Context-aware writing support for SNS:
Connecting formal and informal learning

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Abstract. This paper presents another stage in a series of research efforts by the authors to develop an experience-connected mobile language learning environment, bridging formal and informal learning. Building on a study in which the authors tried to connect classroom learning (of German in Japan) with learners' real life experiences abroad by having smartphones detect the learners' location and supply them with multimedia content matching their real-time communicative situation, the authors developed a hybrid language learning environment supporting different types of learning. Based on observations that learners tended to use resources rather for preparatory or retrospective learning, and on considerations about the potential of social media as a space for informal language learning, the authors added a feature that supports learners when writing a social networking service (SNS) post about their everyday experiences abroad. Help is offered based on the analysis of the learners' geolocational position –hinting to what situation they might want to write about– and on the text they already entered. Based on these data, they are provided with help in the form of vocabulary and/or model texts.

Keywords: informal learning, smartphone, social network, situated learning, context awareness.

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1.   Introduction

Recent discussion of learning design has emphasized the importance of informal learning, the need to build bridges between this type of situated learning happening in our learners' everyday interactions on the one hand, and formal learning in educational institutions on the other hand –and the potential of mobile devices in addressing this challenge. In her overview of the evolution of learning cultures in the 21st century, Kukulska-Hulme (2010) comes to the conclusion that learning will become increasingly learner-centered and more and more context-aware. Using their mobile devices, learners would look out for learning opportunities in their every-day experiences, examining them for learning partners ("who is nearby"), learning contents ("what's interesting here?") and possibilities for output ("what can I contribute?") (Kukulska-Hulme, 2010, p. 11).

Aiming to support this type of instantaneous learning in every-day life, the authors have been developing language learning environments that try to connect classroom learning of German in Japan with learners' real-life experiences when first going to a German speaking country. The basic idea of these language learning environments is that learners taking part in a summer course or embarking on an exchange year abroad are confronted with a great number of situations that are a challenge for their language skills, but at the same time constitute opportunities for situated learning. In order to facilitate that learning, we try to support learners with help based on courseware material already familiar to them, but tailored to the situation they are in. Thus, we assume, learners can match things they learnt in the classroom to their communicational needs in every-day life, exploring how they can use what they learnt in school, and, reversely, experiencing what situations they can already master with what they know.

2.   Design of the learning environment

2.1.   Context-aware learning support: two components

This learning environment was designed for learners of German (on CEFR[7] level A2-B1) at Keio University (Japan), who either take part in a four-week language course in a German speaking country or study there in the first months of an exchange year. Both components of the learning environment offer context-aware learning support via the learners' mobile devices, based on the analysis of the

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situation that they are about to interact in, or that they want to communicate about. Both components draw on courseware developed at the university.

2.1.1. Support for oral interaction

The component developed previously (Waragai, Ohta, Raindl, & Kurabayashi, 2013) offers learners support in an actual communicative situation. The mobile device detects the learners' geolocational position, infers what situation the learners might be in and then supplies them with learning materials from the courseware where interaction in a similar situation is represented: video, audios or texts. If, for example, learners wait at a bus stop, their mobile device would offer the video clip "Asking for directions at a bus stop". Thus, classroom content would be linked to a real social context. One of the findings of a trial operation and evaluation was, though, that many learners tended to use these learning resources for preparatory or retrospective learning, rather than as support for on-the-spot interaction (Waragai et al., 2013, p. 187).

2.1.2. Support for writing an SNS post

Based on these observations, we introduced a second component to our learning environment: a smart blog editor, offering help when writing about every-day experiences in an SNS. This new component aims at providing learners with input to support situated learning of writing. Our system recommends context-dependent courseware-based input in the form of vocabulary, sentences and paragraphs, or blog entries written by peers for assisting learners when writing about their experiences.

The selection of the material is based on two functions. The first function is content-aware vocabulary/sentences/paragraphs/blog entries recommendation. An important characteristic of this system is that it provides learning materials by analyzing text contents that a learner is writing. Concretely, the system captures three types of metadata from the contents that a learner is writing. The first metadata is the *last word*, referring to the word that the user entered last. The second metadata is the *current word*, referring to the as yet incomplete word that the user is just typing. The third metadata is a *word histogram* that summarizes the blog entry into a histogram structure. Each bin of this histogram corresponds to a keyword (except a number of so-called stop-words, like articles, prepositions, some pronouns, and conjunctions). Each bin represents word occurrence frequency in a single blog entry. So, by comparing two histograms, the system can detect entire similarity of two blog entries. The system uses the *last word* for executing

keyword-based recommendation. The system obtains sentences and paragraphs that contain the *last word*. The *current word* is used for assistance to enter a word.

The second function is geolocation-aware keyword recommendation, through mapping of lecture materials onto actual life space. This system is equipped with a database that contains keyword metadata for several locations in German cities. This database is used for detecting the possible situational context of the current location of the user. Concretely, the system converts the GPS location value, such as "latitude: 35.64840502016192, longitude: 139.74251877904112", into a keyword readable by humans such as "University". By executing this conversion, the system can measure the relationship of the learner's current location and the learning materials. In addition, this system implements a function by which learners can share their experiences with other learners through the SNS on the basis of their current location.

The decision to shift from speaking support to writing support was backed by results of a survey amongst the target group, which showed that writing on SNS was an activity that our students engaged in very regularly, and that a number of advanced learners also used German in their postings on SNS. Thus, we could assume that this learning environment would connect well with our learners' habits and needs.

3. Evaluation of a first test run

A first trial run of the new component of our language learning environment in spring 2014 involved three students that were studying in Germany at that time. As they were already familiar with their University town, they were asked to travel to a different town and write posts about their experience there.

The students were interviewed about their experiences and observations. A general tendency was that students appreciated having an opportunity to write about every-day experience in German. It was stated that, compared to their opportunities to use the target language in spoken interaction while staying in Germany, their opportunities to write were rather limited. All three informants stated that they enjoyed writing on a social network in German.

On the other hand, some utterances pointed to students being dissatisfied too: students experienced their writing skills as inadequate to what they wanted to express, and noted that the learning environment often did not provide them with the help that they were looking for. Some stated that they had the impression that

the contents of the database was too restricted. All three informants used other websites simultaneously to get help that they did not get within the learning environment.

It was observed that the database was slow when used on mobile phones. Thus, the informants accessed the system from their homes.

4.   Conclusions

In order to be a viable support for learners when interacting in real-life situations or when writing about every-day experiences, a learning environment has to be accurately tailored to the needs of its users. Connecting learning to learners' experiences can only work if the learning environment allows learners to express what matters to them. One of the problems in the test run was that –for practical reasons– all of the informants had a German proficiency of about B2 CEFR, while the learning environment targets learners of A2 to B1. Thus, after having adjusted some details concerning the selection and display of data, we will run another trial implementation with a larger number of informants of levels A2 and B1. The positive response about the learning environment offering students the rare opportunity to write about personal experiences in the target language might allow the conclusion though that our learning environment has the potential to suit our exchange students' needs.

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