

Has mobile learning fulfilled its promise during the pandemic move to remote learning?

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ABSTRACT

This paper discusses how our ideas of mobile learning developed in the pandemic pivot. Since the early years of mobile learning, predictions have been made about what features of mobile learning, if adopted, would benefit learners. These benefits range from improved access to more personalisation, more active learning, and better use of learning in context, whether with location aware devices or location-based learning. With the sudden pivot to remote learning in response to the pandemic, many opportunities were available for new configurations and learning settings. How were these affordances of mobile learning used? Did the move to location-based learning lead to educators making use of the affordances of mobile learning other than access to content? This paper compares some predictions with the reports from researchers in education of their experiences over the past three years. A preliminary conclusion is that mobile learning at first an addition to conventional approaches to learning is now an ubiquitous underpinning of modern learning settings.”.

Keywords: learning, blending, location- based learning, pandemic pivot

INTRODUCTION

This paper is a preliminary investigation of the use of mobile learning in recent times in what some researchers have referred to as the COVID-19 pandemic pivot. Predictions about the potential of mobile learning to contribute to education and to support different student experiences have been made. The most noticeable impact of the pandemic on education was to move many aspects of education online. The evidence on the efficacy of online learning was less important than its utility for reaching learners for whom online was the only remaining option. However, it is important to revisit that evidence now and potentially add to it. One key reference for the past scrutiny of efficacy of online learning is the evidence collected by Means et al. (2009). Their meta review of studies concludes “(O)n average, students in online learning conditions performed better than those receiving face-to-face instruction” (p.11).

This paper examines the benefits of mobile learning within the online learning pivot experience.

BACKGROUND

Sharples et al. (2009, p. 5) define mobile learning (in this paper also referred to as m-Learning or ML) as “*the processes (personal and public) of coming to know through exploration and conversation across multiple contexts, amongst people and interactive technologies.*” More recently Wang et al. (2021) affirms that wider view ‘*ML involves much more than accessing learning content on mobile devices. Also, learners move from place to place, build or join groups and communities, and use*

robust personal technologies. Mobile devices and M-technologies ease interactions within an innovative context” (p.2) Researchers also understand how mobile learning might have an impact on learning context. Westera (2011) writes “*digital media tend to bring about new dimensions of context: internet connections and mobile devices enable learners to overcome restrictions of time and location and neglect the physical boundaries and limitations of the learning environment. This calls for reconsidering contextual learning.*” Westera (2011), therefore is “*conceptualising the notion of learning context in the light of its virtualised extensions*” (p. 201). Thus, mobile learning is part of the broadening of our understanding of context from place alone.

Pollara (2011) writes “ According to Sharples (2006) m-learning i) enables knowledge building to take place in different contexts; ii) provides the ability to gather data unique to the current location, environment, and time (real and situated); iii) enables learners construct their own understanding (customized to the individuals path of investigation); iv) changes the pattern of learning or the work activity (supports interactivity); v) supports the use of mobile learning applications which are mediating tools and can be used in conjunction with other learning tools; and vi) goes beyond time and space in which learning becomes part of a greater whole” (p. 17).

MOBILE LEARNING IN THE PANDEMIC

The problem

All educational institutions have faced a challenge in response to COVID-19. The challenge is how to support learners who may not be able to be co-located. The responses to this challenge have been various. The role of hybrid experiences has been key to supporting learners wherever they are to be based. The learning settings which have developed over the past two years are subject to constraints. These have required the rapid deployment of existing technological solutions and pedagogical approaches.

This paper highlights areas of interesting research work related to the affordances of mobile learning (see e.g. Scanlon, 2021; Cohen et al., 2007). It is not a systematic review but selective, highlighting studies that are illustrative of the themes of interest identified and discussed. Studies are continuing to be published so a systematic review should be forthcoming in the future. This paper is constructed to offer a first commentary on the research questions. *How were the affordances of mobile learning used? Did the move to location-based learning lead to educators making use of the affordances of mobile learning other than access to content?*

Prospects of mobile learning

From the simple perspective of available tools for accessing online resources or communication, the spread of access to using mobile devices for supporting learning is surprising, particularly in Sub Saharan Africa, and in teacher education, the access to mobile phones has transformed access to potential learning. So, there have been successful uses of mobile learning in terms of access (although there are reports of remote learning experiments in the pandemic where lack of access to technology is a concern).

Location, Location, Location

In the field of mobile learning researchers have been interested in the prospects of location-based learning. Further distinctions have been made in relation to location-based and location-aware contexts. Scanlon (2014) discusses the how features of mobile learning can be harnessed to provide new learning opportunities in several domains. Her assertion is that mobile learning offers new possibilities for scaffolding collaboration in addition to the transfer between settings, making a case for using the possibilities of location-based learning. Indeed Ferguson et al. (2019) discussing the importance of location and context write

Place-based learning considers location to be a trigger for learning and an active part of how people learn. It is an approach that involves looking for learning opportunities within a local community and using the natural environment to inspire learners. Mobile technologies are

opening up new opportunities for place-based learning. They offer a sophisticated set of tools that can be used to support study outside the classroom. They also provide opportunities for adding virtual information to physical settings (p.3).

Many research projects have made use of these properties or affordances of mobile learning and stressed the benefits of mobile learning for personalized, situated, contextualized, and connected learning (UNESCO 2013). For example, Gaved et al. (2018) present an analysis of mobile incidental learning by considering how smartphones can trigger location-specific learning resources to support adults learning languages when out and about.

EXAMPLES IN CURRENT PRACTICE

Two special issues of journals can provide a start in considering what has happened during the pandemic. These are Whitelock et al. (2021) for *Open Learning: The Journal of Open, Distance and e-Learning*, and Jordan and Jones (2021) in the *Journal of Interactive Media in Education*. Papers in these special issues have good insights on the immediate switch which educators needed to make to remote learning. Whitelock et al. (2021) focuses on the accounts of “*rapid curriculum redevelopment to upskilling teachers in designing and offering e-learning*” (p.201) Jordan and Jones highlight the ways in which “*the pandemic exposed tensions in relation to digitisation and highlight the nuances ways in which the shift to home working was challenging*” (p.6)

Hall et al. (2021) discuss the emergency changes which they had to make in the European DEIMP Project (2017-2020), ‘*Designing and Evaluating Innovative Mobile Pedagogies*’. This project describes (how digital technologies) ubiquitous in many societies, could be harnessed to be more innovative in ways that would challenge and even disrupt traditional patterns of education. Based on an extensive systematic literature review of existing mobile learning research, the DEIMP team identified twenty-one mobile learning principles for designing innovative mobile pedagogies that challenge existing thinking and practices around digital education (p.8).

Eom (2021) reported on the motivational aspects of mobile learning. Moving on from conventional wisdom he was able to investigate whether the use of mobile devices motivated students and has an impact on the learning process. He found that “*their use positively affects the students' intrinsic and extrinsic motivation to learn, which in turn positively affects the cognitive learning process variables (student-student dialogue, student-instructor dialogue, and metacognitive self-regulated learning processes)*” (p.20).

Wang et al. (2022) reported on the use of mobile learning among students in Higher Education engaged in educational pursuits while carrying a mobile device during the COVID-19 pandemic. Using a structured questionnaire they found that both student learning behavior and performance on their courses was impacted positively.

Saikat et al. (2021) in their systematic review on mobile learning in the pandemic write on the strengths and shortcomings of leveraging mobile learning for Science and Technology education

The most significant benefits of M-learning ... are its mobility and flexibility. Aside from that, organized content is another significant benefit of M-learning. The most prevalent drawbacks are content issues, lacking connection, and lacking laboratory facilities. ...Several articles focused on the geographical location, the challenges, and benefits depending on the location, culture, and economy (p. 466).

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Cross et al. (2019) in a review of the practices of undergraduate students at a distance learning institution before the pandemic made some interesting observations. With an online study they “*explored the impact of handheld use on study habits and quality of learning*”. ...Two key findings from this study are, “*...analysis shows that three variables—number of study places, number of study tasks performed, and change in study habits—are predictors of students finding it easier to access learning materials and reporting improved quality of work.*” (However) ... *only a third of students felt that use of mobile handheld technologies had helped improve the quality of their work and 60% had*

yet to change their study habits. (...) There may still be some way to go in ensuring all learners benefit from the mobile pedagogies deployed” (p. 236).

One can see the issues faced by educators in the pandemic pivot. Even students with experience of remote learning and the use of handheld devices varied in the degree to which they were making use of the affordances of mobile learning and technology. Approaching curriculum design using new media for students without experience of mobile learning was difficult.

CONCLUSION

The potential of mobile learning to contribute to education can be compared with reports on the aspects of mobile learning which were used in the pandemic. Many papers describe the intention to use mobile learning rather than reporting on or analysing its use. Some papers cite benefits of online learning. Others document difficulties with the move to completely remote learning. Reports of sudden moves in the pandemic towards new delivery and interaction models suggest that the requirement to engage learners in suitable learning experiences, where they are based, has meant that mobile learning has become vital to new configurations developed. This is a transformation from mobile learning seen as an add-on to more conventional approaches to learning settings, to becoming an ubiquitous underpinning of modern learning settings.

In terms of the affordances of mobile learning described in earlier research both the advantages of increased access to content and inequity in access to technology appear in reports. *How were the affordances of mobile learning used? Did location-based learning lead to making use of the affordances of mobile learning in ways other than access to content?* The ways in which mobile learning could transform the experiences of learners can be compared these with the reports from educators of their experiences over the past two years. More reports will follow.

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