Learning when out and about

Book Section

EXTRACT: CHAPTER 2.5

Enhancing Learning and Teaching with Technology

What the Research Says

Edited by
Rosemary Luckin

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When quoting from this chapter please use the following citation:

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Gaved, M., Peasgood, A. and Kukulska-Hulme, A. (2018) 'Learning when out and about'. In Luckin, R. (ed.) *Enhancing Learning and Teaching with Technology: What the research says*. London: UCL Institute of Education Press, 76–80.

UCL IOE Press
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First published in 2018 by the UCL Institute of Education Press, University College London, 20 Bedford Way, London WC1H 0AL

www.ucl-ioe-press.com

British Library Cataloguing in Publication Data:
A catalogue record for this publication is available from the British Library

ISBNs
978-1-78277-226-2 (paperback)
978-1-78277-227-9 (PDF eBook)
978-1-78277-228-6 (ePub eBook)
978-1-78277-229-3 (Kindle eBook)

Typeset by Quadrant Infotech (India) Pvt Ltd
Printed by CPI Group (UK) Ltd, Croydon, CR0 4YY
Cover image ©iStock.com/liuzishan. Cover design by Liron Gilenberg.

Chapter 2.5

Learning when out and about

Mark Gaved, Alice Peasgood and Agnes Kukulska-Hulme

Introduction

Mobile digital devices such as tablet computers and smartphones (mobile phones that can run apps and access the Internet), enable learners to access learning materials while out and about during their daily lives. This enables networked digital learning to move from beyond the classroom and to become part of everyday routines. Smartphones and tablets are increasingly likely to be the first devices a wide range of people will turn to for technology enhanced learning, incorporated into their everyday activities and carried with them. Learning becomes ubiquitous, making use of 'domesticated' technologies that serve a variety of purposes in daily life.

In this chapter, we consider how smartphones can trigger location-specific learning resources to support adults learning languages when out and about, and consider two projects, MASELTOV and SALSA.

There has been increased interest in exploring the potential of 'smart cities' – urban environments with high-tech infrastructures – to support learning. We look at an example, the SALSA project, where a combination of smartphones, location-based technologies and learning resources has been used to prompt language learners, and to understand whether this motivates them to extend their learning.

Location and context triggered learning

Educators recognize the power of specific locations or contexts to make learning activities relevant; travel and cultural guidebooks have been popular learning tools for hundreds of years. Until recently similar results were difficult to achieve with information technologies that could react to the users' location/context and personalize resources based on their preferences or history of activities.

Language learning educators identify that location-based and context-sensitive resources and activities can be a powerful resource (Edge *et al.,* 2011): learning at a relevant location or in a context associated with the learning goal is more likely to make the activity effective. Smartphones,

with their ability to connect to networks, provide text, audio, and video through apps and web browsers, and take advantage of a wide range of onboard sensors, are becoming a powerful, practical platform for mobile learning and have enabled exploration of digital learning beyond the classroom.

There is a range of different ways of identifying where a smartphone is and hence providing resources relevant to the user's location or context. Global Information System receivers (e.g. GPS) can identify location if the user is outside, or position can be estimated with less accuracy from nearby WiFi points or cellphone towers. Alternatively, markers such as QR codes can be placed on objects or locations and scanned by the phone to identify location or trigger resources. More recently, Bluetooth beacons have been used, sending radio signals to nearby smartphones. These have the advantage of working indoors as well as outdoors and enable a more discreet interaction than mechanisms such as QR that require the phone user to actively engage with a visible object. However, like QR codes, they require prior installation in target locations.

In two of our recent projects (MASELTOV and SALSA), we have explored how location- and context-triggered learning might be supported by smartphones: in both cases to support recent migrants with language learning and social inclusion.

The SALSA and MASELTOV projects

The MASELTOV project explored a range of services to support immigrants' learning through their daily activities in urban environments, while the SALSA project has investigated how learners engage with location-triggered language activities around a town.

MASELTOV (www.maseltov.eu) was a European Union funded project exploring how smartphones might be used by recent immigrants to Europe to support their language learning and social inclusion. A central element was the development of a smartphone suite of tools ('MApp') containing a range of integrated services that the target audience can use in their daily lives.

The MApp application includes navigation tools, language learning activities, a social forum, a translation tool and a help radar that enables the user to find local volunteers and other community members who might be nearby and willing to solve a problem. Underpinning the system is a recommendation engine that gathers data from the user's interactions, contexts and preferences.

We drew on the concept of incidental learning, 'unintentional or unplanned learning that results from other activities' (Kerka, 2000: 1), using situations occurring in daily lives as the basis for learning, recognizing the power of authentic situations and personally relevant contexts to motivate learners.

Several of the tools in the MApp drew on locational data gathered by the phone to support services. In some cases this was explicit, for example guiding the user around the city using a pedestrian sat-nav, or identifying potential nearby volunteers who could help (both using the phone's GPS receiver). In other cases the locational aspect of the services was not visible but improved the functionality of the tools. For example, by allowing the MApp to identify the user's location (in the settings tool), better contextual recommendations for learning resources could be made. Users were given the ability to switch this geolocational tracking on and off.

The SALSA project (Sensors and Apps for Languages in Smart Areas), funded by The Open University, investigated location-triggered language learning activities via smartphones for learners out and about in an urban environment (www.open.ac.uk/blogs/salsa/). The project was started in 2014 in response to a call from the Milton Keynes smart city project, 'MK:Smart'.

SALSA is designed to improve the spoken English skills of adults who are living in Britain and already have a basic level of English, and drawing on the same principles as MASELTOV, explored learners' responses to receiving learning prompts when out and about in the city. We wanted a system that worked indoors and outdoors, and discreetly: we were aware that language learners might not wish to be identified as such, so explicit interaction with a trigger (e.g. walking up to a QR code and taking a photo of it) might not be appropriate.

We therefore chose to experiment with Bluetooth beacons that would send prompts to a custom-built Android based smartphone app, and trigger relevant content when a learner's smartphone was within range (up to approximately 30 metres). For example, while waiting at a bus stop, a learner who has downloaded the SALSA app might be in the vicinity of a SALSA beacon. This would trigger a phone notification (like an SMS prompt) and indicate that there is a relevant language activity for the location, including content such as how to purchase a bus ticket and ask the driver or ticket office about ticket options (e.g. 'single', 'concession', 'off-peak', 'season ticket').

Working with tutors and English language learners from a local adult education centre, we identified locations and contexts around Milton Keynes

where communications challenges might occur, and that were commonly visited during learners' daily routines. We devised 12 different scenarios and worked with an educational publisher to produce contextually relevant educational resources including text, images and audio delivered through a dialogue, vocabulary, grammar and idiomatic phrases.

The app containing all the learning resources was designed to be downloaded at the learners' convenience in a location where there is free WiFi (e.g. library or community centre) and it works without a network connection: MASELTOV participants had previously identified that concern about data download costs acted as a barrier against engaging with mobile learning apps.

Both MASELTOV and SALSA apps were trialled in the United Kingdom with volunteer language learners.

Findings from SALSA and MASELTOV

SALSA field trial participants found the technology easy to use and helpful in supporting their language learning. Although they only used the app for two weeks during the field trial, many reported learning something useful from the app. In particular, they found the idiomatic phrases and audio recording of a dialogue useful, especially as the written transcript of the dialogue was available on the phone, so they could listen and read at the same time. The relevance of the learning content to each location was helpful, particularly phrases and ways of starting a conversation that enabled them to 'speak like a native'. The SALSA participants already had conversational English, so for many of them their priority was to 'fit in' and enhance their social skills in English. They did not tend to use the app content at the location or in the situations for which it was designed. For example, rather than approach the bus ticket sales desk with the app open on the page about purchasing a ticket, one participant preferred to study that content discreetly nearby, then enter the ticket office to practise the phrases she had just learned. Learners adapted the use of the app to meet their personal goals, taking into account the social and cultural context.

It is worth noting that feedback from MASELTOV participants has indicated that requiring the active and obvious use of a smartphone to trigger learning resources (such as taking a photo of a sign in a public place) can deter users from taking advantage of potential learning opportunities.

Conclusion: The opportunities and issues for learning with smart mobile technology

There are many opportunities for further work in this area. For example, one possibility for future development is extending a context-based learning experience into a more prolonged or reflective learning experience over time. This may be achieved through application designs by prompting learners to continue learning or revisit past learning. Another possibility would be to design some speaking practice so that it mimics natural phone conversations. This may be a way to overcome various barriers to learners practising just-in-time oral language skills on the phone in public.

There are, however, some issues that must be overcome if these opportunities are to be fulfilled. For example, tracking users' activities and locations raises ethical, privacy and data-security issues. Users may be concerned about how their contextual information is stored or who has access to it, and how it may be used. Contextually aware language learning systems must inform users clearly how their data will be used and stored, and offer the opportunity to opt out of some or all data gathering (though users will need to understand that this may reduce the quality of recommendations that can be made to them). GPS and WiFi-based location systems store data about the user's location. Bluetooth beacons do not store any user information.