Using Social Networking Services to Support Learning

Elvira Popescu and Dorian Ghita

Computers and Information Technology Department, University of Craiova, Romania popescu_elvira@software.ucv.ro

Abstract. Social media tools are increasingly being used in education, providing students with a medium in which they can actively engage with each other and with their teachers, co-create knowledge, share experiences, work and learn collaboratively. Learning implies not only access to information but also access to other people; in this context, social networking services (SNS) appear well suited for educational use, since they offer social space for people to gather online and make connections. The paper provides an overview on the use of these SNS to support learning. Two approaches are summarized: i) the pedagogical repurposing of existing popular SNS (i.e., Facebook); ii) the design of dedicated educational SNS. The latter is illustrated in more detail with the Lintend platform, a system conceived and implemented by the authors. A critical perspective is also included, and future research directions are drawn from it.

Keywords: social media in education, social learning environments, social networking services

1 Introduction

Learning implies not only access to information but also access to other people [20]. Since learning mechanisms are triggered by certain interactions among peers, learning environments should be conducive to these interactions [5]. Therefore, students should be provided with a medium in which they can actively engage with each other and with their teachers, co-create knowledge, share experiences, work and learn collaboratively. Today, this social and collaborative context can be created with the help of social media tools, which have started to prove their suitability for education [18].

Social networking services (SNS), in particular, are a category of Web 2.0 tools which offer social space for people to gather online and make connections for various purposes. They can be classified in three categories [17]:

- 1. general social networks (e.g., Facebook¹), used mainly for socializing, joining groups of friends, sharing personal information
- professional networks (e.g., LinkedIn²), used for the exchange of work-related information and creating groups of experts in a particular area

¹ www.facebook.com

² www.linkedin.com

3. online community platforms (e.g., Ning³), which allow the creation of custom social networks for a specific purpose.

All SNS implement the notion of "friend" or "connection" and allow for the creation of "groups" or "communities"; they facilitate communication, collaboration and sharing of different types of resources.

Statistics show that SNS are the most popular category of websites and their influence is in a continuous expansion. Figures are eloquent: 69% of online American adults use social networking sites, going up to 92% for the 18-29 age group, according to a 2012 study [3]. Facebook appears to be the most popular SNS, with 66% of online adults reporting using it; LinkedIn follows, with 20% adoption rate. Furthermore, 17% of American users' PC time is spent on Facebook [15]. Similarly, at the end of 2012, LinkedIn reported 200 million members, with 2 new members joining every second [16].

In this context of rising adoption rates for SNS in the overall population, a similarly increasing trend is visible in the student category, as captured in various recent studies [4, 6]. The same trend is valid for the teachers/faculty members, who prefer Facebook especially for personal and professional non-class activities [14]. At the same time, Higher Education is one of the top 3 largest industries represented on LinkedIn, with almost 2 million users [16].

Class use of SNS is more limited, but various potential educational applications have been found as well [17]. Thus, students could use social networking tools as support in their learning as follows: i) for interacting with peers; ii) for sharing experiences and ideas; iii) for asking questions and receiving answers from peers and experts; iv) for discussing problems encountered during their studies and getting peer feedback; v) for following experts in their field (in professional networks), which could also serve as an information source. Similarly, teachers can create custom social networks, forming online communities of students associated to a particular course; conventional dialogue and interaction with students are thus enhanced.

Overall, SNS encourage active participation, integration and interaction between learners, strengthen the existing social connections, boost peer support and provide discussion spaces. They are especially suited for informal learning, facilitating the creation of online learning communities who share common educational interests. The students' social driving force for learning, like impressing their peers or helping a group colleague, can also be leveraged through a social networking service [25].

The rest of the paper addresses two different approaches for using SNS to support learning: i) the pedagogical repurposing of a branded SNS (i.e., Facebook) (section 2); ii) the design of a dedicated educational SNS (i.e., Lintend) (section 3). A critical perspective is also included, leading to some future research directions (section 4), followed by conclusions (section 5).

³ www.ning.com

2 Using Facebook in Education: Case Studies

Since Facebook is the most popular SNS, it has also been the most widely used in educational settings [24]. Therefore, in this section we summarize several teaching practice experiences involving Facebook, as reported in the literature.

Wang et al. [26] describe the use of Facebook as a learning management system for two elective courses at the National Institute of Education, Singapore. 16 master students were enrolled in the first course and 15 undergraduate students were enrolled in the second course. The settings of the two courses were very similar. The tutor created a closed Facebook group that all enrolled students joined. The wall was used for posting announcements, sharing resources and getting feedback from peers. It was also convenient for keeping track of the activities taking place in the group, since every discussion topic created or picture uploaded automatically appeared on the wall. Since Facebook only allowed the posting of resources in image or video format, all other documents were first uploaded to Google Docs and links to them were shared on the wall. The weekly tutorial sessions were announced through the event function, and course materials were uploaded to the event, together with a representative picture of the session topic. Discussions took place both on the event page and on the group space.

A survey was conducted at the end of the courses, aimed at eliciting students' opinions regarding their learning experience with Facebook. Several limitations were identified:

- · lack of support for direct uploading of learning resources in PDF or PPT formats
- lack of a threaded structure for discussions (chronological order only), which made giving replies cumbersome (e.g., students had to explicitly mention the comment referred to in their answer); this also made tracking discussion development quite complicated
- privacy concerns e.g., students wanted to keep their school and personal lives separate; they were worried that their course contributions might be visible to their friends or that their personal information might be accessed by the tutor and peers (although this was not actually the case, since the students did not have to "friend" each other and the course group was closed).

Nevertheless, students were generally satisfied with the pedagogical, social and technological affordances of the Facebook group, with undergraduate students being more positive than master students. The authors conclude that Facebook group has potential for being used in educational settings, either in place of an LMS (in schools which could not afford one) or as a supplement for social interactions and personal profile spaces [26].

A very original instructional scenario is presented in [13]: a role-play assignment was conceived for an introductory psychology course, in which students were required to create the Facebook profile of a famous psychologist. More specifically, the study took place in the context of a course on "Abnormal Psychology", for undergraduate students from the Emerson College, Boston, USA. Students could choose between the Facebook assignment and a traditional term paper. The 22 students who selected the Facebook-based task were required to perform the following steps:

- Send a short proposal to the instructor, covering the selected psychologist, a description of her/his theory and motivating the choice
- Create the Facebook profile of the psychologist (with an identifying course prefix and appropriate privacy settings)
- Connect with the class i.e., "friend" the course page and all the peers
- Build the Facebook page, including the following components:
 - Information comprehensive biography in the personal information section on Facebook, containing accurate data but evoking also the character of the person
 - *Photos* to help bring the subject to life
 - Links to various resources associated to the psychologist (journal articles, videos etc.)
 - Notes 4-5 postings describing the theoretical model proposed by the psychologist and one note reflecting on the validity of the model and its current status in psychology
 - o *Bibliography* reference sources for all content posted in the profile
 - *Creative aspect* to make the Facebook page engaging and interactive (e.g., bumper stickers, bookshelves, psychology gifts, quizzes etc.)
 - *Interaction and collaboration aspect* visit peer pages, communicate with peers, add comments and critiques (from the point of view of the character).

Thus students adopted the role of their selected psychologist, built a profile that illustrated his/her theoretical and personal perspective and discussed and reflected on their theory, all by using Facebook features (*Basic info, Notes, Photo albums, Links, Wall, Status, Comment* etc.).

In order to assess students' overall experience, the authors applied a brief postassignment survey. Students enjoyed the creative aspect of the assignment (in contrast to a traditional research paper), considering the task very interesting but also very challenging and requiring a lot of work. By carefully reviewing the Facebook profiles, the authors discovered that students delved into the personal details of their psychologists' lives; the occasional moments of humor and in-jokes reflect students' familiarity, engagement but also understanding of theory. The notes provided a novel and flexible space for the traditional process of research, integration, analysis and citation. Furthermore, students tended to browse through the profiles of their peers, thus being introduced to a wide range of theoretical models (rather than just their own, in case of a traditional research paper). The social medium also encouraged comparison among students, which led to an increased productivity. Overall, learners "become codesigners in the process and this, together with the natural playfulness of the medium, creates an empowering and productive learning experience" [13].

Another Facebook-based instructional scenario is reported in [7], for teaching introductory statistics to graduate students at the University of Minnesota, USA. A closed group was set up on Facebook that the students had to join and use as a discussion space for topics of interest to the course. More specifically, learners were asked to post 10 links to news articles related to the course content, together with short critiques and questions regarding the research or statistics reported in those articles. The student contributions were very good, although the dialogue and interaction were quite limited. In order to further boost student discussions, the assignment was slightly modified in the next edition of the course: students were asked to post up to 8 news article links, but also to respond to at least 4 peers' posts. Indeed, this led to much more student discussions, which sometimes continued even after the course ended.

Just like in the previous scenario [13], students could choose between this Facebook assignment and alternative tasks: i) writing a summary and critique of an academic journal article about a statistical analysis technique; ii) creating a short 3-5 minutes video to teach a course topic. Half of the 64 enrolled students chose the Facebook assignment, which, according to a post-course survey, was mainly motivated by the previous engagement and familiarity with the social networking site [7].

Other successful case studies reported in the literature involve various Facebookbased course settings, in which the SNS played different roles:

- A discussion place for students enrolled in an introductory organic chemistry laboratory; students could join a Facebook group and communicate with their peers and instructors, compare obtained data and generate more precise results [21]
- A collaborative space for students to build and discuss a library with videos, links, and pictures related to the course of "Distance Education" [2]
- A peer assessment space for students learning English as a foreign language; students were required to join a Facebook group, post writing assignments, evaluate their peers' posts and comment on the feedback received [22]
- A course management system for an "Internet and Health Informatics" class; the teacher posted all content for the course on the Facebook group wall, together with evaluation questions; students had to answer those questions as well as post at least 3 things they learned from each class [10]
- An information point for health-related courses; the instructor created a Facebook page for the course, posting notifications for available course materials, assessment reminders, links to interesting resources and various announcements; students could comment on the wall posts as well as ask questions that instructors would answer on a daily basis [9].

The results of all the above studies are encouraging, proving SNS potential for education, with a positive impact on learner motivation and satisfaction. In an attempt to exploit this potential, researchers have started to design special-purpose SNS for educational use, enhanced with dedicated learning support features [23]. Our own initiative in this area is detailed in the next section.

3 Lintend Social Networking Service

Lintend is an SNS implemented at the University of Craiova, Romania, as an educational support tool. The system offers the possibility to create a virtual presence for educational institutions ("schools") but also to form interest-based groups ("classes"). The main functionalities provided by the platform include:

- build complex profiles (both for individuals and institutions)
- create and join classes
- add social contacts
- create and share educational resources (courses, tutorials, articles, solved assignments) which can be recommended and commented on
- post news and comments
- send and receive private messages
- visualize timeline (collecting recent activity in all joined classes) and receive notifications for events of interest
- receive suggestions for resources and classes of potential interest.

Some of these functionalities are illustrated in Fig. 1 and 2. The student profile page (Fig. 1) features a short bio, some pictures and personal details, as input by the learner. It also gathers the resources uploaded by that student, together with those recommended by her, throughout the SNS. The list of classmates is also provided, and some classes are recommended for potential joining. A course page (Fig. 2) includes a description, the teachers in charge, as well as a list of uploaded files and comments; a course can be added as a reference for a particular class.

Students are instantly notified of all the events that happen in their classes and any actions performed by their social contacts, which are all made available on their timeline. Learners can therefore be constantly connected to their peers and receive immediate feedback to their questions or problems; communication and interaction with both peers and teachers are thus facilitated and enhanced. By being able to constantly follow the learning activity of their peers, students are more motivated and engaged.



Fig. 1. Lintend social networking service - student profile page



Fig. 2. Lintend social networking service – course page

Overall, Lintend caters to the needs of the new generation of learners, who were cradled in technology, are very social and in constant communication with each other, as well as strongly peer-oriented [25]. The system thus leads to the creation of online learning communities, helping the student find the right content (by means of peers' recommendations) and connect with the right people (peers with similar learning interests).

As far as implementation is concerned, Lintend was developed using ASP.NET and AJAX technologies and Microsoft SQL Server as DBMS. Lintend is currently at prototype stage and experimental evaluation is underway.

As future work, we plan to improve the system with more complex recommendations; Lintend could also be extended with a competence bartering functionality, which will facilitate peer-to-peer learning, as described in [11]. Finally, learner tracking support may be provided to the instructor, as monitoring and archiving students' activity is important for the teachers, especially if that activity is graded [7].

A similar initiative was developed at Tampere University of Technology (TUT), Finland [23]. TUT Circle, as it is called, is an SNS aimed at providing TUT freshmen with convenient tools for interaction and study support, bringing added value to the students in the context of their university life. TUT Circle was developed using Drupal, an open source Content Management System. The functionalities offered to the learners include: creation of a detailed profile, status updates, private messaging between users, suggestion of potential new friends (based on simple Social Network Analysis), tagging, personal dashboards (which collect both the students' own activity as well as their friends'), discussion boards, anonymous questions feature, teacher created surveys etc. Group support, which helps promote team-based learning, is one of the most important features, offering communication and collaboration tools (e.g., chat, write blog posts, edit wiki pages, share resources); groups can be created by any user, on any topic of interest. TUT Circle was successfully used at Tampere University of Technology, not only to support learning but also to help new students create contacts and interact with each other [23].

4 A Critical Perspective

Despite the growing overall popularity of SNS, they are generally less used in educational settings, compared to other Web 2.0 tools such as blogs or wikis [14]. Teachers are usually more skeptical than students regarding the educational potential of Facebook [19]. Nevertheless, there are also students who consider Facebook reserved for personal connections and social networking, and hence not very suitable for academic work [12].

Some of the criticism is related to the general challenges of Web 2.0: security, safety and privacy threats, occasionally low quality of user generated content [1], promoting intensive multitasking, which could provide a superficial view rather than an in-depth understanding and lead to a short attention span and cognitive overload [25]. Furthermore, the use of Facebook may be felt as an unwelcome intrusion in their personal life by students and teachers, in case boundaries and privacy policies are not set. "Friending" students on Facebook may be an issue for some instructors and/or institutions, and no clear guidelines of conduct exist [7].

Further criticism comes from the commercial nature of the branded SNS, such as Facebook, which is said to limit their potential for education. Friesen and Lowe [8] argue that the business model underlying this kind of social media sites greatly influences the type of user experience provided. Since Facebook's main interest is to connect users with advertisers, this is reflected in its fundamental design decisions, in its structure and ultimately in its content: "informational design, architecture, and algorithm render advertising interests inseparable from what the user sees and is able (or not able) to do on a social Web service" [8].

According to [8], Facebook is based on an "architecture of conviviality", promoting gregarity, sociality and expanding connections (at the expense of discretion and selectivity). It facilitates the expression of agreement (through the "Like" button) but not of reservations and disagreement (since a "Dislike" button is not available). This is due to Facebook business model, where the option of expressing dissent for a brand or product would be contrary to the advertisers' interests. As stated in [8], being deprived of a "Dislike" option is not in line with educational principles. Indeed, cultivating critical thinking, the habit of comparing and contrasting theories, debating and expressing nuanced difference or disagreement are an essential part of the learning process.

We can only agree with Friesen and Lowe's assertion that "education is clearly a social process but it is probably much closer to an ongoing discussion or debate than an extended celebration with an ever-expanding network of friends" [8]. Nevertheless, it should be noted that, when used wisely, Facebook can provide this communication and interaction medium appropriate for argumentation and debate; the successful studies presented in section 2 are a clear proof of Facebook's potential for education.

Furthermore, the creation of special-purpose educational SNS (such as our Lintend

solution) offers a dedicated learning space, free of any commercial imperatives. Of course, adding more features to encourage critical thinking, debate and quality assessment in these platforms is a worthwhile research direction. In its simplest form, this could be done by including some rating and tagging mechanisms for assessing students' contributions. A reputation system could also be conceived and more relevant recommendations could be provided, for both human and content resources.

5 Conclusion

The paper presented an overview of SNS use in education, starting with Facebook and continuing with special-purpose systems, dedicated to learning communities. While valid criticism points can be raised (as summarized in the previous section), successful teaching experiences hint at the educational potential of SNS, of "meeting the students where they are" and of facilitating social learning.

Of course, like any other technology, SNS are not a silver bullet and should only be used as support for a well grounded instructional design. In case of commercial SNS (such as Facebook), specific institutional policies with respect to external systems should be observed; furthermore, care should be taken to ensure students' privacy and minimize intrusion, by offering the possibility to keep their personal profiles hidden. Special-purpose educational SNS can alleviate this problem, while at the same time offering additional learning support. Further improvements and ongoing experimentation are needed to realize the full potential of SNS for education.

6 References

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