

## DESIGNING FOR INCLUSION THROUGH INCIDENTAL LANGUAGE LEARNING

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### Abstract

*The MASELTOV project is developing a framework for facilitating the creation of technology rich and socially inclusive learning opportunities for immigrants within cities. The framework has been developed in the FP7-supported MASELTOV project ("Mobile Assistance for Social Inclusion and Empowerment of Immigrants with Persuasive Learning Technologies and Social Network Services") in response to the project's recognition of lack of language skills as a major contributory factor to the social exclusion of many immigrants. The project intends to exploit the potential of mobile services for promoting integration and cultural diversity in Europe. The framework is intended to facilitate the coordination of existing and innovative technologies, content, pedagogies, game designs, learning processes and practices, into learning services that can be used effectively by immigrants, their networks and mentors, so as to increase immigrants' ability to function in an unfamiliar society. The pedagogical key to this framework is incidental learning, an emerging paradigm in mobile language learning. We present the first iteration of the incidental learning framework, and show an example of its use as a design tool. We discuss issues that have arisen and describe our plans for future development of the framework.*

### 1. Introduction

The MASELTOV project (<http://www.maseltov.eu/>) is developing an Incidental Learning Framework to help create technology supported learning opportunities for recent European Union immigrants. The framework is a descriptive mechanism that permits analysis of mobile, incidental learning, and supports software system design. It aims to facilitate the communication of learning design ideas, especially for incidental language learning.

Incidental learning is spontaneous and unplanned [1]. It can occur anywhere at any time, and is particularly relevant to recent immigrants who are learning a language informally as part of their daily lives. MASELTOV is developing tools and services for smart mobile phones, enabling learning to occur on the move and in context. The learning framework offers a way of exploring how situated incidents create learning opportunities and how these might be used to motivate learners.

### 2. Background: MASELTOV project

Recent immigrants to the European Union are at major risk of social exclusion. The MASELTOV project has identified the potential of mobile services for supporting language learning, integration, social inclusion and cultural diversity. We wish to increase immigrants' ability to function in an unfamiliar society by facilitating communication and language learning using their smart phones. To do this we are researching and developing mobile, context-aware tools to enable users to access and interact with essential information and language services, including ubiquitous language translation, navigation, administrative information and emergency health services. Taking advantage of situation and context, we aim to capture user motivation and extend immediate assistance into more structured learning and interaction with other immigrants and the wider community. The project's target learners are immigrants with a low educational level, and a cultural background distinct from the host country.

### 3. Incidental learning

When a user asks MASELTOV services for help, their goal may not be language learning, but finding a city location, or asking a doctor for help. While informal learning, "which is not provided by a formal ..... institution and typically does not lead to certification" (p.13)[2], is well recognised in education, incidental learning, i.e. "unintentional or unplanned learning that results from other activities"(p.1)[3], is an emerging paradigm in mobile language learning [4]. Vavoula's typology of learning [5] is helpful in exploring the relationship between structured, formal, informal and incidental learning. *Structured learning* is planned, and *formal learning* occurs on learning pathways through pre-established bodies of knowledge, where pathways are defined by experts in the relevant knowledge domain [6]. Vavoula's model identifies a space for incidental learning; however, incidental learning can also occur alongside structured learning: so, for example, a learner may attend a class about writing a job application, but incidentally they may also learn how to describe their work experience in another language. Peer based teaching and learning is particularly relevant in incidental learning, either with more advanced learners or group members acting as both teachers and learners [7].

#### 3.1 Incidental learning applied to language learning

Incidental learning may particularly suit recent migrants who are learning their host country language in everyday life: helping to meet their immediate needs (travel, housing, and dealing with local administration). In second language acquisition research, the term 'incidental learning' is mainly used in vocabulary-learning literature where findings show that vocabulary acquired through casual reading can be increased by techniques including dictionary look-up, focusing on the relationship between form and meaning, and revision after reading [8,9]. We aim to apply this concept in situated mobile learning, thereby exploring its possible range of meanings.

Immigrants' regular journeys between home and the city centre create learning opportunities including just-in-time preparation for communication in the target language; noticing and recording language in use and making instant contact with mentors, volunteers and communities of fellow immigrants who can help. Such opportunities can be used by the MASELTOV services to encourage and extend personally relevant learning.

### 4. The MASELTOV Incidental Learning Framework

MASELTOV's incidental learning framework considers how incremental, opportunistic, social and game-based learning can best support immigrants. Which content areas can be offered, and which technologies are best for each type of content and interaction? It is informed by previous models and frameworks that consider social context [10], mobile learning [11], and the support of a 'More Able Partner' [12]). Other influences are Kolb's experiential learning theory [13], and Park's exploration of the social aspects of learning, adding the idea of mobile devices as mediating artifacts [14]. Finally, we draw on open learner models [15] whereby aspects of the system's model of the learner can be made available to the learner to promote learning and reflection.

The framework depicts interactions from the learner's viewpoint. It can show the learner's journey from one incident to another, over time. Incidents can be interspersed with reflection, planning and structured learning, each of which may be triggered by the MASELTOV system. Incidents are characterised in terms of:

- the **place** the incident (and structured learning, planning or reflection) occurs; place is not just a location, but also specifies some contextual information;
- the **task(s)** the learner is attempting to carry out;
- the **tools** (including content) the learner can or does use to complete the task;
- the **social support** that the learner can or does make use of; the combination of tools and people is conceptualised as a 'More Able Partner';

- the **learning outcomes** that the learner wants to achieve, and those that she/he does achieve;
- the (relative) **time** the incidents (or structured learning, planning or reflection) occur. As learning occurs over time, and previous learning outcomes affect the learner’s readiness for subsequent tasks, the framework must represent the relative time when learning occurs. Time is not just a specification of an instant or a measurement of a duration, but may also include contextual information e.g. ‘lunch time’.

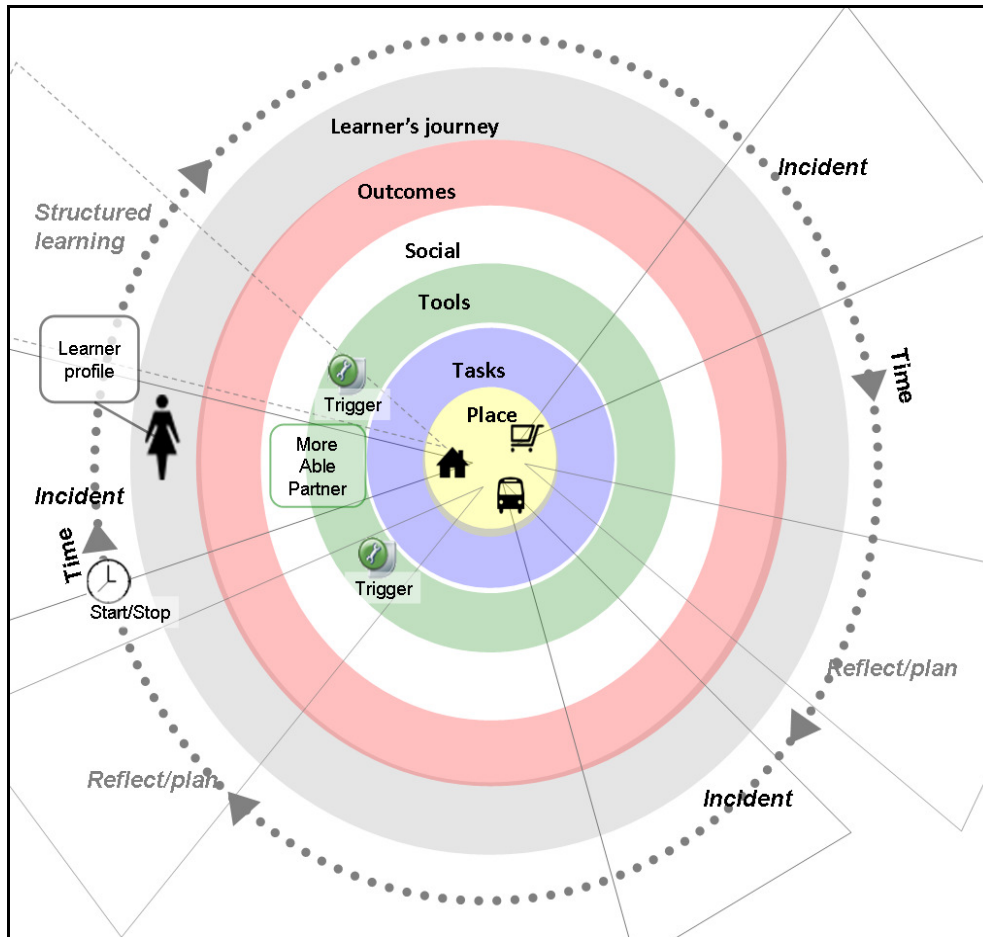


Figure 1: The MASELTOV Incidental Learning Framework

#### 4.1 An example

The framework has been designed to enable learning designers to bridge between an initial conceptualisation of an incidental learning *instance* and a detailed specification of the data and technology interactions needed to support the learner. This specification will include details about data needed to describe learners, places, tasks, tools, social support, learning outcomes and their interrelations, and the relative time when the learning incidents are expected to occur.

#### A learning scenario

Fatima has recently moved to London, and wants to visit her cousin in Manchester. When she gets to the train station, the noticeboard says her train has been cancelled, and contains other information which she doesn’t understand. She uses the MASELTOV sign reader app: “TextLens” to photograph the sign, which then translates it into Arabic, her mother tongue. She now understands that due to a technical problem, buses are replacing the train, and she should ask station staff for further details. Fatima uses her MASELTOV emergency vocabulary tool to find out how to ask where to get the bus.

She practices the phrase, finds a member of staff and asks them how to continue her journey. Having reached her cousin's house, she uses the MASELTOV social learning tool to practise vocabulary around 'travelling' with other learners which will be useful for future trips.

**Applying the incidental learning framework**

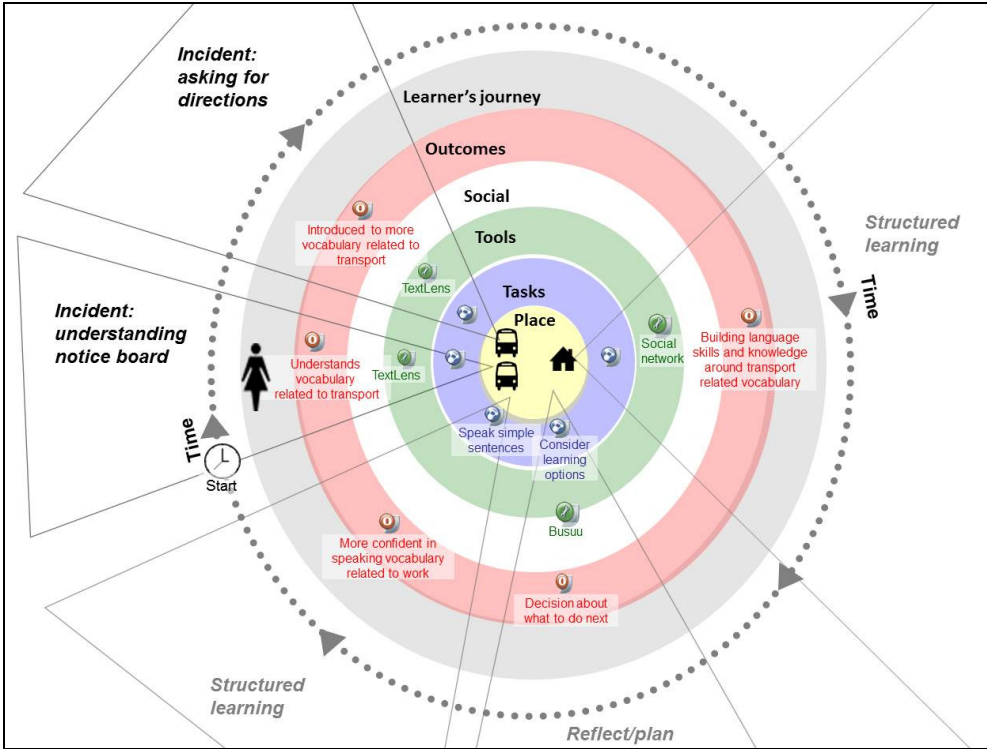


Figure 2: Mapping the learning scenario to the Incidental Learning Framework

This scenario can be mapped to the learning framework (see Figure 2). Learning designers can now examine how the MASELTOV system can take account of the significant elements revealed, and consider what resources, tools and activities are needed. The train cancellation incident can be seen as a step along the learner's cyclical journey which alternates between structured (planned) and incidental learning. Within a foreseeable situation such as having to ask directions and understand a notice board at the train station, unanticipated incidents will occur, and over time, a great deal of data can be gathered about best how to support the learner and take advantage of such incidents to extend their learning. For example, the MASELTOV system might generate an individualised lesson automatically from Fatima's use of the TextLens for translating the notice board message; it can also identify 'More able partners' to continue to support her learning whilst at her cousin's house. We plan to use evaluative feedback about learning progress from the learners themselves, and from a real-time assessment of mobile multisensory data about user behavior and affective computing.

**5. Conclusion and future development plans**

We have presented the first version of the Incidental Learning Framework which allows us (1) to analyse mobile incidental learning and (2) to facilitate the communication of learning design. One limitation of this framework is the difficulty of presenting complex situations in a single diagram. However, further versions of the framework will take advantage of lessons learnt by prototyping and testing MASELTOV tools and services, and user feedback during the project. The representation in Figure 1 is the basis for modelling one iteration of a learning pattern [16]. Overall, we believe that the MASELTOV Incidental Learning Framework provides a novel and powerful tool for supporting

incidental language learning through enabling learners to make optimum use of opportunities that occur in their everyday life.

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