

User-centred design, participatory methodology and incidental learning of language-culture: how to test the effectiveness of this approach? The case study of the UniOn app

Antonella Valva

Department of Modern Languages, Literatures and Cultures

University of Bologna

Bologna, Italy

antonella.valva2@unibo.it

ABSTRACT

This short paper aims at a preliminary critical reflection upon the testing of UniOn, an application for mobile devices fostering the incidental learning of languages and cultures. The UniOn app was developed within the ILOCALAPP project (www.ilocalapp.eu) by an international and multidisciplinary partnership and it exists in four versions, each of them related to a specific language and culture, and each of them geo-localised in a specific city. The app has been freely available on the stores since the first prototype was ready, and since then different tests have been carried out aiming, initially, at the detection of any shortcoming and, finally, at proving its effectiveness. In this work we will focus upon the version geo-localised in the city of Bologna and we will describe the actions in place in order to verify if the incidental learning of Italian language and related culture takes place. We will firstly briefly introduce the UniOn application and describe its features; we will then provide a short outline of how the app was designed and developed, especially as far as the participatory approach is concerned. In the second part, we will recall the first tests carried out and we will present the future tests already planned with a special regard to the theoretical perspectives concerning the incidental learning of languages. We will finally conclude providing some preliminary considerations with an opening also towards the other versions of the UniOn application.

KEYWORDS

Mobile application, user-centred design, participatory methodology, incidental learning of language-culture, testing

1 The features of UniOn, an app designed following a participatory methodology

UniOn is an application for mobile devices planned and developed within the ILOCALAPP project (Incidentally Learning Other Cultures and Languages through an APP) between October 2015 and August 2018 with the specific aim of improving the quality of student mobility. In principle in fact, the UniOn application is meant to support international university students

spending a period in one of the hosting cities covered by the ILOCALAPP project (Bologna, Coimbra, Rovaniemi, Poznan) to integrate the local reality, both in terms of language acquisition and cultural awareness, but also as far as practical information is concerned [1, 2]. Very soon the app scope enlarged and embraced various other typologies of target users (e.g. high-school students, visiting scholars, tourists, migrants, just to mention a few of them). The relevance of the app for these users – and the changes potentially needed – are under examination. In this short paper, however, we refer only to the tests carried out with the first typology of end-users; the reasons for this choice being the following: i) international students are still the group numerically more relevant and ii) they were included in the whole process of development and since the very beginning.

As anticipated, the end-users played a crucial role already in defying the methodological specifications of the UniOn app. They were consulted using both traditional channels (online surveys and face-to-face reviews) and also applying some principles based on the user-centred design approach and the participatory methodology [3]. The end-users were involved in experience-prototyping sessions and they were invited to test the prototypes available at the different stages of production, as we will better outline below [4]. These operations were combined with the theoretical reflections within the project consortium and resulted in a dedicated methodological document covering, among other issues, the practical implications of having a “learner” who is at the very same time also a “user” of the app. Following this perspective, the design and the development of the UniOn app were based on three core values: i) the app is collaborative and participatory, meaning that the learner/user is in control and that learning and usage of the app are constructive (i.e. they include the possibility of co-construction); ii) the app is integrated and situated, meaning that learning is context-aware and context-specific; iii) the app is informal and incidental, meaning that learning represents a by-product of other activities carried out by the users (e.g. exploration of the new city, observation of the new location, interaction in the new place) [2]. These three core values are incorporated in – and at the same time sustained by – the concept of “mobile”: the UniOn app exploits and promotes mobile

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learning, for which boundaries between educational settings, life and work are more permeable [5].

In all the four versions of UniOn, all the contents of the app are organised in eight main categories, and then in thematic groups, or subcategories, and then again in texts and insets. In other words, the contents branch out from a macro-level (the category) to in-depth sections (the insets), passing through intermediary sections (the sub-category and the text). The eight main categories include the following fields of contents: i) university life; ii) getting around; iii) food & drink; iv) worth seeing; v) entertainment; vi) lifestyle; vii) services & needs; viii) shopping. In addition, there is a ninth category called WordZ which daily shows the word (or the phrase) of the day.



Figure 1: Screenshot of the home page of UniOn Bologna showing the 9 categories (on the left) and screenshot of the access page of Category 6 (on the right)

Within each category, the texts contain language, culture and practical information [6]. Gamification elements are also available in each category and can be accessed from a specific icon depicting the games. The games exploit three types of format (matching, filling in the blanks, multiple choice) and can be played at any time (as an introduction to the category and/or on the way out of the category, even though this latter solution has to be envisaged in order to foster memorisation of category's language contents). All the app contents are fully accessible without following any suggested order, through the categories and subcategories menus. Contents can be also accessed through the notifications sent to the users, which are based on geo-localisation, and through the search function. Images, audio, videos, links to external resources are also available throughout the application, which can be used almost entirely offline (links to external resources require a connection, though). Some settings are customisable (font size, notifications), and selected dictionaries, along with the possibility to save notes and a dedicated Facebook group are also available.

When it comes to the specific features of the UniOn-Bologna version, it contains 112 texts, each of them relating to specific lexical notes and to language tips to talk; and there are 106 geo-

localised Points of Interest. All language proficiency levels are addressed by UniOn-Bologna: all texts are both in Italian, which is the default language, and in English (the user can switch at any time); in addition, the Italian texts are marked with a coloured flag indicating if they are “appropriate” for the beginners, intermediate or advanced levels.

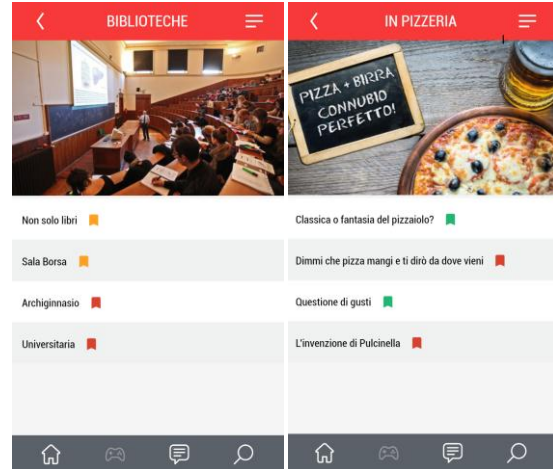


Figure 2: Screenshots of the texts available in sub-category “Libraries” in cat. 1 (on the left) and of the texts available in sub-category “Pizzerias” in cat. 3 (on the right)

Moreover, almost all Italian texts end with an open question for the users which is aimed at inviting them to reflect upon the text itself and upon the information provided, thus indirectly encouraging learning [7]. The finalised version of UniOn-Bologna has been available since August 2018 and it is currently in use.

2 Testing UniOn, can we verify if incidental learning occurs?

During the development phase of the UniOn app various tests have been carried out, applying the user-centred design and the participatory methodology. The details of these preliminary tests are reported in previous contributions [4, 6, 7]. Briefly, the feedback collected confirmed that the topics in the app were considered useful and interesting and the texts understandable, even though quite long. The games were indicated as useful to fix information, and in general the learning was perceived as quite intuitive. The layout was also considered intuitive, as the icons helped identify the contents, and the design quite attractive; all in all, the app was considered user-friendly. There were different positions about the notifications related to the geo-localised contents: some test users considered the system as perfectly working, other reported some problems.

In this short paper, however, we would like to focus on the tests carried out in Bologna in summer 2018 with the final prototype of UniOn-Bologna, and right before the launch on the finalised version. We would also like to introduce the tests which are going to take place in winter 2018.

In summer 2018 the app was presented and used within two Summer Schools which took place in Bologna: i) the International Summer School in Digital Storytelling We Tell (www.wetell.eu/summer-school) and ii) the Italian Language and Culture Summer School 2018 (<https://events.unibo.it/italian-language-culture-summer-school>). In both cases, the participants were given a formal presentation about the app, its features and its functionalities. In the first case, students were then helped and guided by a tutor, who suggested and did with them concrete activities using the app. In the second case, the users were only suggested some examples and possibilities of usage and then they were autonomous in the app testing. Only the first group submitted a feedback survey about the app but in both cases there was a face-to-face review of the app effectiveness.

Both the written survey and the oral reviews included the following points of attention:

1. An overall assessment of the app in which the users were invited to express their agreement with 15 statements using a Likert scale. The scale ran from 1 (totally disagree) to 5 (totally agree) and the statements concerned various aspects (topics, texts, lexicon, usability, comprehensibility, usefulness, effectiveness).
2. The user's own perception of learning, again using a 1-5 Likert scale running from 1 (totally disagree) to 5 (totally agree), focusing upon the change in language and culture competence due to the use of the app.
3. An open reflection about some specific features (notably the "add notes" in order to include the user's own experience within the app).
4. Some personal information in order to better define the profile of app users.

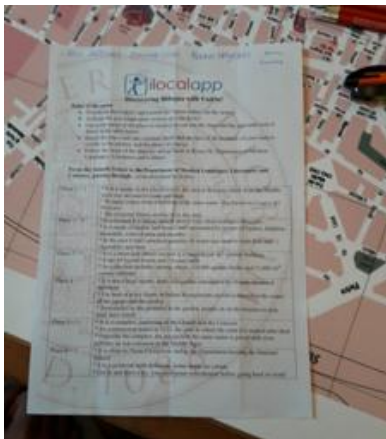


Figure 3: Some materials used in preparation for the testing

The written survey was returned by a small group of users (7 in total, all belonging to the first summer school), whereas the oral review took place with 15 users of both schools. The results of this initial round of testing (collected both by written and oral surveys) can be summarised as follows.

Topics covered by UniOn-Bologna are generally considered useful and interesting, texts are quite understandable and lexicon sheets and games are useful to understand and memorize new words. The talk section and the open questions stimulate the interaction, the active use of language and the self-reflection. The app is user-friendly even though the geo-localisation is sometimes problematic. The app helps better understand the local environment and get familiar with Italian culture, it makes the users more confident with "passive skills" (understanding written and oral texts) but not necessarily more confident with "active skills" (speaking and writing). In general, the information provided within UniOn is huge and sometimes the users don't feel encouraged to use the Italian version (especially beginners report frequent switches to the English version); the notes are often used to write down phrases, responses, proper spelling.

A general consideration emerged from these pilot users: they felt that the app had a "potential" but they didn't even have the chance to fully exploit it (mainly for time reasons, being their stay very short); this feeling impacted upon their perception of learning being considered only as partially occurring.

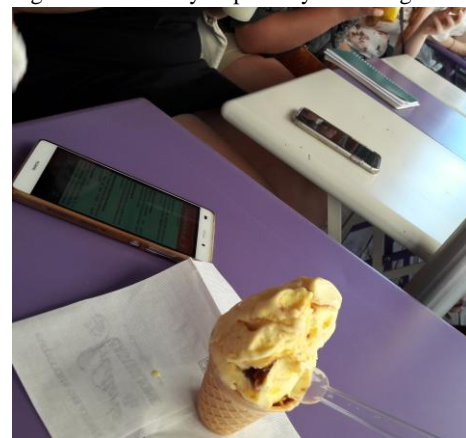


Figure 4: End-users during one of the testing sessions

It is worth mentioning that when the tests took place (June-July 2018) some minor refinements were still to be implemented, being the app still a prototype, even though a final prototype. Moreover, the number of people involved in these tests was quite small, and therefore the lesson which can be drawn is only partial and does not lead to any general conclusions. These summer tests were important nevertheless, as they opened the way to the more structured test which is in place for the winter 2018 and that is going to involve a higher number of participations (40 have already registered) and for a longer period (see below).

All in all, the theoretical question behind this kind of investigation focuses upon the (im)possibility to assess incidental learning. As it is known, incidental learning is informal, non-intentional and stemming out from other activities [8], and the mobile context provides increasing opportunities for it to take place [9]. Even though incidental learning is considered as relevant as intentional

learning, there is little research documenting its effectiveness, and even less when it concerns mobile learning [10]. With the UniOn testing, we are asking the users to self-assess the app effectiveness, we are encouraging them to reflect upon and gain awareness about the improvement of certain skills. In other words, we are focusing upon the user's perception of learning.

Learning perceived	Assessment statements
After using the UniOn APP, do you think that your language and culture competences in Italian have changed? Please rate the following statements from 1 (totally disagree) to 5 (totally agree)	I am (more) familiar with Italian culture
	I feel more confident when I read Italian texts
	I feel more confident when I listen to/write in/speak Italian
	I understand better the local environment

Table1: Example of criteria used to self-assess the users' perception of learning

What we are investigating is the personal feeling of the users about a set of given assertions related to the progress in language proficiency, the knowledge of cultural aspects, and the integration within local reality. Even though the formal testing is the most common way to measure achievement and proficiency in language learning, and it is still considered the most effective tool, self-evaluation and self-assessment are sometimes applied as non-traditional ways of judging students' performance [11]. In this perspective, self-evaluation and self-assessment are useful to raise awareness and to encourage improvement.

3 Preliminary results and future perspectives

As anticipated, some preliminary conclusions can be drawn from the summer testing of the UniOn app, which are useful to shape the next testing and to analyse the results. First of all, the summer users were all going to spend a limited period of time in Bologna. Their short-term stay influenced their attitude: they were not interested nor motivated to reach a high language proficiency; on the contrary they were extremely curious about fun facts and practical information, to be used immediately. The claimed complexity of the app-contents and the partial satisfaction about language learning is also linked to this factor. Moreover, the majority of them were English native-speakers and the others were very fluent in English: in many circumstances they (wrongly) expected that their English competence would be sufficient to exploit the local environment. Their preliminary study of Italian prior to this experience was limited or null; on the contrary, all testers had had previous experience with other apps for language learning, and this somehow influenced their judgement, being UniOn very different from a conventional app for language learning.

We are aware that the number of results collected so far is still limited. The testing is only in its initial phase and it will need to be boosted with more data in order to be relevant. As a general approach, however, being able to collect background information about the test users helped a lot. Not only it enabled to identify the

users' profile, it also allowed to structure a better interpretation of the results collected and a more in-depth critical reflection upon them. In addition, when it comes to the assessment of incidental learning, it will be crucial to raise self-awareness and self-evaluation in order to be able to investigate its effectiveness. A further development could be the combination of formal and informal testing, and the comparison of these different sets of data.

Finally, similar studies are in places also as far as the other three versions of the UniOn app are concerned, that is: i) the Finnish app geo-localised in Rovaniemi; ii) the Polish app geo-localised in Poznan and iii) the Portuguese app geo-localised in Coimbra. A comparison among the results collected for the four versions of the UniOn app could be the object of a future, enlarged investigation not limited to the Italian language and culture but aiming at more general considerations about language-culture incidental learning.

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REFERENCES

- [1] Ceccherelli, A., Cervini, C., Magni, E., Mirri, S., Rocchetti, M., Salomoni, P. and Valva, A., 2016. The ILOCALAPP project: a smart approach to language and culture acquisition. In *The Future of Education Conference Proceedings* (pp. 270-275).
- [2] Cervini, C., Solovova, O., Jakkula, A. and Ruta, K., 2016. Mobile assisted language learning of less commonly taught languages: learning in an incidental and situated way through an app. In *CALL communities and culture—short papers from EUROCALL 2016* (pp. 81-86). Research-publishing. net.
- [3] Sanders, E. B. N. (2002), *From user-centered to participatory design approaches*. In *Design and the Social Sciences*. J.Frascara (Ed.), Taylor & Francis Books Limited.
- [4] Mirri, S., Rocchetti, M., Salomoni, P., Mambelli, G. and Valva, A., 2017. On the design of an app for foreign languages incidental learning. *IEEE Symposium on Computers and Communications (ISCC) Conference Proceedings* (pp. 111-116).
- [5] MacDonald, J. & Creanor, L., 2010. *Learning With Online and Mobile Technologies: a Student Survival Guide*. Farnham, Surrey, England: Gower
- [6] Valva, A., Mirri, S., Salomoni, P., 2018. User centred design applied to an app for incidental learning of languages and cultures, in the proceedings of the 12th International Multi-Conference on Society, Cybernetics and Informatics: IMSCI 2018.
- [7] Cervini, C., 2018 (in press). *Esperienze linguistico-culturali a Bologna: apprendere l'italiano L2 con UniON*. In Viale M. (a cura di), *Esperienze di e-learning per l'italiano*, Bologna: Bononia University Press - BUP.
- [8] Kerka, S., 2000. *Incidental learning: trends and issues*. Alert No. 18, Educational Resources Information Center.
- [9] Bachore, M.M., 2015. *Language Learning through Mobile Technologies: An Opportunity for Language Learners and Teachers*, *Journal of Education and Practice*, vol.6, no. 31
- [10] Hulstijn, J. H., 2003. *Incidental and intentional learning*. In C. Doughty & M. Long (Eds.), *The handbook of second language acquisition* (pp. 349-381). Oxford: Blackwell.
- [11] Darginaviciene, I., 2017. *Self-assessment of language skills and evaluation of performance in English for specific purposes classrooms*. In *SOCIETY. INTEGRATION. EDUCATION Proceedings of the International Scientific Conference*. Volume III, May 26th-27th, 2017 (pp. 601-614).