logging software was included in the mobile phone application to track participants' use of the resources throughout the project. Questionnaires, designed and distributed by independent evaluators Bone Wells Urbecon Ltd., were conducted at the outset, mid-point, and close of the project to provide an insight into the broader social outcomes of the intervention.



Figure 1: The Resources: Home Screen

## Project Findings

The project findings described below are based upon a sample of 10 randomly selected learner logs and questionnaire responses from each of the two learner groups. The sample size was therefore 20.

### *Learners' Use of the Resources*

Figures 2a and 2b shows both the times of day at which the learners used the phone application and the length of each 'session' or period of time for which the resources were used. In total, the group enrolled in formal classes recorded 385 sessions and the group undertaking no formal tuition recorded 197 sessions. A problem with the logging software meant that the phones did not record some of the sessions' end times. These sessions, therefore, cannot be represented as data points on the graphs. However, based on the information that was recorded, and the questionnaire responses from the learners in Figures 3a and 3b, it is clear that the group enrolled in formal classes used the application more frequently. This suggests that using the mobile phone resources as a supplement to formal tuition had a positive effect on the frequency with which the phone application was used for learning.

In both groups, the learners accessed the resources throughout the day and night, and sessions were of an average length of approximately 10 minutes. This provides evidence to support the assertion that mobile learning applications can be used at times convenient for the learner (Green, Facer, Rudd, Dillon, & Humphreys, 2005), and for short periods of time.

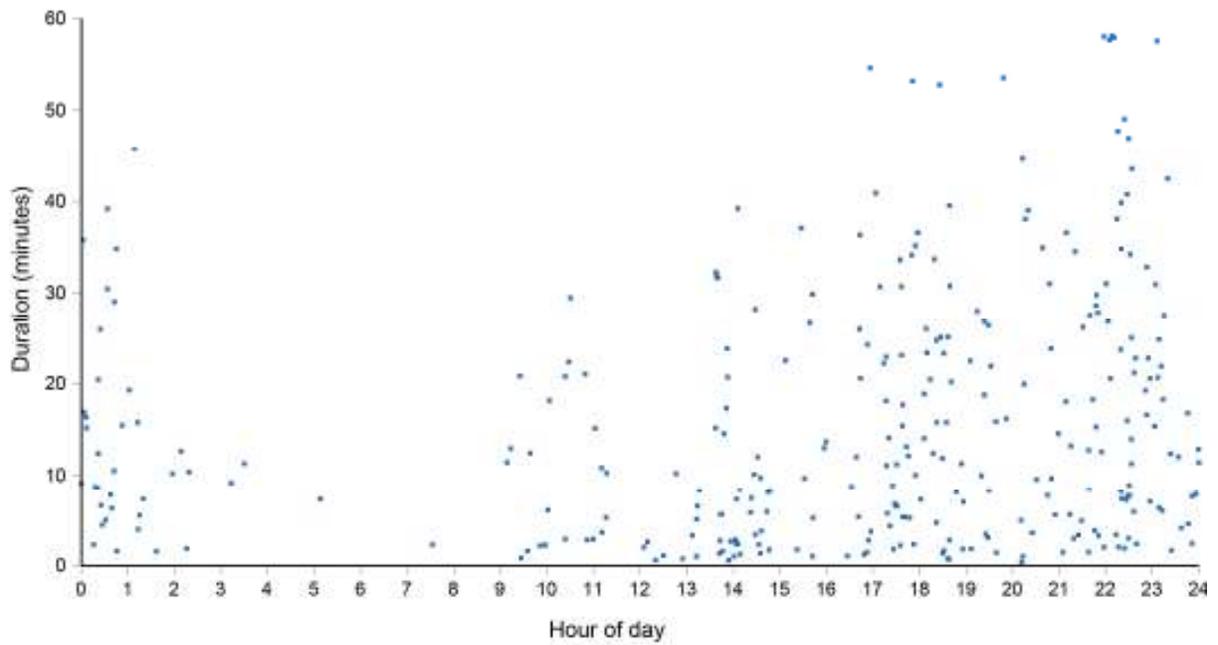


Figure 2a: Times and Duration of Application Use: Formal Tuition

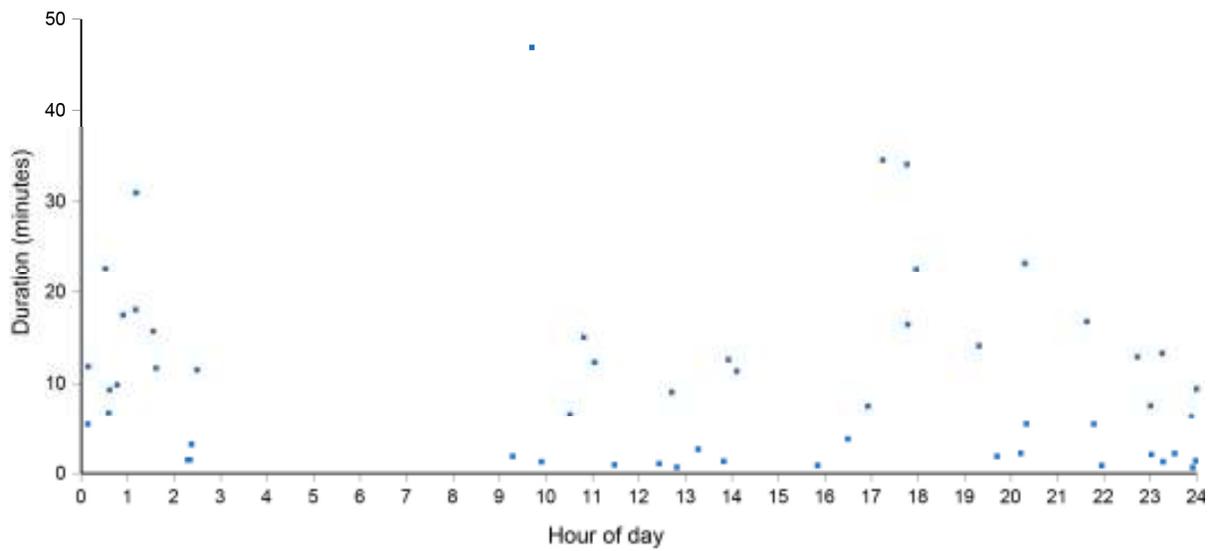


Figure 2b: Times and Duration of Application Use: No Formal Tuition

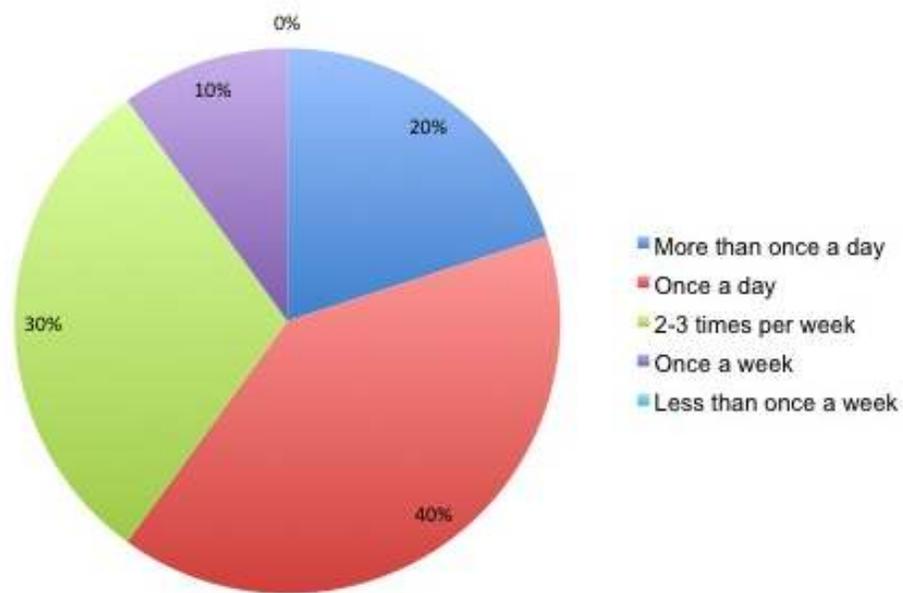


Figure 3a: Frequency of Use: Formal Tuition

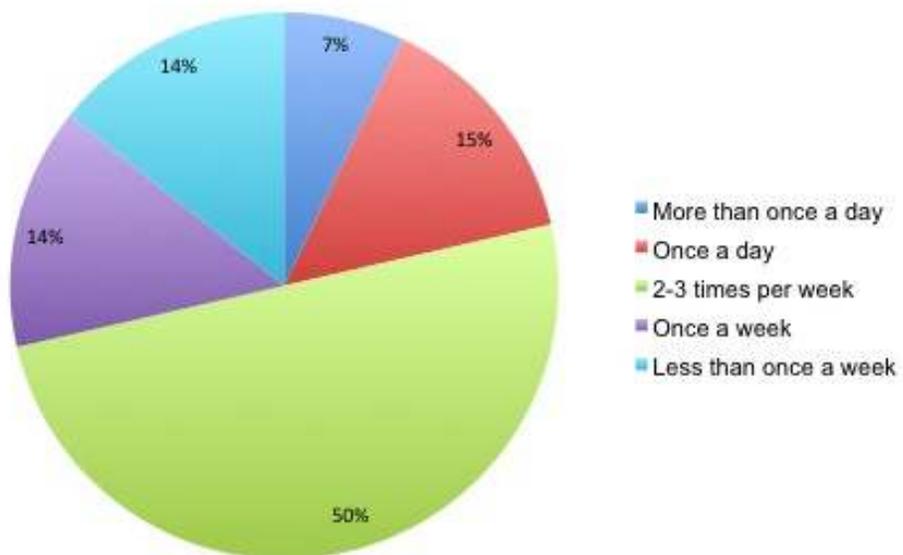
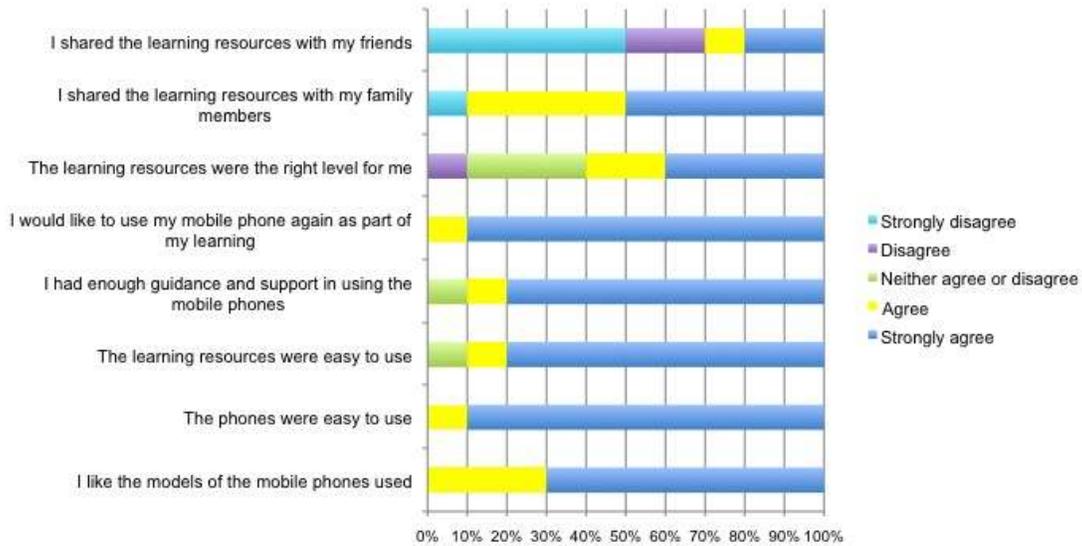


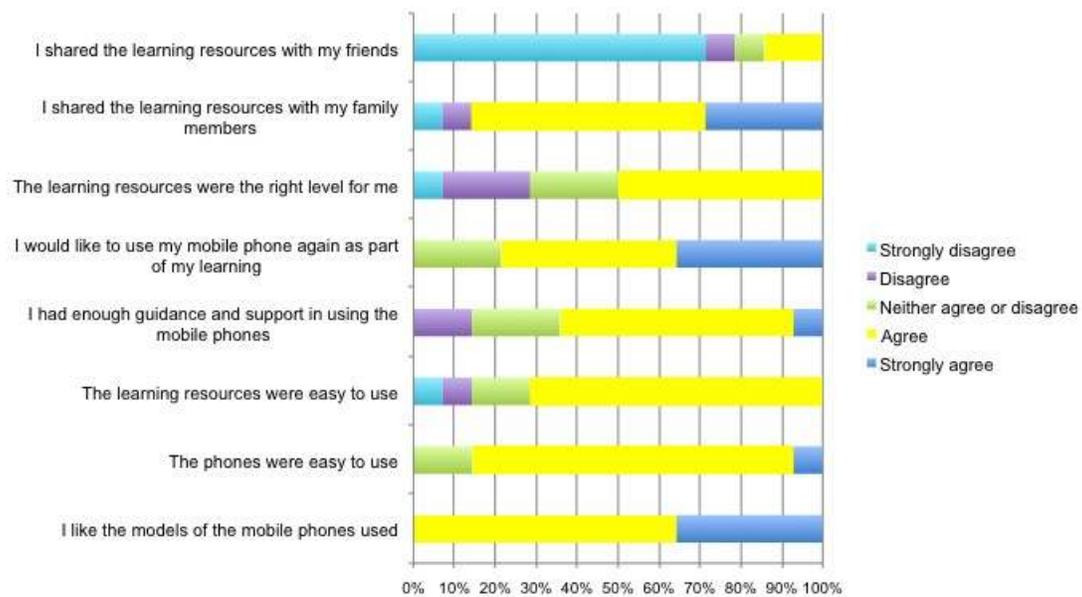
Figure 3b: Frequency of Use: No Formal Tuition

*Learner Feedback on the Resources*

Figures 4a and 4b show that, in general, learners found the application easy to use. None of the learners were opposed to using the mobile phone application as a medium for learning again, although the group undertaking formal tuition was more enthusiastic. Both groups made significant use of the phones with their family members, suggesting the potential of the phones as a tool for family (or shared) learning. This family use was not anticipated. The highly personal nature of mobile devices can therefore encourage exploratory uses, and it is hard to predict how users will make use of their tool. As noted by Keinonen (2003, p. 2), “new solutions are utilised in ways that never even occurred to their designers”.



*Figure 4a: Learner Feedback on Using Phones and Resources: Formal Tuition*



*Figure 4b: Learner Feedback on Using the Phones and Resources: No Formal Tuition*

### Learner Confidence in English

The learners were also asked how confident they felt when using English to read, write, and converse at the beginning and end of the project, in order to identify changes in confidence levels.

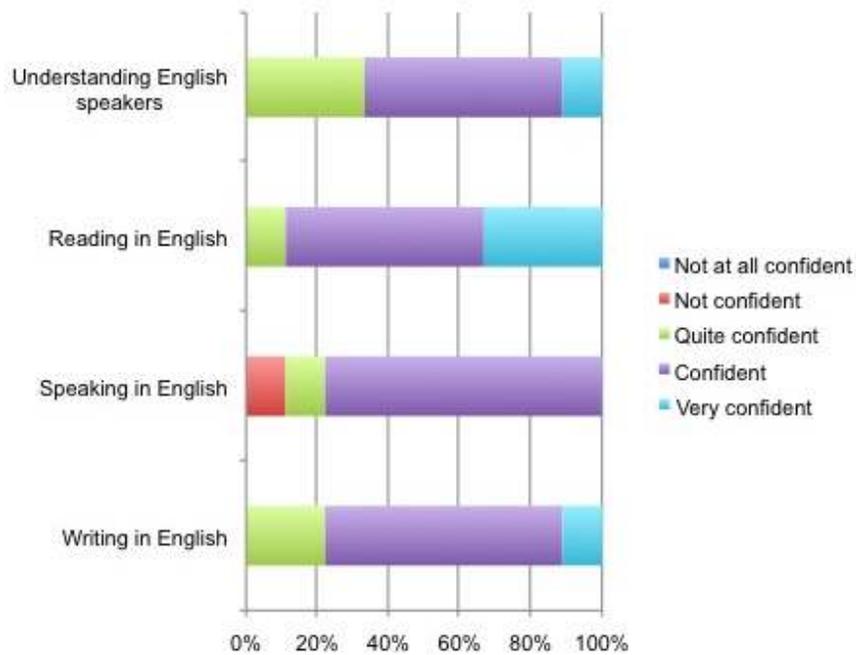


Figure 5a: Confidence in English Language Skills (Formal Tuition): Project Outset

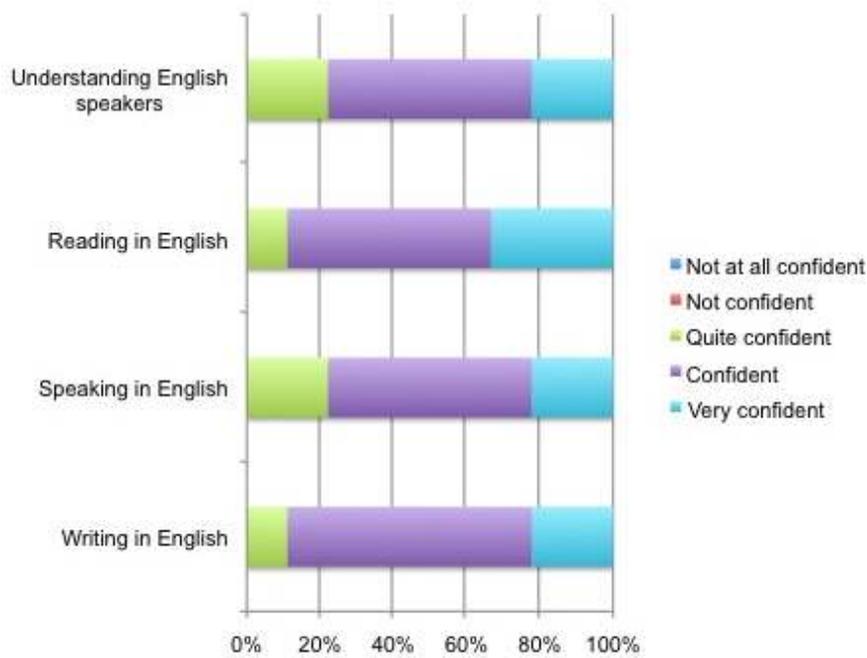


Figure 5b: Confidence in English Language Skills (Formal Tuition): Project End

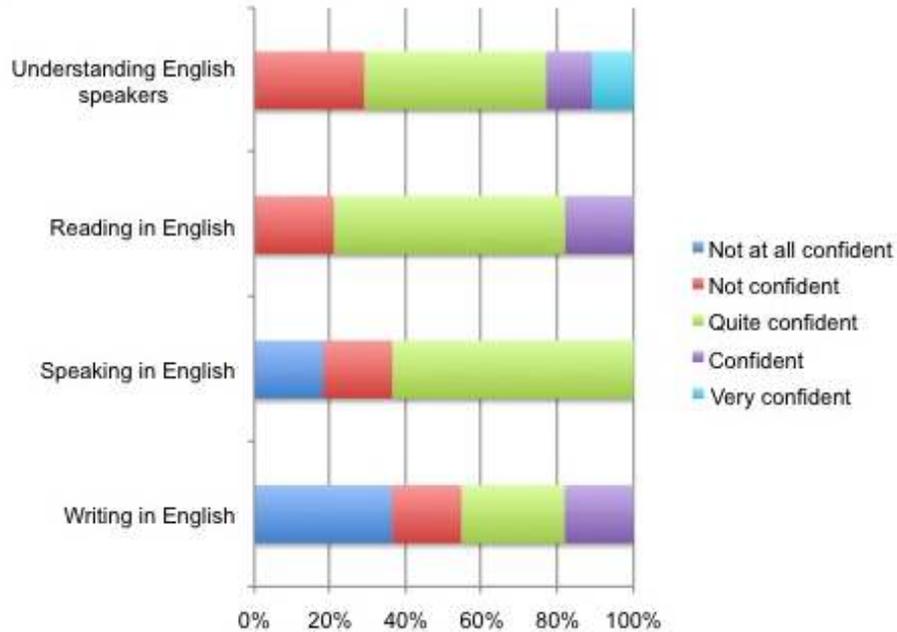


Figure 5c: Confidence in English Language Skills (No Formal Tuition): Project Outset

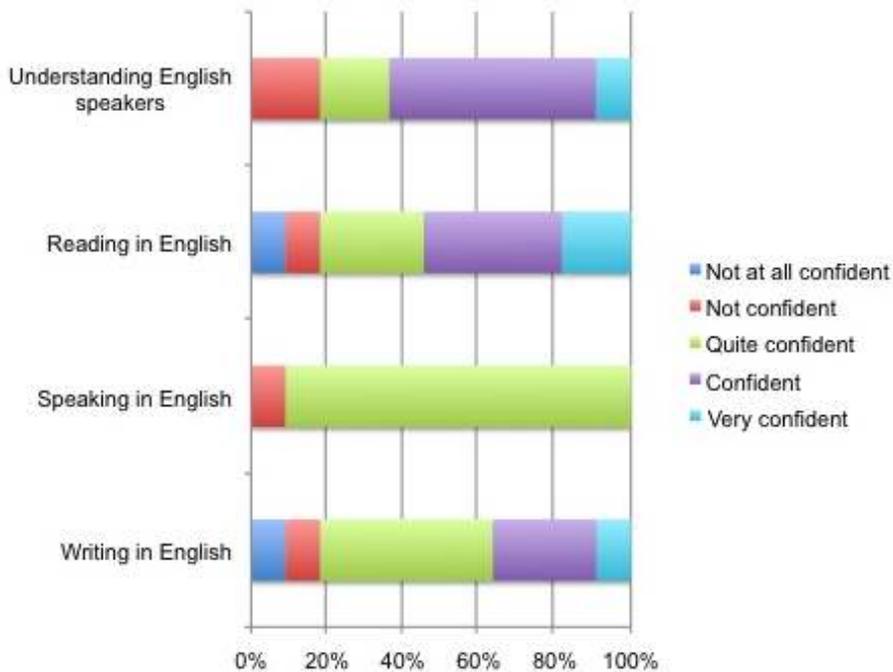


Figure 5d: Confidence in English Language Skills (No Formal Tuition): Project End

Figures 5a to 5d suggest that the mobile phone resources increased the learners' confidence in their English language skills, with a more notable increase for learners undertaking no formal tuition (Figures 5c and 5d). For example, the percentage of these learners who were 'confident' or 'very confident' at writing in English increased from 18.2% to 36.4%. Whilst increased confidence levels for the group undertaking formal tuition can be attributed to *both* attending classes and using the mobile phone

resources, the clear progress for the group undertaking no formal tuition may be more directly attributable to having English learning resources available on their mobile phones.

*Learner Confidence in the Use of ICT*

Figures 6a to 6d suggest that the project increased learner confidence in the use of mobile phones for making calls, taking photographs, sending messages, and as a learning tool. There is also a slight increase in their confidence with using computers, although this may have been attributed to additional ICT classes undertaken by some of the participants over the course of the project.

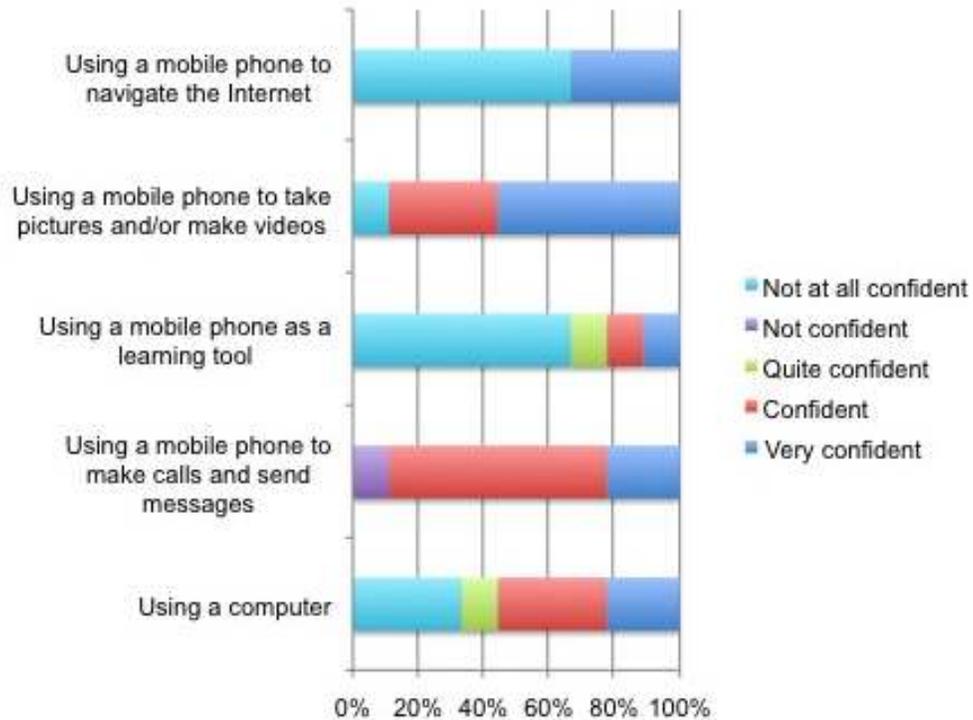


Figure 6a: Confidence in ICT Skills (Formal Tuition): Project Outset

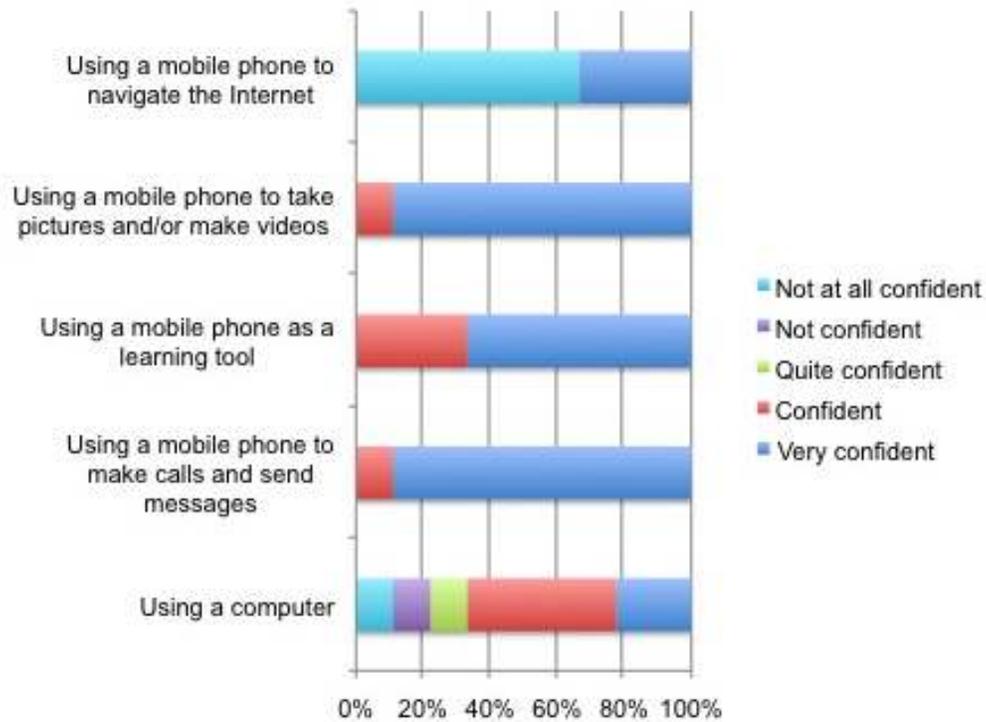


Figure 6b: Confidence in ICT Skills (Formal Tuition): Project End

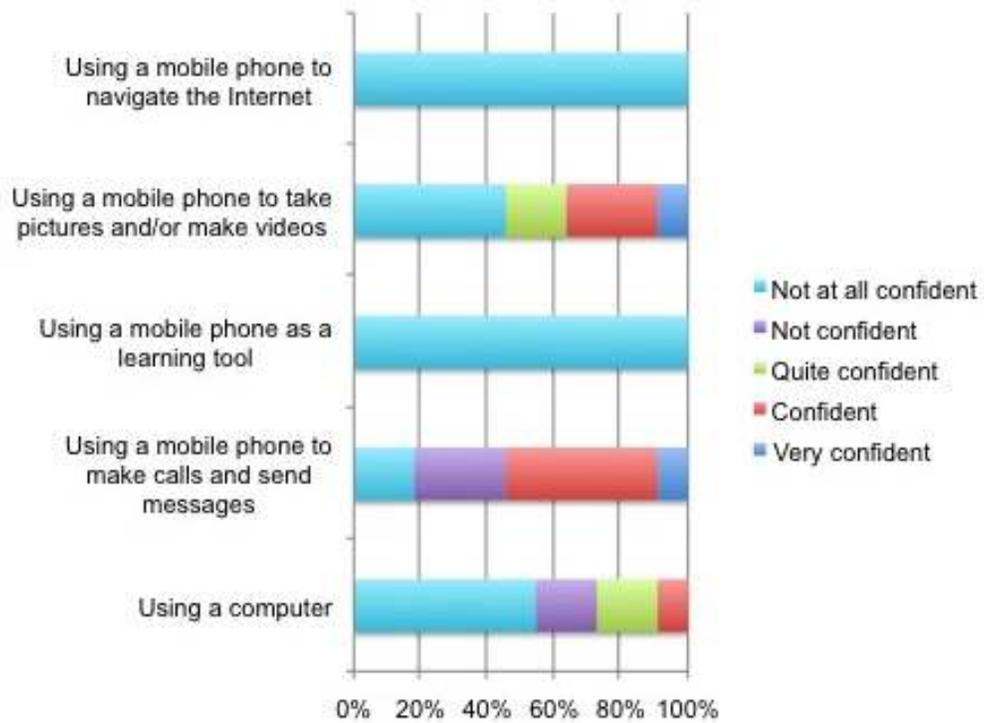


Figure 6c: Confidence in ICT Skills (No Formal Tuition): Project Outset

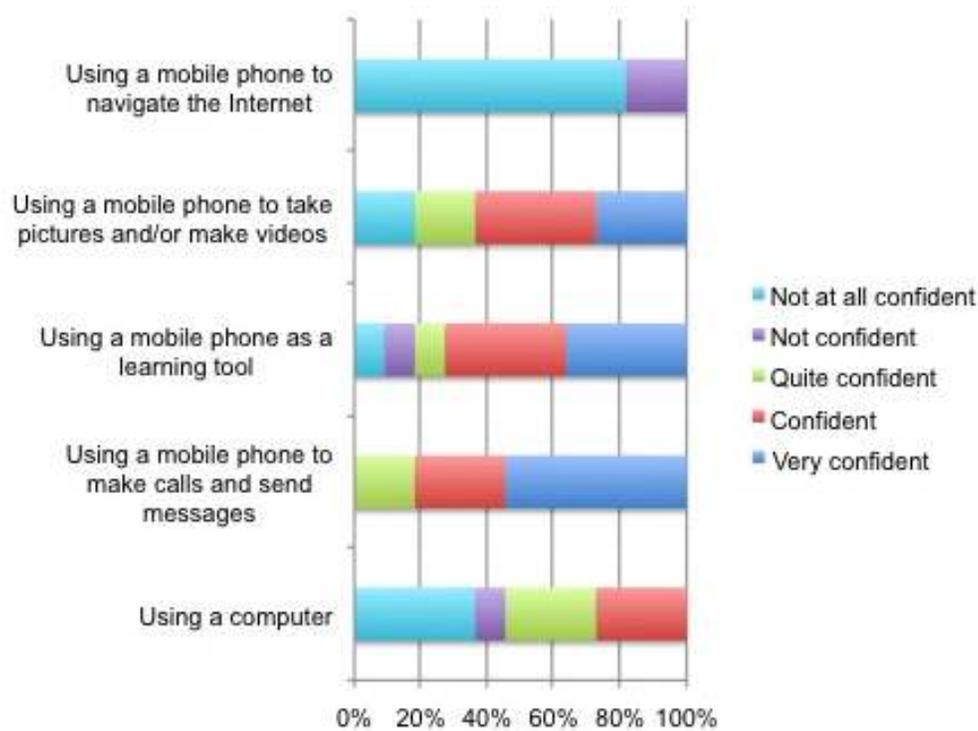


Figure 6d: Confidence in ICT Skills (No Formal Tuition): Project End

### Social Outcomes

As illustrated in Figure 7, questionnaire data suggest that all learners enrolled in formal tuition felt more confident in their English language skills as a result of their participation in the project; 80% of this group also felt more confident about applying for a job and accessing public services. The data in Figure 7 also suggest that the impact of the project was less positive for the group undertaking no formal tuition, with 50% feeling more confident in their skills, and 24% more confident about applying for a job. These results suggest that some guidance and support in a classroom context may result in more positive social outcomes. However, it should be noted that 35.7% of the group undertaking no formal tuition stated that they were more likely to undertake further education or training as a result of their participation in the project. Indeed, by October 2010, 25% of this group had subsequently enrolled in formal English language classes. This represents a significant shift for a group of learners who had previously been reluctant to engage in formal classes.

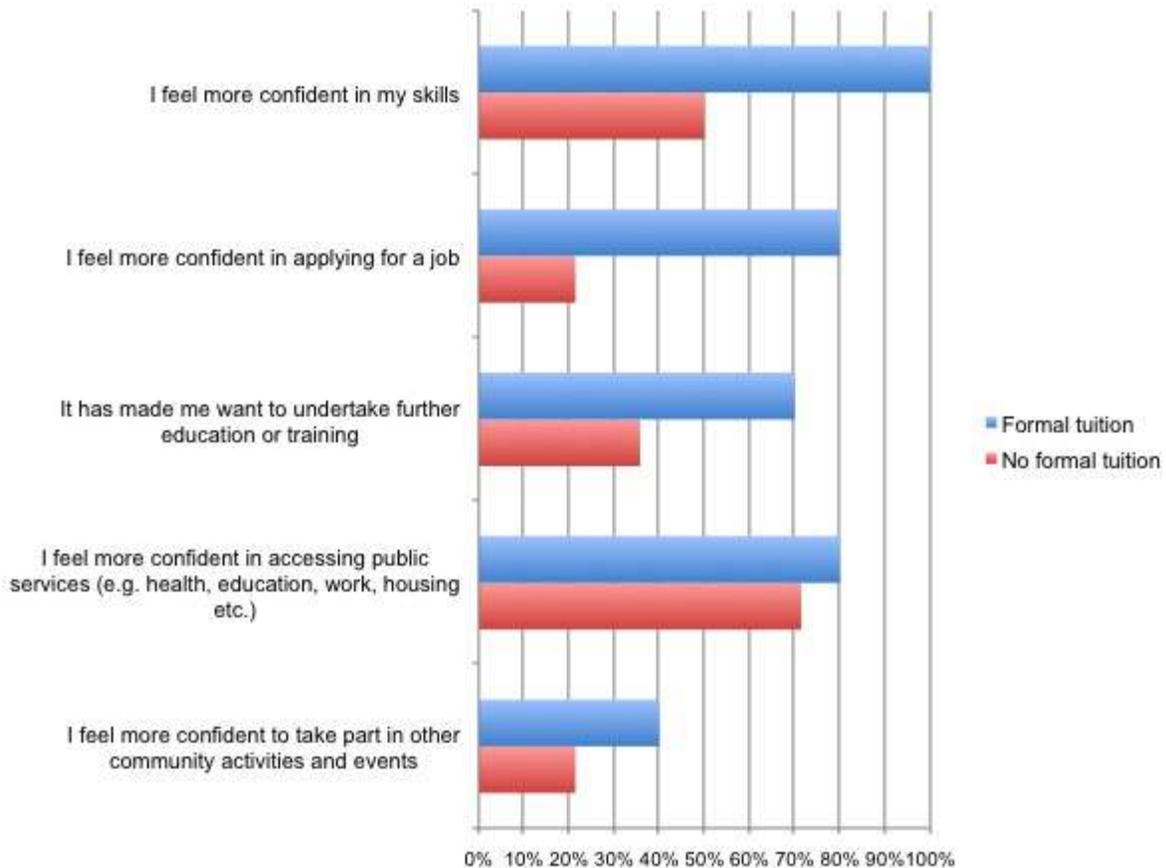


Figure 7: Learner Reflections on Broader Social Indicators (Questionnaire Data)

## Conclusions

Conclusions from the project may be summarized as follows:

### *Pedagogical Conclusions*

- Formal tuition had a positive effect on the learners' engagement with and use of learning resources on the phones.
- The mobile phones were used throughout the day and night, suggesting that mobile learning applications provide learners with the flexibility to learn at convenient times.
- Both groups of learners made significant use of the mobile phone resources with their family members, suggesting that mobile learning applications have potential for use as a learning tool within the family unit.

### *Social conclusions*

- There is evidence to suggest that the learners' levels of confidence in their English language skills increased as a result of their participation in the project.
- The project findings suggest that the use of mobile phones for learning may contribute to learner confidence in their use of ICT in a more general sense.

- In both groups, learners felt that, by improving their English, they felt more confident about accessing public services and applying for a job, although this was felt more strongly by the group enrolled in formal language tuition. This marks an important outcome for the project in terms of social and economic inclusion.
- Both groups stated they were more likely to undertake further education or training as a result of their participation in the project and, although this was felt more strongly by the group enrolled in formal tuition, 25% of the group undertaking no formal tuition have subsequently enrolled in formal English language classes. This suggests that there is potential for mobile language learning applications to act as a bridge into formal education settings for groups that have traditionally been more reluctant to undertake tuition.

### **Limitations and Recommendations for Future Work**

It is important to take the conclusions of this project in the context of the circumstances under which it was conducted. The sample sizes for both learner groups were relatively small, and the collection of data from both phone logs and questionnaires was necessarily restricted to a random sample from those learners who were present on evaluation day. These limitations reflect some of the challenges of conducting research in real-world educational contexts. It is also appreciated that questionnaire data provide learner opinions or statements of intent rather than longer-term, tangible outcomes.

However, the findings do suggest that the use of mobile technology has potential for delivering appropriate educational material – specifically English language learning resources – to socially isolated minority communities. The project indicates that there would be value in further exploring the use of mobile technology as a means of improving confidence in access to public services, employment and education within isolated and disadvantaged groups.

Further consideration might be given to the most appropriate content to be used as a) a supplement to formal language tuition, where learners may require particular materials for examination preparation or to support an existing curriculum, and b) a standalone set of resources, where learning takes place in the absence of any formal learning environment.

### **Acknowledgements**

The author wishes to thank the following entities for their support of the mobile phone project reported on in this article: Delivery Innovation Team, City of London Corporation, Bone Wells Urbecon, the Sir John Cass's Foundation Primary School, and the Mansell Street Estate Women's Group.

### **References**

Andrews, R. (2003, February 25). Lrn Welsh by txt msg. *BBC News World Edition*. Retrieved from [http://news.bbc.co.uk/2/hi/uk\\_news/wales/2798701.stm](http://news.bbc.co.uk/2/hi/uk_news/wales/2798701.stm)

Cobcroft, R., Towers, S., Smith, J., & Bruns, A. (2006, September). *Mobile learning in review: Opportunities and challenges for learners, teachers, institutions*. Paper presented at the Online Learning and Teaching Conference, Brisbane, Australia.

Collins, T. (2005). English class on the air: Mobile language learning with cell phones. *Proceedings of the Fifth IEEE International Conference on Advanced Learning Technologies (ICALT '05)*, pp. 402-403. doi: <http://doi.ieeecomputersociety.org/10.1109/ICALT.2005.137>

- Conole, G. (2007). An international comparison of the relationship between policy and practice in e-learning. In R. Andrews & C. Haythornthwaite (Eds.), *Handbook of e-learning research* (pp. 286–310). London, United Kingdom: Sage.
- Conole G., de Laat, M., Dillon, T., & Darby, J. (2008). 'Disruptive technologies', 'pedagogical innovation': What's new? Findings from an in-depth study of students' use and perception of technology. *Computers & Education* 50, 511-524.
- DCLG. (2007). *The English indices of deprivation 2007: Summary*. London, United Kingdom: Author. Retrieved from <http://www.communities.gov.uk/publications/communities/indicesdeprivation07>
- Everybody Online Initiative. (2009, February). *City of London wave 2 survey results*. Presentation at the Delivery Innovation Team, London, UK.
- Green, H., Facer, K., & Rudd, T., Dillon, P., & Humphreys, P. (2005), *Personalisation and Digital Technologies*, Bristol, United Kingdom: Futurelab. Retrieved from [http://www2.futurelab.org.uk/resources/documents/opening\\_education/Personalisation\\_report.pdf](http://www2.futurelab.org.uk/resources/documents/opening_education/Personalisation_report.pdf)
- JISC (2005) Multimedia learning with mobile phones. Innovative practices with elearning. Case Studies: Anytime, any place learning. Retrieved from [http://www.jisc.ac.uk/uploaded\\_documents/southampton.pdf](http://www.jisc.ac.uk/uploaded_documents/southampton.pdf)
- Keinonen, T. (2003). Introduction: Mobile distinctions. In C. Lindholm, T. Keinonen, & H. Kiljander (Eds.), *Mobile usability: How Nokia changed the face of the mobile phone* (pp. 1-8). New York: McGraw-Hill.
- Kukulska-Hulme, A., & Shield, L. (2008), An overview of mobile assisted language learning: Can mobile devices support collaborative practice in speaking and listening? *ReCALL*, 20(3), 271–289. Retrieved from <http://oro.open.ac.uk/11617/1/S0958344008000335a.pdf>
- Lan, Y-J., Sung, Y.-T., & Chang, K-E. (2007). A mobile-device supported peer-assisted learning system for collaborative early EFL reading. *Language Learning & Technology*, 11(3), 130-151.
- Lan, Y-J., Sung, Y.-T., & Chang, K-E. (2009). Let us read together: Development and evaluation of a computer-assisted reciprocal early English reading system. *Computers & Education*, 53 1188-1198.
- Levy, M., & Kennedy, C. (2005). Learning Italian via mobile SMS. In A. Kukulska- Hulme & J. Traxler (Eds.), *Mobile learning: A handbook for educators and trainers* (pp. 76-83). London, United Kingdom: Taylor & Francis.
- Liu, T. C. (2007). Teaching in a wireless environment: A case study. *Educational Technology and Society*, 10(1), 107–123.
- Luchini, K., Quintana, C., & Soloway, E. (2004). Design guidelines for learner centred handtools. *Computer Human Interaction (CHI)*, 6(1), 135-141.
- McNicol, T. (2005, April 5). Language e-learning on the move. *Japan Media Review*. Retrieved from <http://ojr.org/japan/wireless/1080854640.php>
- Norbrook, H., & Scott, P. (2003). Motivation in mobile modern foreign language learning. In: J. Attewell, G. Da Bormida, M. Sharples, & C. Savill-Smith (Eds.), *MLEARN 2003: Learning with mobile devices* (pp. 50-51). London, United Kingdom: Learning and Skills Development Agency. Retrieved from <https://crm.lsnlearning.org.uk/user/order.aspx?code=031421>

ODPM (2005, November). *Inclusion through innovation: Tackling social exclusion through new technologies*. London, United Kingdom: Author.

Peng, H., Chou, C., & Chang, C-Y. (2008). From virtual environments to physical environments: exploring interactivity in ubiquitous learning systems. *Journal of Technology and Society* 12(1) 107-120.

Selwyn, N. (2003). Schooling the mobile generation: the future for schools in the mobile-networked society. *British Journal of Sociology of Education*, 24, 131–144.

Sharples, M., Corlett, D., & Westmancott, O. (2002). The design and implementation of a mobile learning resource. *Personal and Ubiquitous Computing* 6, 220-234.

Sharples, M., Taylor, J., & Vavoula, G. (2007). A theory of learning for the mobile age. In R. Andrews & C. Haythornthwaite (Eds.), *The SAGE handbook of e-learning research* (pp. 221-247). London, United Kingdom: Sage.

Stockwell, G. (2007). Vocabulary on the move: Investigating an intelligent mobile phone-based vocabulary tutor. *Computer Assisted Language Learning*, 20(4), 365-383.

Tackey, N. D., Casebourne, J., Aston, J., Ritchie, H., Sinclair, A., Tyers, C. ..., & Page, R. (2006). *Barriers to employment for Pakistanis and Bangladeshis in Britain, DWP research report DWPRR 360*. London, United Kingdom: Department of Work and Pensions.

Thornton, P., & Houser, C. (2005). Using mobile phones in English education in Japan. *Journal of Computer Assisted Learning*, 21(3), 217-228.

Zurita, G., & Nussbaum, N. (2004). Computer supported collaborative learning using wirelessly interconnected handheld computers. *Computers & Education*, 42, 289-314.