

# Seamless support for lifelong learning with ubiquitous technology

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# Seamless support for lifelong learning with ubiquitous technology

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**Abstract**—This poster presents 3 years of research on how to provide support for lifelong learners with mobile technology. The aim of this research is facilitating adapted feedback services to foster self-regulation in adult lifelong learners.

Keywords: feedback, technology enhanced learning, self-regulated learning

## Motivation & Problem Definition

Lifelong learners are confronted with a broad range of activities they have to manage everyday. In most cases they also have to merge learning, working, and everyday life throughout the day. For the support of lifelong learners their daily practices and learning patterns are of importance. Lifelong learning includes a variety of different educational scenarios and contexts in which learners operate. These contexts include traditional formal programs, non-formal education, on the job-training and informal, accidental learning. Fischer [1] even values lifelong learning as a mind-set that people have to acquire including the following learning scenarios: 1) self-directed learning; 2) learning on demand; 3) collaborative learning. When adopting questions of integration between learning and living support of lifelong learners several key aspects have to be highlighted that are essential problems for today's lifelong learners:

1. No Integration of informal and formal learning activities.
2. No support for learning activities across locations, devices, and environments, as also a lack of support for ubiquitous knowledge access.
3. No support for multiple learning tasks and switching between these.
4. Linking learning activities with everyday life activities and the physical world objects.

In summary there is little support for lifelong learners that typically try to learn in different contexts, are busy with multiple parallel learning tracks over longer periods of time, and must align or relate their learning activities to everyday leisure and working activities.

## Proposed solution & Findings

The first article in this research presents the results from a questionnaire aimed to recognize mobile usage patterns of lifelong learners to support them with technology [2]. These patterns capture the context in which lifelong learners are more willing to learn, that is, the day of the week, duration, location activity being performed, type of device being used, way to interact with their devices and how these aspects can affect when an adult student takes the initiative to learn.

Next we explored whether mobile devices can be used to foster meta-cognitive skills on learning. Hence, the pilot experiment [3] offered to students a daily reflection and reporting exercise to a) assess the extent to which the mobile phone can be used as an instrument to develop awareness about learning and b) to explore how young people attend to their identity as (lifelong) learners when they are prompted to reflect on this theme. Additionally, the formative study [4] proposed sampling of learning preferences on mobile devices are key benchmarks for lifelong learners to 1) become aware on which learning task suits in which context, 2) set realistic goals and set aside time to learn on a regular basis. A classification framework for modeling lifelong learners' preferences was presented and mobile application for experience sampling was piloted with the aim to identify which are the preferences from lifelong learners regarding when, how and where learning activities can be integrated.

In subsequent publications, a set of pilots have been implemented aiming to support lifelong learners in the following:

- Authentic learning. Authoring educational resources in context [5].
- Self-regulation & learning analytics. A NFC mobile tool to identify personal learning environments and track learning activities across context [6].
- Harmonizing learning environments. Smart visualization support [7].

## Future research

These pilots will be tested in the Seamless Learning Experiences Workshop (mlearn 2014) and evaluated both in integrated field studies and formative courses at The Open University of The Netherlands.

## References

1. Fischer, G.: Lifelong learning-more than training. *J. Interact. Learn. Res.* 1–22 (2000).
2. Tabuenca, B., Ternier, S., Specht, M.: Supporting lifelong learners to build personal learning ecologies in daily physical spaces. *Int. J. Mob. Learn. Organ.* 7, 177–196 (2013).
3. Tabuenca, B., Verpoorten, D., Ternier, S., Westera, W., Specht, M.: Fostering reflective practice with mobile technologies. In *Proceedings of the 2nd Workshop on Awareness and Reflection in Technology Enhanced Learning*. (2012).
4. Tabuenca, B., Kalz, M., Börner, D., Ternier, S., Specht, M.: Where is my time? Identifying productive time of lifelong learners for effective feedback services. *International Computer Assisted Assessment (CAA) Conference. Research into E-Assessment.*, Zeist (The Netherlands) (2014).
5. Tabuenca, B., Kalz, M., Ternier, S., Specht, M.: Mobile authoring of open educational resources for authentic learning scenarios. *Univ. Access Inf. Soc.* (2014).

6. Tabuenca, B., Kalz, M., Specht, M.: Lifelong Learning Hub : A seamless tracking tool for mobile learning. EC-TEL '14 Proceedings of the 9th European Conference on Technology Enhanced Learning. pp. 1–4.
7. Tabuenca, B., Kalz, M., Specht, M.: “ Tap it again , Sam ”: harmonizing the frontiers between digital and real worlds in education. *Frontiers in Education*. IEEE Computer Society, Madrid (2014).