

educoco: A Mobile Social Learning Platform for Project-Based Learning and Collaboration

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Abstract. Learning is a social behavior. The important issue to design a learning management system is how to effectively use the technologies to improve the collaborative learning. Due to the drawbacks of Facebook, the authors proposed a new social networking service, *educoco*, for K-12 education in Taiwan. The characteristics of teachers are specially strengthened in *educoco*, and the learning activity is project-based. Now, there are more than 10000 users in Taiwan.

Keywords: Social-learning · K-12

1 Introduction

People can adapt the environment or the society better by learning new knowledges, skills, and so on. In the past twenty years, the development of e-learning [1] means that more traditional learning activities have been shifted into the cyberspace successfully. Furthermore, more innovative learning activities are developed via the new information and communication technologies. Especially, due to the development of smart mobile technologies, the people can learn anywhere without the limitation of classroom and desktop. Today, the varied types of e-learning are widely applied on different kinds of educations, from the primary education to the continuing education.

The learning activities of human being do not only access the content from the learning media, but also communicate with the other people. Since interactions among peers can effectively trigger the individual learning behavior [2], the learning management system (LMS) should be designed to encourage these interactions. Therefore, learners can efficiently use this type of LMS to engage with each other learners and with their teachers, share knowledges and experiences, work and learn collaboratively [3]. This paper proposes a new mobile social learning platform, *educoco* [4], which designs and implements for project-based learning and collaboration. Moreover, *educoco* has been used to a great degree in Taiwan.

The remainder of the paper is organized as follows. The related works are in Sect. 2. Section 3 introduces why to design the *educoco*. The detail of the *educoco* are in Sect. 4. Conclusion is given in Sect. 5.

2 Related Works

The learning theory describes the generalized learning objectives and approaches. When the instructors design what to learn and how to learn, the learning theory can provide general and essential guides. In addition, the designer of learning management system can decide the functional specifications of LMS according to the learning theory. Moodle [5] claimed its design guided by the *social constructivism* [6]. In Moodle, there are some functions which support the learners collaborative interaction with environment to construct their knowledge. However, Moodle is still a more traditional course-centered LMS, not a collaboration-centered one.

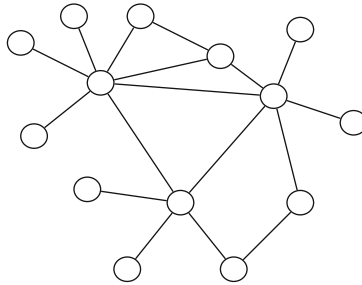


Fig. 1. An example of the social network among learners [7].

The connectivism [7] is proposed by George Siemens in 2005. In contrast with the previous theories, learning is considered as the social activity, not only the individual activity. And knowledge is constructed in cooperation with others in the social process. The social context of learning, such as the social network among learners and instructors, is the most important issue in connectivism. Figure 1 shows an example of the social network among learners. The connectivism pays less attention on the organization of learning contents. In e-learning, the connectivism focus on how to effectively use the Internet technology to improve the collaborative learning.

A web blog [8] is a personal discussion or informational site published on the Internet. Blogging can be as a potential social learning activity. Kubincová et al. [9] proposed a work to show that incorporating well organized peer review rounds into the process significantly increased learners' participation. Another work, proposed by Ercan Top [10], shows that the pre-service teachers had positive feelings about the collaborative learning; and they had moderate feelings related to sense of community in the classes which incorporated blogs.

3 Motivation

Facebook [11] is an online social networking service since February 4, 2004. Relative to the various web blog sites, Facebook is a huge, but centralized-controlled site with more than 1 billion users. Due to the popularity of Facebook, there are many work which apply Facebook as a social learning tool. Roblyer et al. [12] proposed a work about Facebook behavior comparison of faculty and student in higher education. This work indicate that students are much more likely than faculty to use Facebook and are significantly more open to the possibility of using Facebook and similar technologies to support classroom work. This work shows the potential of Facebook as a social learning tool. Tower et al. [13] proposed a successful application of Facebook to improve nursing students' perception of efficacy. Kabilan et al. [14] proposed another successful case which shows that students believed Facebook could be as an online environment of learning English. These above two works are both in higher education.

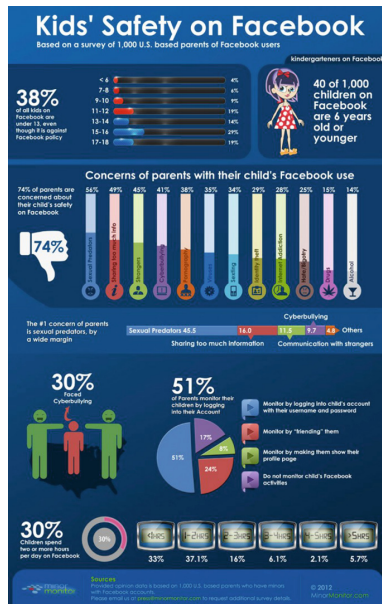


Fig. 2. MinorMonitor Surveys 1,000 Parents of Children on Facebook, Shares Results on Realities, Parental Concerns [15].

Although there are some successful cases of Facebook as a social learning tool, Facebook is designed as a popular generalized social service originally. Some drawbacks of Facebook are indicated in education, especially K-12. According the survey of 1,000 parents of children under 18 years old who use Facebook [15], 74% of parents are concerned about their children's safety on Facebook, with

the majority worrying about sexual predators, at 56 %. Figure 2 shows the detail of this survey.

One important issue is that all user are equivalent in Facebook. The teachers are without any privileges on the activities and contents in Facebook. The pedagogic behaviors of teachers are still important, even in the cyberspace. Therefore, some educational social networking service are proposed. Popescu et al. [16] proposed the Lintend platform, an educational social networking service.

4 educoco

educoco, shown as Fig. 3 is a social networking service implemented by Education Business Division of United Daily News, Taipei, Taiwan. Because of the drawbacks of Facebook, which is not suitable for K-12, *educoco* is designed for K-12 education in Taiwan. The characteristics of teachers are specially strengthened in *educoco*. Figure 4 shows the privileges of the teacher, such as assigning a mission and choosing the contents.



Fig. 3. The Homepage of educoco (<http://educoco.udn.com>)

The social relationship, called by *circle*, is the kernel of *educoco*. Figure 5 illustrates the circles in *educoco*.

- **Class Circle:** the relationship is only organized by the teacher. The students must have the invitation from the teacher to join class circle. It is the basic relationship in *educoco*.
- **Friend Circle:** the relationship can be organized by the student, but limited in the same class circle.
- **Mission Circle:** the relationship is organized by the teacher. When the teacher assign a mission, the teacher should organize a mission circle with a small group students to complete the mission.

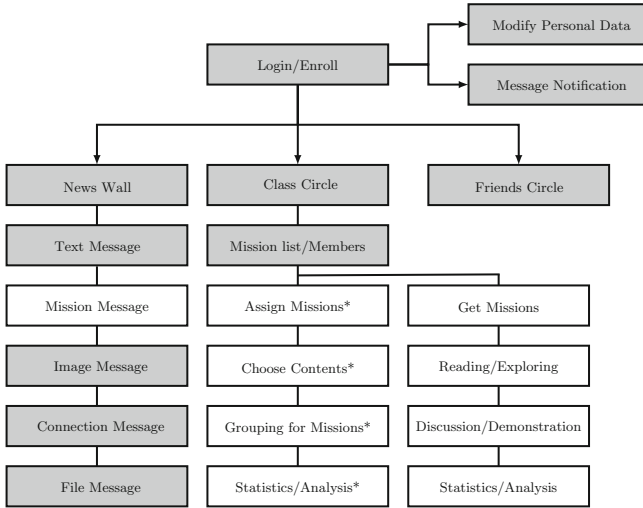


Fig. 4. The system architecture of *educoco*. The function denoted by * are only for teachers.

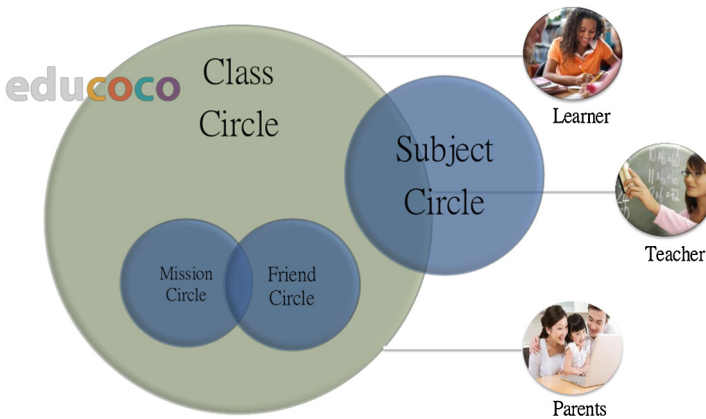


Fig. 5. The various circles in *educoco*

- **Subject Circle:** the relationships are among the class circles. The different class circles can share the learning contents with the same subject.

A *mission* is one learning activity with some specific learning objective which should be accomplished by the collaboration of the mission circle. There are two types of missions, reading and miscellaneous missions. The students in the specific reading mission circle should read the contents assigned by the teacher at first. The reading can give the student a basic prior knowledge to discover new knowledge of related topics. Next, the student is encourage to explore the relative information in Internet. Thirdly, the student should share his/her finding and

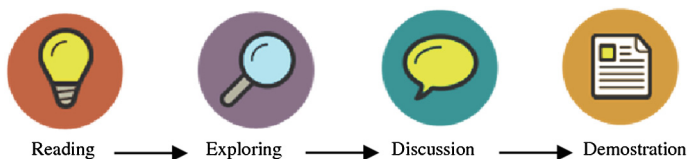


Fig. 6. The process of reading mission

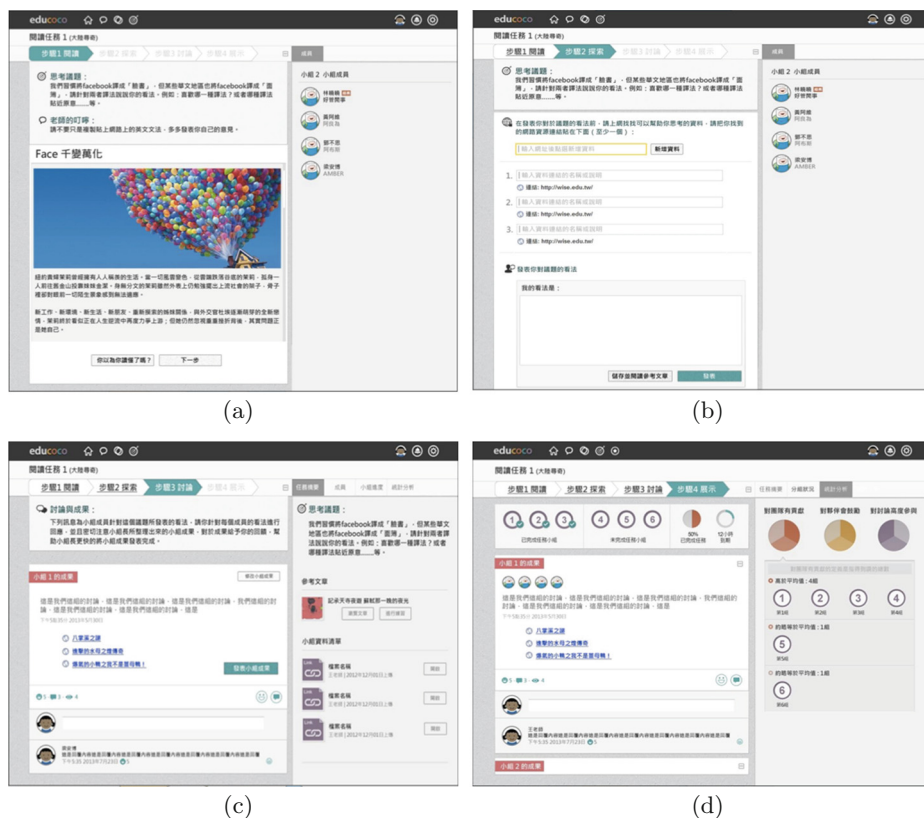


Fig. 7. (a) Reading (b) Exploring (c) Discussion (d) Demonstration

discuss each other. At last, the students in the same mission circle complete the mission by demonstrating their finding and summary in *educoco*. Figure 6 shows the process of reading mission, and Fig. 7 illustrates the functions to complete the mission. The teacher can monitor the students' behaviors of the mission circle. In addition, *educoco* provides the statistic analysis of the students' behaviors in mission circles.

educoco is launched on March 7, 2014 by United Daily News in Taiwan. There are more than 10000 users until June, 2014. The student/teacher ratio is about

5. In *educoco*, there are already about 1900 different circles, and about 1200 missions. In average, a new version of *educoco* would be announced to improve the functions or to fix the bugs.

5 Conclusion

Learning is a social behavior. The important design issue of learning management system is how to effectively use the Internet technology to improve the collaborative learning. Due to the drawbacks of Facebooks, the authors proposed a new social networking service, *educoco*, for K-12 education in Taiwan. The characteristics of teachers are specially strengthened in *educoco*, and the learning activity is project-based. Now, there are more than 10000 users in Taiwan. In the future, more types mission will be added into *educoco*. In addition, the technology acceptance model will be used to evaluate the performance of *educoco*.

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