
**Enriching Formal Language Learning with an Informal Social Component**

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**ABSTRACT**

This paper describes an informal component that we added to an online formal language learning environment in order to help the learners reach relevant Internet pages they can freely use to complement their learning activity. Thanks to this facility, each lesson is enriched, at run time, with a number of links automatically retrieved from social bookmarking sites. The learners also have at disposal a micro-evaluation system allowing them to share within the environment their like or dislike of the visited web sites, giving their fellow learners indirect guidance for fruitful web exploitation. Our analysis of the retrieved bookmarks for different kinds of learning contents shows that suitable links are actually retrieved by this facility. Moreover, a pilot experimentation revealed that students actually feel inclined to make use of this facility and appreciate both the proposed links and the possibility to receive advice from their peers by means of the micro-evaluation system. This suggests that the added facility actually constitutes an opportunity of informal learning suitably connected with formal one.

**Keywords**

Informal learning, Online learning, Social bookmarking, Language learning

**Introduction**

This paper describes and discusses an informal facility that was added to a formal online environment for language learning, so as to offer learners an opportunity to freely complement learning activities by easily reaching out to external Internet pages related to each activity’s content.

Informal learning has been gaining increasing attention in the past decades, especially in relation with adults, as a crucial element to be valued in order to support competence increase in the workplace (Cross, 2006; Colardyn & Bjornavold, 2004; Marsick & Watkins, 2001) and foster lifelong learning (Vavoula & Sharpless, 2009). Informal learning is usually grounded in experience and can influence both cognition and behavior (Hoekstra et al., 2009). Its free and voluntary nature is well expressed by Cross (2009) by means of a powerful, evocative image: “Informal learning is the unofficial, unscheduled, impromptu way most people learn to do their jobs. (...) Informal learning is like riding a bicycle: the rider chooses the destination and the route. The cyclist can take a detour at a moment’s notice to admire the scenery or help a fellow rider.”

Creating opportunities for informal learning can produce a positive return also on formal education, which informal learning complements by putting into play different kinds of strategies and personal goals (Boekaerts & Minnaerts, 1999), as well as by helping to create a wider perspective on the object of study and contributing to increase learners’ engagement (Cross, 2006). A two-way influence between the formal and informal realms has been spotted by some authors; for instance, Ivanova and Popova (2009) remark that in suitably structured environments “informal learning flows supplement and enrich the formal learning process and ... formal learning flows are premises for informal learning to occur”.

In order to create a positive synergy between formal and informal activities, a clear connection among them should be established, yet respecting the lack of compulsion and imposed structure that characterizes (and makes appealing) the informal realm. The literature reports several proposals, mostly relying on social approaches and web technologies, targeted at creating opportunities for informal learning and connecting them with formal education (e.g., Bartlett-Brag, 2008; Breuer et al., 2007; Eshach, 2007; Hodkinson et al., 2003; Lucas & Moreira, 2009; Pettenati & Ranieri, 2006). Also this paper aims to contribute in this respect, by proposing an approach to help students exploit the learning opportunities provided by the web, freely and according to personal tastes yet in connection with their formal learning path.
In the next section we summarize the potential of social networks, and in particular of social bookmarking, as an opportunity for informal learning. Then we describe the language learning platform on which we have been working, together with the newly added informal learning facility based on the use of social bookmarking, highlighting its aims, structure, operation and implementation. Finally, we discuss the validity of our proposal by analyzing an example of use, pointing out how the introduction of the bookmark-based facility helps to integrate formal and informal learning, and spotting which appear to be its potential benefits and limitations.

Potential of the social web for language and informal learning

The Internet represents an important resource for language learners, in that it allows them to get in touch with a huge amount of “real” documents providing a rich variety of examples of language use in contexts that can raise the user’s interest (Dudney, 2007). The development of the so-called Web 2.0 also offers a wealth of possibilities to interact, in a variety of ways and formats, with people around the world, especially in social spaces (Thomas, 2010). Such contacts - with people and socially constructed content - which can be exploited by the learners in quite informal way, deciding day by day what to access and what use to make of it, favor meaning construction, knowledge contextualization and skill practice, and are therefore a rich source of language learning, albeit in a different way than formal instruction.

Thanks to the fast flourishing of social spaces where people, unsolicited and spontaneously, exchange any sort of information, opinions and materials, the web is currently considered the place for informal learning par excellence, that extends to potentially anyone the possibilities of informal learning that were once characteristic of the workplace, that is, learning in unplanned way by getting in touch with the experience and expertise of fellows. As a matter of fact, there are many interesting examples with an evident learning potential, which range from the posting of videos (many of which are expressly targeted at showing how to do something), to public forums where people can ask for advice to tackle any kind of problem (hence indirectly learning from each other’s competence), and up to communities of practice in which a closed group of people deliberately shares professional issues and competence, getting in return cultural, cognitive and motivational support.

A common feature in most of such spaces is the possibility for the visitors to express an opinion on the posted materials in synthetic form, that is, by selecting a like/unlike option or attributing a number of stars. This is a simple way to transform lurkers into participants, revealing their presence, and at the same time brings to the fore what has been defined “the wisdom of the crowd” (Surowiecki, 2005), that is, it lets excellence emerge from participants’ appreciation.

Among the many sharing possibilities offered by the Internet, we decided to rely on social bookmarking because it appears a simple, fast, unobtrusive yet powerful tool suitable to be used in the formal learning situation we desired to enrich. Shared bookmarks represent a natural and powerful extension of web navigation tools which provides a mix of direct advice, given by the bookmark’s proposers, and indirect guidance deriving from the preferences expressed by the other users (Millen et al., 2007). Bookmark collections value the human presence in online communities, in that links here are not discovered by automatic procedures, but searched, recorded, tagged and rated by users for their own benefit and voluntarily made available to other users (Hammond et al., 2005).

Social bookmarking aims to create connections rather than new contents (Berger & Trexler, 2010). This recalls connectivism’s view of learning (Siemens, 2005) according to which “[k]now-how and know-what is being supplemented with know-where (the understanding of where to find knowledge needed).” In this perspective, bookmark collections represent a relevant source of learning.

An integrated system

The formal platform

The CliRe platform, first launched in 2008, is used at the Faculty of Foreign Languages of the University of Genoa (Italy) to complement face-to-face courses offered for five different languages (English, French, German, Spanish, Italian for foreigners), with a total of around one thousand registered users (Torsani, 2012). It was developed based
on a traditional, non-interactive approach and mirrors the organization of typical self-study courses, in which a learning subject is divided into lessons to be tackled sequentially, each focused on a chosen topic.

In this platform, teachers build learning environments for their courses by creating learning units, each of which includes a number of compound activities focusing on some topic of grammar (e.g., the past perfect), vocabulary (e.g., weather forecasting), linguistic functions (e.g., asking for directions), culture and civilization (e.g., the Highlands in the UK), linguistic skills (e.g., listening comprehension) or a combination of them. Compound activities are the core element of the entire course structure and are made up of different basic activities, such as listening an audio file, reading a text, analyzing examples, solving exercises of various types (fill the gap, match, quiz, etc., but no collaborative tasks). Figure 1 shows the page of a typical unit where the compound activities are accessed by the users in sequence, by clicking on the icons placed along a curved path. Learning units are sequenced to form modules. Teachers also have the possibility to endow each activity with keywords describing its contents.

![Figure 1. A unit in the formal language learning environment](image)

The platform is quite neutral with respect to the teaching methodology: It only provides teachers with the tools they need to construct their courses (i.e., to input activities and to sequence them as desired). All learning contents, the kind and amount of activities proposed, the choice to use which multimedia (if any) to help convey or construct meanings, as well as the sequencing and combination of topics are completely decided by each teacher, who determines, by this mean, a pedagogical approach for each course proposed on the platform and takes care to make the lessons more or less alive, foster some linguistic skill in particular, stimulate reflection, and so on. A number of tools (a dictionary, a set of grammar flash cards and web resources) can also be attached to each module by the teacher, so as to provide learners with some support. Different courses offered on this platform can therefore have different teaching and learning characteristics, even though they are presented in the same format.

Students are requested to complete all the tasks within a compound activity before passing to the next one, all the activities of a unit before progressing to the next unit, and all the units of a module before moving to the next module. They are always allowed, however, to return to any part already completed, in order to rehearse it.

After an initial implementation, the platform has been progressively improved by adding functional components (e.g., a compound dictionary system) apt to further facilitate and stimulate learning. Moreover, the platform is currently undergoing a further, deep revision aiming to make it suitable to be used for the activities of a newly established Linguistic Centre. Besides improving the platform, such developments also have the research aim to investigate how language learning can be made more effective and pleasant even within the context of a traditional, self-study approach (Poli & Torsani 2010).

**An opening towards informal learning**

A recent step along the line of improving the language platform is the bookmark facility which is the focus of this paper. It aims to open the platform to the external world in a focused way, so as to suggest relevant opportunities of
informal learning connected with the users’ formal learning activity. It also aims to support students’ motivation by helping them to overcome the sense of isolation and boredom that Nielson (2011) points out as the cause of a fast decrease of interest in the users of autonomous instruction courses.

This facility performs a search on various social bookmarking websites, based on the descriptive keywords specified by the teachers while designing their courses, and displays a selection of likely related and valuable links at the end of each activity. The website suggestions are not statically included in each activity’s page, but dynamically retrieved each time a student accesses an activity. We chose to repeat resource retrieval at every runtime in order to avoid having a static list of resources for each activity, which would be the case if links were retrieved only once. Looking into social bookmarking instead of directly on the web aims to offer links which have already been filtered by other users, and hence are more likely interesting.

This bookmark facility also includes a micro-evaluation system: Each link listed is followed by two clickable icons to let the users who have visited the link express their like or dislike of it. Each bookmark can be voted only once by each student. The expressed evaluations are stored and summed up so as to be shown at the next use of that unit by any platform user. Bookmarks that receive “dislike” marks are moved down in the list and eventually eliminated. Figure 2 shows part of a list of bookmarks displayed in a compound activity, where the keyword assigned by the teacher was the cultural topic “English proverbs.”

Using any of the links and the micro-evaluation is completely discretionary for the students and does not contribute to the accomplishments required for credit; in other words, missing to use these links does not impede the user to move on to the next activity, unlike the teacher-assigned tasks, which are compulsory in order to proceed along the formal learning path.

The possibility to express a personal evaluation of the bookmarked sites and to see the preferences of the classmates is not only a useful filtering device but also has some relevant educational purposes: to stimulate curiosity; to help the users feel part of a community from which they can obtain useful suggestions; to stimulate the users to look at the visited sites with a critical eye. Curiosity is recognized as a component of motivation according to the model of Malone and Leppers (1987). Also creating a sense of community contributes to raise motivation (Reinders & White, 2011) and to keep interest alive (Nielson, 2011). Finally, expressing an opinion requires the users to pay attention to what they consider valuable and to develop critical abilities; this is recognized to have a positive influence on learning (Berger & Trexler, 2010).

**Figure 2.** Bookmarks listed at the end of a learning unit

**Technical realization**

From a technical point of view, this facility was developed through a combination of scripting languages and techniques. We exploited the Jquery Javascript class to make a web page automatically call a script that queries several social bookmarking websites, fetches the returned data and outputs them on the web page (Poli & Torsani, 2012). At the moment, the search is made in three sites which offer a good choice of references interesting for
language learners: Delicious (http://delicious.com/), Digg (http://digg.com/) and xMarks (http://www.xmarks.com/).

A higher number of bookmark sites could also be used. In case less than 15 bookmarks are returned from bookmark sites, a search engine (Yahoo) is also queried.

The system uses the descriptive keywords (which were originally introduced to categorize the activities) to query each considered social bookmarking site, and retrieves the resources as suggested by the site’s users; the collected resources are then sorted and returned to the platform users. Since each site is organized differently, different procedures have been designed in order to retrieve as good as possible results. Some, like Delicious, offer a RSS feed service, hence a public RSS file can be parsed, while in other cases the page’s code needs to be analyzed and the results retrieved by means of data mining procedures. Once a list of resources has been collected, our algorithm sorts them so as to have the most likely suitable ones on the top. This is done through a two-step procedure resulting in a numeric value assigned to each resource of the list. This value is first incremented through a simple match relevancy procedure, and then is incremented or decremented based on previous users' evaluations. Based on this value, the system chooses the first fifteen elements of the list, which are displayed on screen, while the remaining ones are left hidden and saved for possible later use.

The whole retrieval and selection procedure is schematized in Figure 3. The system queries different portals through the activity's keywords (A – the search engine is in grey as it is queried only in case social bookmarking websites return too few results); the retrieved links are temporarily stored (B) and sorted according to a keywords match and previous users evaluations (C). The results are finally sent to the activity's page (D) where the user can evaluate them and her/his vote is recorded for future filtering (E).

![Figure 3. Schema of the technical realization of the bookmark facility](image)

### Evaluating the bookmark facility

In order to evaluate if the described bookmark facility actually fulfills the proposed aims and can be considered a valuable tool to connect formal and informal learning, we need to check three aspects:

- Does it really retrieve relevant bookmarks which are related to each activity’s content, so as to help realize a seamless integration between formal learning in the online environment and informal learning on the web?
- Do the students feel inclined to use this facility (including the micro-evaluation system), and do they find it useful?
- Does this facility actually contribute to support users’ motivation?

Moreover, we will also comment on the cost-effectiveness of our proposal.
Relevance of the bookmarks retrieved

It is obviously not feasible to check the behavior of our bookmark facility in relation with all possible learning contents. Hence, we carried out an analysis of its outcomes on a sample of cases covering the various types of content-based activities that teachers propose in the considered language learning environment, namely grammatical, lexical and cultural/civilization topics. The gathered data are shown in Table 1, which compares the links obtained by searching the same keywords in 3 cases: (1) with a very diffused and appreciated search engine (Google); (2) with our bookmark facility, at an initial use, before micro-evaluations have been expressed; (3) with our facility, after six users had expressed “likes” and “dislikes” for the visited links. For the sake of simplicity, we limited this comparison to the first ten links retrieved, i.e., the length of one Google result page (which is what users mostly consider in a quick search).

We classified the links obtained in 3 groups: (1) not pertinent (N), in case of broken link or content not related with the assigned keywords; (2) pertinent but not interesting (P), in case of page with topic related to the keywords but limited or redundant content (e.g., more advertising than text and learning activities); (3) relevant and interesting (I), in case of pages with content not only related to the keywords but also worth the time to visit them for at least one of several reasons: richness, accuracy, variety and good organization; feedback on activities’ execution; clear and concise explanations; public discussion on the related topic; games involving language use while putting into play some cognitive processes (because cognitive processes such as selecting, classifying, ordering, reasoning and evaluating information imply linguistic choices and are deemed to be favorable for language learning (Ellis, 2003)).

<table>
<thead>
<tr>
<th>Type of topic</th>
<th>Activity’s title</th>
<th>Keywords used</th>
<th>Retrieved by Google</th>
<th>Retrieved by our tool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>N  P  I</td>
<td>N  P  I  N  P  I</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>Jobs and professions</td>
<td>Professions, jobs, English</td>
<td>5 1 4</td>
<td>3 1 6 - 2 8</td>
</tr>
<tr>
<td>Grammar</td>
<td>Second conditional</td>
<td>Second Conditional</td>
<td>1 - 9</td>
<td>4 - 6 1 1 8</td>
</tr>
<tr>
<td>Vocab./Grammar</td>
<td>Prepositional / Phrasal verbs</td>
<td>Phrasal Verbs, Propositional Verbs</td>
<td>- 6 4</td>
<td>1 3 6 - 2 8</td>
</tr>
<tr>
<td>Culture/Civilization</td>
<td>Proverbs</td>
<td>Proverbs, English</td>
<td>2 5 3</td>
<td>3 3 4 1 1 8</td>
</tr>
</tbody>
</table>

*Note.* N = not pertinent; P = pertinent but not interesting; I = pertinent and interesting.

As it can be seen in Table 1, only in one case, a complex grammatical topic, the number of interesting links retrieved by Google is higher than those of our bookmark facility. This can be explained by the fact that grammar-related keywords are quite standard (e.g., “second conditional” almost unambiguously denotes this very grammar feature) and this facilitates the task of search engines. In all other cases, on the other hand, the number of interesting links retrieved by our bookmark facility is higher than those retrieved by Google, even though not excellent, already at first use. Moreover, the number of interesting sites is always higher than the number of pertinent but not interesting ones, likely because the search is made among links already selected by other people; this is often not the case with the results of Google search.

It must also be noted that the use of the micro-evaluation device improves the number of interesting links displayed by our facility in that the “likes” assigned to a link make it move up in the list, while the “dislikes” make it move down, giving the possibility to yet non-voted (and possibly interesting) links to be proposed to users’ attention and evaluation. Repeated use, therefore, increases the number of interesting links in the top positions of the list, hence improving the performance of our bookmark facility. This is in line with the claim of Hammond and colleagues (2005) that social spaces with micro-evaluation facilities progressively increase their worth: “the more they are used, the more value accrues to the system itself and therefore to all who participate in it.”

A list of only interesting links is never reached in the analyzed cases possibly because the varied and ever changing nature of internet makes it difficult to completely eliminate broken links and disguised commercials even from social bookmarking sites. Moreover, only a limited number of micro-evaluations was carried out in this example, and we
can expect the number of interesting links to increase further when the facility is used by a high number of students. This possibility to enhance the outcomes even after a limited number of uses offers teachers the possibility to improve from the beginning the quality of the links proposed by rating a few times the bookmark list before opening the service to their students. This appears to be a good practice in order not to discourage the users of new activities (whose bookmarks have not been rated yet) from carrying on individual web explorations.

In the considered examples, the choice of keywords used was minimal. Analogously to direct web search, keywords are crucial to determine the suitability of the links obtained. Very rich sets of keywords usually lead to poor outcomes, in that it may be difficult to find sites that concern all of them. Also the language in which the keywords are specified has an influence on the outcomes, because it is not uncommon to find pages on a given topic in different languages. In this example, we have specified the target language among the keywords only in two cases (Jobs and Proverbs) for which pages in different languages would very likely be found otherwise. In the other two cases, the strong specificity of the grammatical expressions involved (Second conditional and Phrasal verbs) was sufficient to obtain links to English pages.

Interest and appreciation of the students

We run a pilot experimentation in order to test students’ appreciation and actual use of this facility. To this end, we prepared one module of an English course at intermediate level, including all the various kinds of activities supported on the platform, and made a call for voluntary users. We intentionally avoided involving a class because we wanted our experimental subjects not to know each other and not to be in condition to influence each other’s behavior and perception by communicating outside the platform. Sixteen students (ten females and six males) were enrolled in this pilot course, with different backgrounds and learning needs, of age between 20 and 42. None of them had used the CliRe platform before the introduction of the bookmark facility. All the participants were sent access credentials at the same time and were asked to complete their activity in the pilot course within three weeks.

We decided to make a qualitative analysis of the experience’s outcomes because we thought that a rich description of participants’ actions and perceptions could help to shed light on the tool’s actual functioning and usefulness more than analyzing a quantification of visited websites and related micro-evaluations. We collected the participants’ stories and opinions by means of semi-structured interviews so as to make sure to touch the same points with all of them yet leaving them free to personalize their reports. We asked: (1) if they had used the bookmark facility and how extensively; (2) how they had chosen the links to visit (e.g., links with a good evaluation or with an appealing title); (3) how they judged the visited bookmarks as concerns pertinence to the formal activity just carried out, interest and accuracy of the content, and usefulness for their learning; (4) if the possibility to reach related websites from within the very course platform had been useful, made the course more interesting and rich, and helped them to learn more. We also asked if they were familiar with social spaces and with the micro-evaluation system.

Among the collected interviews, we selected two which appear particularly interesting in that they represent two extreme positions, that is, the most and the least enthusiast participants. Their reports are summarized below.

E. is a working adult aged 42, who has decided to improve her English because she has realized that it is necessary in many occasions in the current globalized world. She is rather busy with her job (she works in a day care) and family commitments, so she was happy to have an opportunity to take a course online, even though of limited extent. She was not member of any social space, but she was aware of the existence of micro-evaluation because she had seen (but never used) it on some public web sites like YouTube. In our online course, she made use of the bookmark facility wherever she found it, and deeply appreciated this possibility because at the end of the formal activities she always felt the need of some more practice to consolidate what she had been trying to learn. She explored only two or three links for each activity (because she preferred to explore few in depth rather than many superficially), always selecting the links among those who had already received positive evaluations by some course mates. She explained that she did not want to spend time exploring new websites; in the past, she had already tried to learn English by looking for web resources but with scarce success because she had usually met sets of exercises of scarce content and limited interest or commercial websites trying to sell (expensive) English courses, so she had given up with trying to learn English on the web, and she would certainly not decide to look there for more materials without this facility within course. On the other hand, she was enthusiastic of the web sites she had reached by following these bookmarks, because of the richness, variety and clear organization of their content, so much that she had saved many
of them to keep using those resources after the end of our experiment. Among the sites visited, she mentioned with particular appreciation a page from Yahoo Answers with a synthetic and effective explanation of a grammatical topic that she found particularly difficult (the second conditional). After visiting the web sites, she always used the micro-evaluation system to express her appreciation, and commented in this respect that she had appreciated very much to use good suggestions from other users, and hence was glad to reciprocate by adding hers. Her overall judgment of the bookmark facility was that “it amplifies the learning space by means of nice possibilities.”

M., on the other hand, is a graduate student in Natural Science aged 23 who wants to keep updated and possibly improve her English knowledge because she is aware that it is useful for study and future profession. She is familiar with social spaces, having been on Facebook for a while, but never felt very fond of them. In our online course, she visited a few websites for each activity, usually between three and five, choosing them based on their titles, avoiding YouTube pages, that she considers mainly distracting, and disregarding her course mates’ evaluations; in fact, she said that she often gave preference to sites not yet voted by anybody, so as to contribute some more evaluations to the bookmark list. She found sites of very different quality, some really interesting, others scarcely pleasant because of an excessive amount of publicity banners, and also some broken links. The deception for a few of the links visited limited her enthusiasm for the course in general and for the bookmark facility in particular. This did not prevent her, however, from completing the course and she kept visiting suggested bookmarks; she also diligently expressed her opinion with the micro-evaluation device for all sites visited. Her overall judgment was not completely negative, however, in that she admitted that the presence of external links contributes to support her interest, though this varied in dependence on the quality of the links visited. Also M., like E., reported that she would not go to the web and look for sites related to the activities’ content if she had not been prompted by the presence of the bookmark lists.

The accounts of these two students confirm what we reported above concerning the relevance of the bookmarks retrieved by our search procedure, that is, that for every activity several pertinent and interesting ones were always retrieved, together with some irrelevant ones. The different levels of satisfaction of the two students largely depend on their different ways to select the websites to visit: E. played it safe, selecting only links already valued by someone, and this explains her enthusiasm for the materials retrieved. M., on the other hand, limiting her choice to web sites not yet voted by any course mate, took the risk to find unsuitable connections. The fact that she, nevertheless, reported to have found several very interesting ones marks a point in favor of the amount of good links retrieved by our procedure and of the possibility to increase the number of pertinent and interesting links over repeated use of the micro-evaluation system. This underlines the potential of the proposed facility to foster informal learning in connection with formal one. We can add, making reference also to the behavior of the other students involved in this experience, that in average users tend to chose a mix of positively evaluated and yet to be voted links; such behavior has the advantage for the user to grant a few very likely interesting sites, and at the same time contributes to improve the overall quality of the displayed links.

Both students visited a limited number of links with respect to those listed by the facility, a behavior which was common with that of all the other students involved in the experience. This is not surprising, since visiting web sites is rather time consuming, especially if they are rich and compound, and also because not all sites may be of interest of every user, independently of their pertinence and intrinsic interest. Listing more sites than the students usually visit, but not so many to make the selection difficult, appears a positive feature to grant the students more freedom of choice, and marks a point in favor of the actual informality of the described bookmark facility.

We are aware that an experience like the described one, which is limited as for number of participants and temporal extension, cannot answer all possible questions concerning the value of the proposed facility. Further investigations need to be carried out to check if the users’ interest for it remains high over longer periods, and how widely it can vary based on users’ characteristics. The positive outcomes of this experience, however, show that students’ appreciation and actual use is possible, and hence this approach to the integration of formal and informal learning is worth being pursued.

**Support to motivation**

In order to analyze the potential support to motivation, we need to see if at least the two motivation-related features mentioned above can be found in the accounts of the students involved. This means checking if students’ curiosity was stimulated and if they felt part of a community of users, even though working in isolation.
In both cases, we can find affirmative hints. Curiosity is suggested by the fact that both students kept exploring external links throughout the course, and in particular in the case of M., who continued doing so despite the number of unsatisfactory links found. The awareness of being part of a community of users is underlined by the fact that both students paid attention to the votes already expressed by the other users, even though they decided to make a different use of this information. They also felt the wish to always contribute their own evaluation, as explicitly specified in both interviews. These aspects were always present, in smaller or bigger measure, also in the interviews of the other students, who usually admitted not to feel inclined to complement class activities by freely searching related materials on the web, but to have been attracted to visit a few of the proposed links either by noticing an appealing title or by the fact that it had received positive peers’ evaluations and this induced them to see by themselves why.

We need to point out, however, that making an overall evaluation of the facility’s positive impact on users’ motivation is a complex task which can hardly be carried out in a short experience, because motivation variations can meaningfully be measured only over longer periods of time.

**Cost-effectiveness of the proposed facility**

A positive point of this bookmark facility is its simplicity. Its activation is not a burden for the teachers, who need to enter proper keywords for each compound activity only once, and are not required to engage in more time-consuming tasks, like selecting a set of meaningful extra resources to suggest, and maintain it updated. Neither is it a burden for the students, as no compulsory extra workload is added: the students are free to follow, at their own pace, only the suggestions they deem appealing, and even to save them for later use. The tool’s run time, moreover, is reasonable, so that, by the time the users have completed the activity’s tasks, the bookmark list is ready to be displayed without any extra waiting.

Some periodical maintenance work, however, is required of the programmer, because data mining depends on the structure of the source pages analyzed, which often change from time to time.

**Conclusions**

This paper describes a possible approach to support seamless integration of formal and informal learning, which we developed for the users of a formal language learning platform. The idea of using social bookmarking in education is certainly not new; what is new in our proposal is the way we exploit it to encourage individual web exploration.

Our approach consists in extracting a number of suggestions from social bookmarking sites based on keywords characterizing each activity’s content, and to select among them what appears more suitable to the activity’s learning content. The retrieval and selection procedures that we developed for this purpose are quite general and do not limit the application of this approach to language learning, but lend themselves to be applied as well for other subjects.

The presence of a list of links to external resources at the end of each formal activity stimulates the students to extend their learning to useful sites outside the formal learning platform. The use of already published bookmarks and the local micro-evaluation device guide such voluntary web exploration towards resources related to the formal learning contents and at the same time to the user’s interests, hence helping to establish a smooth continuity between formal and informal learning activities.

Several aspects of the described facility underline its informal nature: The proposed external links are not teacher-defined but originate from social bookmarking websites, where they have been voluntarily suggested and rated by other users; visiting what links (if any), and expressing individual appreciations is not compulsory but completely up to the students; the number of links is much higher than students usually like to visit, hence granting them space for choice based on individual decision. All this actually recalls Cross’ metaphor of informal learning (2009) cited in the introduction, in which the informal learner is likened to a bicycle rider who is free to individually decide route, detours and destination.
References


