1 Mobile assistance for personal learning on a massive scale

Agnes Kukulska-Hulme[1]

Abstract

Despite efforts to increase participation in education across the globe, it remains an inaccessible right for millions of children and adults. Mobile learning, and specifically 'mobile assistance', can provide personal support to learners when teachers are scarce or learners have pressing individual goals. MASELTOV was a project which implemented mobile assistance for migrants, comprising a suite of smartphone tools and services for orientation in a new environment and everyday language learning. Experiences gained from this project invite reflection on what are the unique qualities of teachers and human assistance. As we enter a new era of pervasive applications of artificial intelligence (AI), there are concerns that AI will encroach on the territory of the teacher. However, it is possible that intelligent assistants can be designed and used in such a way that they complement and enhance what human teachers are uniquely able to do. It is important to ask how less developed societies will be included in these advancements. The answer can emerge from greater clarity around the nature and capabilities of mobile and intelligent assistance.

Keywords: mobile learning, intelligent assistants, teacher competences, mass education challenges.

1. The Open University, Milton Keynes, United Kingdom; agnes.kukulska-hulme@open.ac.uk

How to cite this chapter: Kukulska-Hulme, A. (2018). Mobile assistance for personal learning on a massive scale. In M. Orsini-Jones & S. Smith (Eds), *Flipping the blend through MOOCs, MALL and OIL – new directions in CALL* (pp. 1-7). Research-publishing.net. https://doi.org/10.14705/rpnet.2018.23.784

1. Introduction

In the first two decades of the 21st century, there have been significant efforts to increase participation in education at all levels across the globe and to improve the quality of provision (UNESCO, 2015; UN, 2017). Yet education remains an inaccessible right for millions of children and adults. It is estimated that across the world, more than 72 million children of primary education age are not in school and 759 million adults are illiterate (Humanium, 2017). Furthermore, growing numbers of displaced children and adults have very limited access to learning. Refugee children are five times more likely to be out of school than non-refugee children, and just one percent of refugees attend university (UNHCR, 2016). Addressing the lack of education opportunities for women and girls is another major challenge highlighted by the World Bank (2017) and UNESCO (2017a). Efforts to provide education and support continue to be hampered by a chronic shortage of high quality learning materials and suitably qualified teachers (UNESCO, 2017b).

Technological innovation can help solve some of these problems. Efforts to widen access have in recent years included technology-supported approaches, such as massive open online courses (MOOCs) and growing collections of open educational resources (Scanlon, McAndrew, & O'Shea, 2015). Mobile learning has also been recognised as a valuable approach to widening access, including for the education and professional development of teachers (UNESCO, 2017b). Furthermore, technological advances create opportunities to match educational provision more closely to individuals' needs, to track their progress and support them in adaptive ways (Dziuban, Moskal, Johnson, & Evans, 2017) on their computers, tablets, or smartphones.

As we enter a new era of more pervasive applications of AI (Boden, 2016), there are concerns around AI replacing jobs and encroaching on the territory of the teacher (Von Radowitz, 2017). However, it is possible that at least one form of AI, namely intelligent assistants, can be used in such a way that they complement and perhaps enhance what human teachers are uniquely able to do. Intelligent (or 'smart') assistants are already encountered on smartphones, wearables such

as watches and glasses, and smart home devices, and they are starting to appear in humanoid form as social robots (Li, Kizilcec, Bailenson, & Ju, 2016). As advanced societies begin to adopt a growing array of intelligent assistants, it is important to ask how less economically advantaged learners and less developed societies will be included. The answer may partly emerge from greater clarity around the nature and capabilities of mobile and intelligent assistance.

2. Learning from experiences of mobile assistance for migrants

Our approach at The Open University has been to conceptualise increasingly smart forms of mobile assistance on the basis of what we have discovered through a series of research projects on learning with smartphones, where the focus has been on opening up learning opportunities to migrants and refugees. These projects have focused on informal, everyday language learning within a broader range of daily experiences and challenges. The premise is that people who experience involuntary displacement, as well as those who are mobile by choice, can be in a position to derive benefit from flexible and mobile learning afforded by smartphones and other portable devices, but they will need support. This work has highlighted the issue of mediation and facilitation of learning: teachers are not always available when people want to learn a little every day, or if they wish to work on a particular skill or a pressing personal goal – so who can help them? It might be other people, other learners, or diverse forms of assistance provided or mediated by technology.

The Open University was a partner in the MASELTOV project (www.maseltov.eu; Kukulska-Hulme et al., 2015) in which the project consortium developed a 'mobile assistant' in the form of a prototype suite of context-aware and integrated services and tools for recent immigrants in Europe that they could access via a single app on a smartphone. These learners from other continents appreciated the opportunity to engage in daily language practice and have access to various forms of assistance and support. The prototype services and tools included help with moving around a city, language lessons, a translation tool,

a game for playful cultural learning, healthcare information, recommendations (what to do or where to go, based on interests and movements), an online social forum, and a social radar to summon volunteers willing to help. Learners could also track their own progress in some respects, for example their completion of language lessons and which tools they had used. They could learn individually or in groups (with friends or family). As previously stated in Kukulska-Hulme (2016), the research touched on the issue of how new configurations of human assistance – combinations of teachers, friends, volunteers, mentors, and online communities – together with the tools provided on the smartphone, could support mobile learners in their efforts to make use of learning opportunities in their daily lives.

The learners needed considerable help to understand and engage with this new way of learning. It was important for them to have social contact, which could take place in workshops, via the app, or through ongoing interactions with a facilitator and a researcher. This enabled cognitive and social support; the learners could share experiences of using the app, ask questions about language and culture, and help others. Often working in groups with others who had the same first language, they could switch between languages when they needed or chose to do so. Learner feedback and observations in workshops suggested that the human contact was instrumental in motivating the learners, sustaining their engagement, and encouraging them to develop new learning habits (for further discussion of mobile assistance, see also Kukulska-Hulme, 2016). Further research would be needed to establish more precisely the value and functions of human and non-human assistance and support, in the contexts of both informal and formal learning, and specifically in relation to language learning.

3. Intelligent assistance – the next generation

What are the unique qualities of language teachers in a world where life and learning are increasingly suffused with technology? Philp (2017) offers one perspective: “language learning involves much more than grammatical or lexical knowledge: it involves developing the competence to communicate in ways that

are appropriate to the 'who, what, when, where and why' of communication… the teacher plays a vital role in encouraging learners, in providing sufficient support during challenging tasks so that learners are pushed, yet successful" (p.17). Philp notes that outside of formal lessons, learners might undertake autonomous work and teachers can support these practices "by modelling strategies for coping with unfamiliar input, for negotiating problems in output and by providing feedback that highlights problem areas and encourages self-correction or further exploration by the learner" (p.17).

It seems that human capabilities are far in advance of AI, yet in the near future mobile and intelligent assistance is set to increase and diversify. Mobile assistance can be as simple as a translation facility on a mobile phone; but intelligent agents and assistants that currently answer questions and give recommendations on smartphones are likely to evolve into more sophisticated human-like help and will challenge human-led teaching and training (see for example Macedonia, Groher, & Roithmayr, 2014). Next generation voice-controlled personal assistants will be able to perform thousands of tasks and will be integrated into everyday objects and companion robots (Kim, Kim, Jun, & Kim, 2017). People will increasingly use voice communication with devices which may or may not 'speak' a familiar language, thereby adding complexity to language teaching and learning. Until recently, this seemed like a distant prospect but in technologically advanced societies that is no longer the case.

4. Conclusions

Mobile assistance is an important concept that needs further exploration in the face of growing demand for educational opportunities across the globe. The MASELTOV approach was scalable in terms of giving large numbers of people access to an app. A highly personal learning approach could be adopted by the app users, especially if they were prepared to think about their own learning goals and needs and were not afraid to try out a range of unfamiliar tools and services. Human involvement and assistance seemed to play an important role in encouraging and supporting the learners, although no teachers were directly

involved. Emerging intelligent assistants can be seen as providing help that complements or augments what humans are uniquely able to do. The necessary next steps are to engage in further analysis of mobile and intelligent assistance, reflect on the unique roles and qualities of teachers, and collaborate with learners to find optimal ways to assist them and support their learning.

References

Boden, M. A. (2016). *AI: its nature and future*. Oxford University Press.

Dziuban, C., Moskal, P., Johnson, C., & Evans, D. (2017). Adaptive learning: a tale of two contexts. *Current Issues in Emerging eLearning, 4*(1), Article 3. https://scholarworks.umb.edu/ciee/vol4/iss1/3/

Humanium. (2017). *Right to education: situation around the world*. https://www.humanium.org/en/right-to-education/

Kim, H. Y., Kim, B., Jun, S., & Kim, J. (2017, March). An imperfectly perfect robot: discovering interaction design strategy for learning companion. In *Proceedings of 2017 ACM/IEEE International Conference on Human-Robot Interaction* (pp. 165-166). ACM. https://doi.org/10.1145/3029798.3038360

Kukulska-Hulme, A. (2016). Mobile assistance in language learning: a critical appraisal. In A. Palalas & M. Ally (Eds), *The International Handbook of Mobile-Assisted Language Learning* (pp. 138-160). China Central Radio & TV University Press.

Kukulska-Hulme, A., Gaved, M., Paletta, L., Scanlon, E., Jones, A. , & Brasher, A. (2015). Mobile incidental learning to support the inclusion of recent immigrants. *Ubiquitous Learning: an international journal, 7*(2), 9-21.

Li, J., Kizilcec, R., Bailenson, J., & Ju, W. (2016). Social robots and virtual agents as lecturers for video instruction. *Computers in Human Behavior, 55*, 1222-1230. https://doi.org/10.1016/j.chb.2015.04.005

Macedonia, M., Groher, I., & Roithmayr, F. (2014). Intelligent virtual agents as language trainers facilitate multilingualism. *Frontiers in Psychology, 5*. https://doi.org/10.3389/fpsyg.2014.00295

Philp, J. (2017). *What do successful language learners and their teachers do?* Part of the Cambridge Papers in ELT series. Cambridge University Press. http://cambridge.org/betterlearning

Scanlon, E., McAndrew, P., & O'Shea, T. (2015). Designing for educational technology to enhance the experience of learners in distance education: how open educational resources, learning design and MOOCs are influencing learning. *Journal of Interactive Media in Education, 1*(6), pp. 1-9. http://dx.doi.org/10.5334/jime.al

UN. (2017). *Sustainable Development goals - ensure inclusive and quality education for all and promote lifelong learning*. United Nations. http://www.un.org/sustainabledevelopment/education/

UNESCO. (2015). *Education for all 2000-2015: achievements and challenges*. EFA Global Monitoring Report. United Nations Educational, Scientific and Cultural Organization. http://unesdoc.unesco.org/images/0023/002322/232205e.pdf

UNESCO. (2017a). *Education and gender equality*. United Nations Educational, Scientific and Cultural Organization. https://en.unesco.org/themes/education-and-gender-equality

UNESCO. (2017b). *Supporting teachers with mobile technology*. United Nations Educational, Scientific and Cultural Organization. http://unesdoc.unesco.org/images/0025/002515/251511e.pdf

UNHCR. (2016). *Missing out: refugee education in crisis*. http://www.unhcr.org/57d9d01d0.pdf

Von Radowitz, J. (2017). *Intelligent machines will replace teachers within 10 years, leading public school headteacher predicts*. Independent newspaper, 11 September 2017. http://www.independent.co.uk/news/education/education-news/intelligent-machines-replace-teachers-classroom-10-years-ai-robots-sir-anthony-sheldon-wellington-a7939931.html

World Bank. (2017). *Girls' education*. http://www.worldbank.org/en/topic/girlseducation

Published by Research-publishing.net, a not-for-profit association
Voillans, France, info@research-publishing.net

Flipping the blend through MOOCs, MALL and OIL – new directions in CALL
Edited by Marina Orsini-Jones and Simon Smith

Typeset by Research-publishing.net
Cover design by © Raphaël Savina (raphael@savina.net)
Cover illustration © Marina Orsini-Jones

ISBN13: 978-2-490057-16-0 (Ebook, PDF, colour)
ISBN13: 978-2-490057-17-7 (Ebook, EPUB, colour)
ISBN13: 978-2-490057-15-3 (Paperback - Print on demand, black and white)
Print on demand technology is a high-quality, innovative and ecological printing method; with which the book is never 'out of stock' or 'out of print'.

British Library Cataloguing-in-Publication Data.
A cataloguing record for this book is available from the British Library.

Legal deposit, UK: British Library.
Legal deposit, France: Bibliothèque Nationale de France - Dépôt légal: juin 2018.