Mobile assisted language learning and mnemonic mapping – the loci method revisited

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Abstract. This paper presents the prototype of a Mobile Language Learning Environment (MLLE) allowing learners of German at a Japanese university to map classroom learning content onto the pathways of their everyday lives, turning places they come by into mnemonic *loci*, and thus changing their daily commute into a learning trail. Even though the evaluation based on learners' self-reports could not confirm the assumption that this type of MLLE supports the use of the loci method for all learners, it allows the conclusion that at least for some learners mnemonic mapping with mobile devices might lead to changes in learning awareness and an expansion of strategy knowledge.

Keywords: MALL, memory strategies, context awareness, informal learning.

1. Introduction

Learners of German at Japanese universities face difficult learning conditions: they start late; class hours are few; their language learning biographies have been shaped by a school system mainly dedicated to making them pass entrance exams, leading to learning focussing on grammar rules, rote memorization of word lists and test taking strategies. A survey about learning habits conducted in the context of this study revealed low diversity of strategy use and showed that lots of learning happens on public transport, during often hour-long commutes.

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The authors assume that, in order to foster successful learning in this context, a push for expanding learning times and trying out new learning approaches can be effective. They set out to support out-of-class learning, and to help learners create links between out-of-class learning and formal learning through mobile learning.

It is often argued that mobile learning has the potential to bridge formal learning and informal learning experiences (Kukulska-Hulme & Sharples, 2016). One of the toeholds that mobile devices offer for connecting our learners' out-of-class experiences and their formal learning is context awareness, the focus on *place* (Kukulska-Hulme, 2010, p. 11). As learners move through the real world, learning opportunities can (be made to) arise that prompt learners to revisit what they learnt in the classroom.

The authors have been exploring different ways of connecting places in German speaking countries and classroom learning contents, by designing MLLEs that supplied learners with learning materials according to (1) situations experienced in specific places (in public transport, in restaurants, etc.), offering on-the-spot help for oral interaction (Waragai, Ohta, Raindl, & Kurabayashi, 2013), or (2) the places that learners had visited during the day, providing them with scaffolding for writing SNS-entries about their experiences (Waragai et al., 2014).

The MLLE *2d-radio* presented in this paper follows a different approach to the notion of place: *place* does not figure as site of supported contact with the target language, but as a mnemonic *locus*. In the loci method, a mnemonic technique dating back to Greek and Roman orators and beyond, contents to be memorized is associated with places along a pathway and then depicted in an image (Moè & De Beni, 2005).

Users of *2d-radio* can register geolocational positions they come by regularly, such as train stations, on their mobile devices, and use them as *loci* for revision of classroom contents: they create images for each learning item and mentally link those images to *loci* on their pathway – and then review the items when travelling along the pathway again, or retrieve the memorized items when revisiting the different places in their minds.

The authors developed, implemented and evaluated the MLLE in order to find out, if an MLLE linking places on learners' commute to learning content can successfully support learners in applying the loci method.

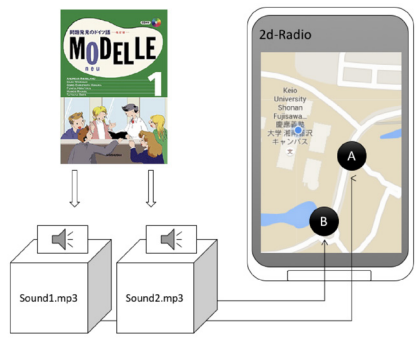
2. Design of the learning environment

2.1. The learning context

2d-radio was designed as a platform for out-of-class learning, targeting participants of a German intensive course at Keio University, a 3-semester-program covering Common European Framework of Reference for Languages (CEFR) levels A0 up to A2. Instruction in the course is based on video-centered courseware that presents interaction in situations closely related to students' daily lives. Functions, grammar and vocabulary introduced in each chapter are summed up into seven to 16 key phrases excerpted from the video dialogues.

2.2. Concept of the application

Figure 1. Concept of the application



2d-radio was built on four principles: it (1) supports out-of-class reviewing of learning content, (2) offers learning incentives for commuting times, (3) encourages learners to link learning content to specific places and thus to try out a new mnemonic strategy (the survey of learning habits revealed that learners hardly employed memory strategies such as using sounds, images or emotions), and (4) focuses on aural input (Figure 1). The decision to provide aural input was informed by several considerations: the survey showed that learners tended to review key phrases by reading, pronouncing and writing rather than by listening; aural input might allow flexible use in different situations of commute; it can easily be linked to oral output; and there is evidence that the loci method leads to better memory results with aural than with written input because of the absence of visual interference (Cornoldi & De Beni, 1991).

Figure 2. Functions of the application

2.3. Functions of the application

2d-radio was developed as a web-application. Users can place content onto locations on a map (Figure 2). They can post comments about the content (accessible by other users) and evaluate how well they have learnt each item by assessing retention with one out of three performance levels, which are represented by pins of different colors.

3. Evaluation of a test run

A two month test run was carried out in the spring semester 2016. For some chapters, the placement of the learning items was left to the learners; for other chapters, the administrator arranged the items on the maps. At the beginning of the term, *2d-radio* was presented to all 52 learners in the course. 15 of them showed interest in using the learning environment. Ten students took part in the online survey. It could not be reconstructed how many learners used *2d-radio* in the first half of the test run; in the second half, when log data were collected, only three learners were found to have used the application. The log data of all three participants (subjects A, B and C) showed low average using times (ranging from ten to 21 minutes), even though subjects A and B had rather long commutes.

At the end of the trial use, one of the authors interviewed the three subjects. The interviews were semi-structured, touched on the subjects' general learning habits, with a focus on media use and strategies for reviewing classroom content, and on their use of the application. The interviews were partially transcribed and analysed exploratively. Major findings were:

1. Subjects A and B used *2d-radio* in public transport, but reported that they found it difficult to create mental links between places on their commute and learning items, stating that they did not know much about the places on their way to school, whereas subject C, who commutes by bicycle or walking, noted that she found it easy to link places along her path to key phrases.

2. Subjects A and B described learning routines (such as reading, writing and using the textbook) they had developed and were not inclined to change. Subject C remarked she had used listening for reviewing for the first time and expressed surprise about how aspects of vocal expression remained in her memory together with the places and items.

3. Subjects A and C preferred the learning items to be mapped by the administrator to having to do the mapping themselves. Subject C stated that she felt motivation when finding learning items in unexpected places.

4. Subject A expressed tolerance about leisure and learning interlocking (e.g. by having her player shuffle between music and learning items). Subjects B and C stated that they preferred to keep both domains separate. At the same time, subject C noted that she appreciated that *2d-radio* provided her with an activity for her commute and thus prompted her to learn.

4. Discussion and conclusion

The first test run of *2d-radio* could not confirm that this type of MLLE can support learners in using the loci method successfully: too few learners used the application for too little time. The example of subject C though, who did report learning success and stated that she had discovered new learning approaches (reviewing by listening), might allow the conclusion that for some learners an MLLE like *2d-radio* can lead to broader strategy knowledge and changes in learning awareness (finding 2).

Subject A and B did not perceive their mnemonic pathways as meaningful, whereas subject C did (finding 1). So, contrary to the assumption that *2d-radio* would work well for long commutes in a big urban conglomeration, the idea of meaningful pathways has to be reconsidered when designing similar MLLE.

The subjects showed different preferences as to the amount of control about the arrangement of learning content (finding 3). Whereas in the test run mapping was done either by learners or by the administrator, it seems advisable to offer learners both options at the same time and allow them to choose their preferred level of control.

On a more general level, it could be reconfirmed that the modulation between leisure and learning is a sensitive issue for MLLE (finding 4). As already suggested by other researchers (Stockwell & Hubbard, 2013, p. 9), providing learners with control over how much they want to be pushed for learning might be a solution to this problem.

The conclusions that can be drawn from the evaluation of the first test run, based on data of only three subjects, are certainly limited. They do, however, allow insight into factors to consider when working with mnemonic mapping on mobile devices.

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