

An Analysis of Social Collaboration and Networking Tools in eLearning

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Abstract. Many online learning websites and learning management systems (LMS) provide social collaboration and networking tools to aid learning and to interact with peers for knowledge sharing. The benefit of collaborating with each other is certainly undeniable, such tools, however, can be a distraction from the actual tasks for learners. The paper presents a study on social media tools supported by various eLearning systems to understand the impact on students learning activities. A survey questionnaire is designed for this purpose. The data is collected from students who have had experience using different massive open online course (MOOC) eLearning platforms and LMS from various universities. The results of the survey indicate that more than 95 % of the participants use at least one of the social tools in their daily life activities, and almost 84 % of them have used these tools in connection with the eLearning systems. It is also interesting to note that 92 % of the participants intend to use social tools for study purposes. The results indicate that there is a need to integrate more of these social media tools into eLearning systems.

Keywords: Social media · Networking tools · Collaborative tools · eLearning

1 Introduction

The emergence of web 2.0 in 2004 led to the development of interactive social media tools that allows users to indulge in a social discussion. These tools aid pedagogy by utilizing social media on the web and facilitate the learning process further through interaction among users, making education more convenient and widespread. The social media tools including collaboration tools and networking tools help learners and instructors indulge in a formal and informal way of knowledge acquisition. These tools recently have become an integral part of today's educational system, including learning management systems (LMS), such as Moodle, Blackboard, Atutor, Fronter, and massive open online course (MOOC) eLearning platforms such as Coursera, edX, Udacity, Khan Academy.

The social tools not only provide an easy way of communication between users to collaborate on various tasks, but they also are a good way to share knowledge by promoting distance and blended education.

Social media is a broader term that can be defined as a collection of communication, networking, sharing, and collaboration tools on the web 2.0 [1]. As shown in Fig. 1, social media encompasses social networking platforms such as Facebook and Google+; collaboration tools such as blogs and wikis; and communication tools such as discussion forums and chats - among others. Social media, therefore, provides an umbrella of services, from posting ideas on the web to collaborative group tasks. In this paper, we categorize social media into two categories: (i) social collaboration tools; i.e. those tools which provide some collaboration work among peers such as discussion forums, wikis, blogs, virtual classroom, and (ii) social networking tools; i.e. those tools which provide networking capabilities including file sharing such as chats, Facebook, Twitter, SMS feature. In the rest of the paper, we collectively refer social collaboration tools and social networking tools as ‘social media’.

With the advancement of web 2.0 technology, particularly of social media, many eLearning systems are competing to offer social tools and other collaboration and networking services keeping in view today’s educational needs. With this growing trend, the use of open-source educational platforms (such as Moodle),



Fig. 1. Social Media and its components

freely available educational resources (such as Wikipedia, Youtube videos), online collaboration utilities (such as Google apps), and the use of a variety of social tools especially those that are offering personalized services through recommender systems [2] and other artificial intelligence techniques [3], are becoming very popular. These personalized features are being integrated into eLearning systems to facilitate the learning process by promoting collaboration among peers and interaction between learners and teachers while performing all in one service.

The social media, despite the socialization, are extensively used for collaboration work on different education topics in addition to commenting, sharing, liking, discussing and interacting with each other. Table 1 shows a list of social tools provided as part of various LMS and MOOC platforms.

Table 1. Support for social tools provided by various LMS and MOOC

	eLearning Systems							
	LMS				MOOC			
Social collaboration and networking tools	Moodle	Blackboard	Atutor	Frontier	Coursera	edX	Udacity	Khan Academy
Discussion Forum	✓	✓	✓	✓	✓	✓	✓	✓
Wiki	✓	✓	✓	✓	✓	✓	✓	✓
Blog	✓	✓	✓	✓	✓	✓	✓	✓
Chat	✓	✓	✓	✓	✓	✓	✓	✓
Quiz	✓	✓	✓	✓	✓	✓	✓	✓
Virtual classroom	✓	✓	X	✓	X	✓	X	✓
Twitterfeed	✓	✓	X	X	X	X	X	X
SMS feature	✓	✓	✓	✓	X	X	X	X
Facebook integration	✓	✓	✓	X	X	X	X	X
Peer assessment	✓	✓	X	✓	X	✓	X	✓

Social tools such as discussion forums, wikis, blogs, and chats are used widely by almost all the eLearning systems. Most LMS have also seamlessly integrated fully featured social networking tools such as Facebook for collaborative learning while the MOOC platforms mostly rely on the discussion forums.

In this paper, we focus our attention on identifying and evaluating such educational systems which use social media tools to aid collaboration, knowledge sharing and group activities. This, in turn, helps us determine the impact of these social tools in today's eLearning systems, and to understand better whether these tools are helping students learn better or are just diverting them from their principal objective.

The rest of the paper is structured as follows. In Sect. 2 we present literature review. Section 3 gives an overview of the survey followed by analysis and results discussion in Sect. 4. The last section presents conclusion and some insight into future directions.

2 Literature Review

Social media has been investigated as a promotional tool for higher education, as the print and broadcasting media is fading out [4], and more and more universities are adopting social media tools to reach out to a bigger number of audience. Could this mean that the social collaboration and networking tools provided by social media are going to play a significant role in education in years to come? Also, what impact they are going to have on the learners' activities? This section explores some of the recent research works concerning social media and use of social collaboration and networking tools in education to find out the answers.

Most social media are developed for promoting socialization through collaboration, social interaction, content sharing and discussion. An extra push for enhancing the use of social media in education was a result of the advances in mobile data usage, the high penetration of internet [5], and the high percentage possession of smartphones [6]. The portability of smart devices has increased the use of social media in everyday life, giving users the opportunity not only to access the educational content from anywhere and anytime but also to interact and collaborate on the educational tasks via social interaction tools through different eLearning systems. The benefit of using social media for communication and collaboration has influenced the idea of integrating the social tools in education, by pushing the class discussion further, through social platforms, such as Facebook, LinkedIn, GoogleApps, YouTube, and Twitter among others.

Some work has been reported in recent years about social platforms and eLearning, and how the first component is affecting the learning process [7–10]. For instance Hitrec et al. conducted a survey and analyzed how the use of social software (such as wikis, blogs, VoIP, social bookmarks) in combination with social networks have modernized the way of learning, and how their usage determined the group approach toward the accomplishment of their goals [7]. Tulaboev and Oxley presented a study to explore the factors that affect the acceptability and effectiveness of using web 2.0 social networking tools as an aid

to learning [11]. In a similar study by Kaeomane et al., investigation of the use of social software for knowledge sharing among students in Malaysia is carried out [12]. Roreger in [9] emphasized the importance of integrating learning content management with online social platforms, and how this can impact education in the longer run. Klimova et al. discussed the potential contribution of social networks to learning. Eight people took the survey via a focused interview for their study on five social networks. The results emphasized that Facebook is a preferable social network choice by participants among other tools, and mainly students with ICT background uses the social networks for education purposes [13]. Whereas [9], concluded that even learners with a strong background in ICT are not utilizing the opportunities offered by social platforms such as better collaboration and interaction services, which brings an added value to eLearning systems. However, in paper [14] authors have raised another issue, they thought that social networks and the collaboration through them have grabbed learners concentration and attention by diverting them toward non-educational activities, and concluded that this could affect the education in a bad sense.

There is no denying that these social media tools are going to play a significant role in the teaching in years to come - be it the distance and blended education or face-to-face. This is evident from the fact that more and more universities are incorporating social media tools into their educational activities, as the popularity of social networks combined with social tools is increasing with the advancement of web 2.0. Seeing this growing trend, in this paper, we try to figure out how often student across different universities uses these social tools for education purposes and how satisfied are they with these tools. This study will help us better understand how important it is to integrate a diversity of social tools within eLearning systems, and what impact they could have on the learning activities. For this purpose, we conducted a survey asking participants about their experience of using social media tools for educational activities. The next section highlights the survey.

3 Methodology

An online survey was conducted for this study. Students from 13 different institutes in 12 countries participated in the survey. A country-wise distribution of participants is shown in the Fig. 2. The survey consists of 20 questions, out of which first five questions focused on the personal and background information of the participants while the rest focused on the use of social media tools. The survey questionnaire is designed in a way to identify the extent of social tools involvement in personal life, as well as in educational activities. The following are some of the questions asked in the questionnaire:

1. Are you familiar with social networking tools? Yes/No.
2. Are you using any social tools supported by the eLearning systems in the learning process? (If Yes, answer following questions)/No (go to question 3)
 - 2.1. Which one is your preferred communication tool?

- 2.2. What are the main purposes of using it?
- 2.3. How long have you been using it?
- 2.4. How useful do you find it?
- 2.5. Do you counter any problems or difficulties using it?
- 2.6. Will you invite your friends/colleagues to use one of these communication tools?
- 3. Do you intend to use them?
- 4. To what extent do you think that social collaborative tools could contribute to learning process within an eLearning platform?
- 5. What are the barriers to using these tools?

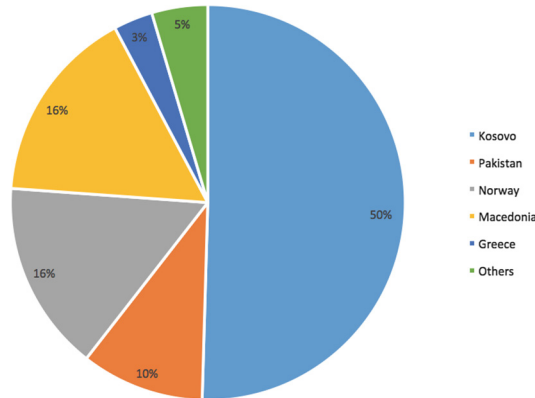


Fig. 2. Country wise distribution of participants

4 Analysis and Results

This section presents the survey results and their analysis. The survey data is collected from 218 students in total out of which 198 are enrolled in bachelor’s program, 17 are in masters, and 3 are doing Ph.D. There were 163 male and 55 female participants with an average age of 24. As many as 183 students are from computer science domain, 19 from engineering while the rest of them are from social sciences group.

The social networking tools are currently very much popular and in use by almost everybody. Students use these tools quite frequently on a regular basis as shown in Fig. 3.

This reflection is in line with the findings of our questionnaire which shows that more than 95 % (207) of the respondents are familiar with the social networking tools as shown in question 8 of Fig. 4. Apart from Facebook, the preferred social networking tools of users are those which are supported by the

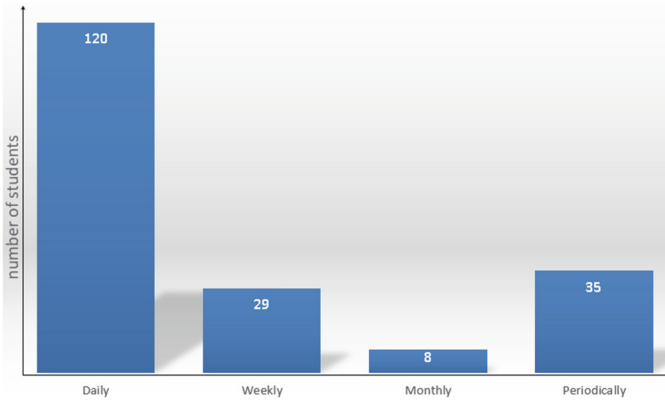


Fig. 3. How often users use the social tools

MOOC eLearning platforms such as discussion forums and blogs while tools backed by other systems including most LMS such as virtual classroom, built-in chat, SMS are not that popular. This finding is reflected in Fig. 5 and is also evident from the answers to question 9 and question 12 in Fig. 4, where around 84 % of users use the tools supported by MOOC eLearnig platforms while only 53 % of them use the tools supported by LMS or other platforms.

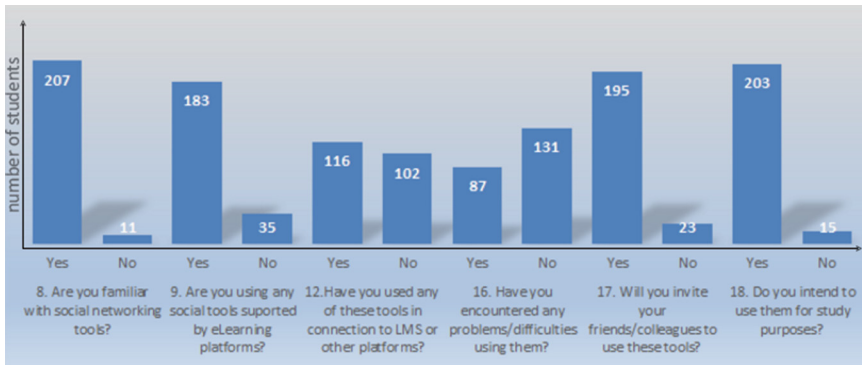


Fig. 4. Students feedback on the usage of social tools

Even though these tools are widely used by students in their daily activity, however, some of the students find difficulties using these tools for learning. The difficulties students usually faces include keeping up pace with group discussions and ongoing activities, keeping track of tasks on multiple forums, lack of fully integrated social tools, and distractions caused by some tools. In connection with this, around 39 % (87) of the respondents claim that they have encountered such difficulties using the social networking tools.

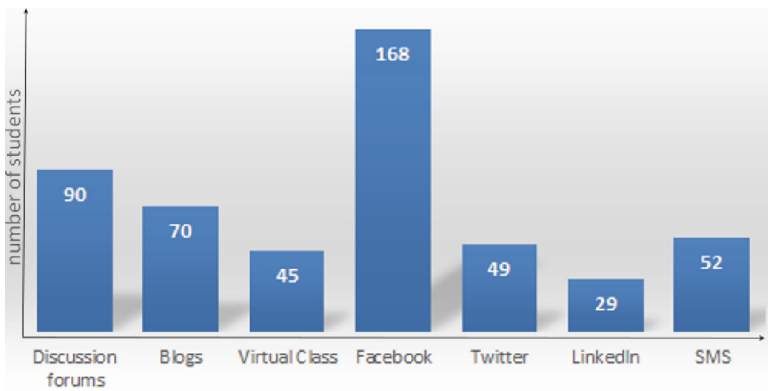


Fig. 5. Preferred communication tools

Despite encountering difficulties, many students favored these tools for eLearning activities and would love to use them for study purposes, as can be seen in question 17 and question 18 of Fig. 4. They believe that using social networking and collaborative tools will help them to further enhance learning, as also claimed in a study performed by [15]. Additionally, the 195 ‘yes’ answers out of 218 that responded to the question of whether they will invite friends/colleagues to using these tools enforce further the idea of integrating the social tools in the educational system.

Facebook without any doubt stood out as the excellent communication, networking and socializing tool for education purposes, as it allows students to create close and open groups with similar interests, freely share documents, discuss ideas and be in touch with each other all the time. The students realized that they can easily use and adapt to the social media tools for learning since they communicate, search for information and socialize in everyday life through the same platforms [6]. Figure 5 shows this trend, where 168 of total participants said that they prefer Facebook as an extra social collaborative tool within eLearning platforms, followed by the traditional discussion forum and blog.

Not surprisingly many students use social tools to study these days, and it is encouraging to see that the trend in the use of social media has shifted towards education. This is most likely because many educational activities make use of social media and social tools in one form or the other. As is shown in Fig. 6, almost more than $2/3^{rd}$ of the participants today use social tools to study in their universities.

On a scale of 1 to 5, where 1 being extremely dissatisfied and 5 being extremely satisfied, 42 of the total participants were extremely satisfied. 90 were very satisfied while around 65 of them were neutral and only a bunch of the total participants were not satisfied at all with these tools for studying, as shown in Fig. 7. Almost same number of participants found these tools useful as well.

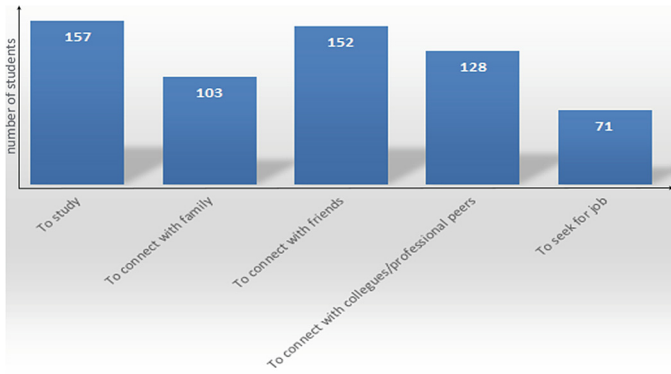


Fig. 6. The main purpose of using social tools

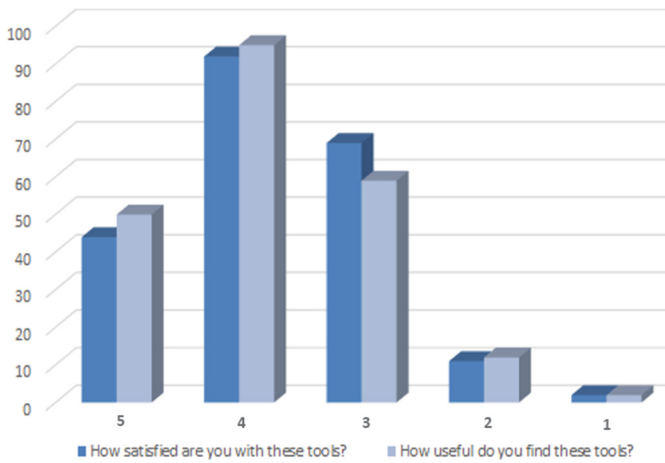


Fig. 7. The satisfaction and usefulness of social tools

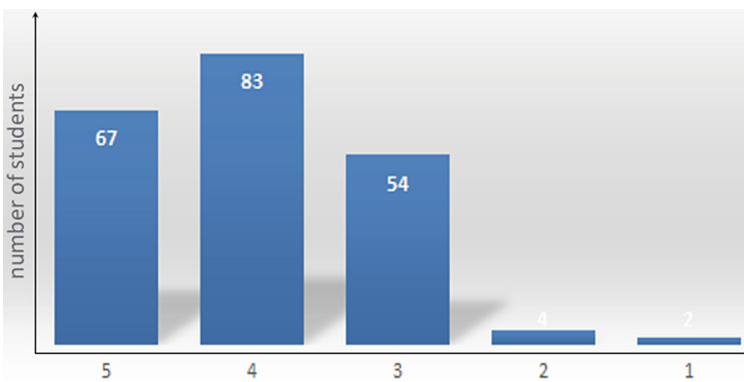


Fig. 8. The contribution of social tools in learning process

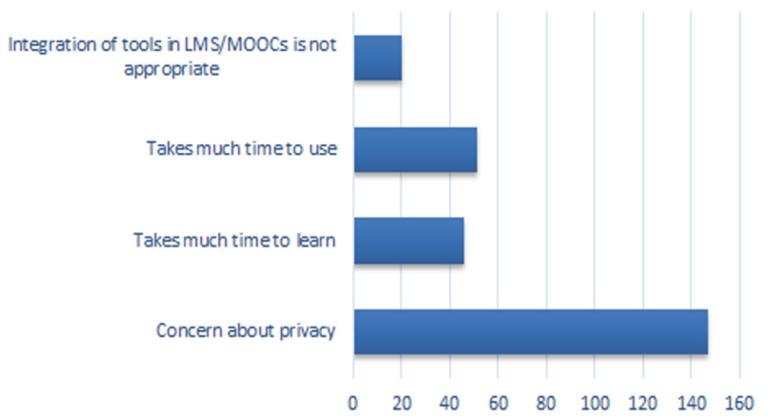


Fig. 9. The barriers faced using social tools

The results are more or less the same on the question of ‘contribution of social tools in learning process’ as can be seen in Fig. 8. As many as 150 participants think that the social collaborative tools could contribute to learning process within an eLearning platform while 54 took a neutral stance and only 6 disagree. The graph uses a scale of 1 to 5, where 1 being no contribution at all and 5 being the highest contribution.

Using and being familiarized with new social tools usually have prejudices of different nature. Most of the students opted for ‘concerned about the privacy issue’ from four given options when they were asked about the barriers they face in the use of social tools for education, as shown in Fig. 9.

5 Conclusions

This paper sheds some light on the use of social collaboration and networking tools provided as an integral component of today’s eLearning systems and the impact of such tools for the learning activities. For this study, students of various institutes were asked a series of questions to share their experience of working with different eLearning systems, and whether they have used any of the social tools in connection with educational activities. The study indicates that almost 84% (157 of 218) of the participants have used at least one of the social media tools in connection with learning. Since these tools have become an essential part of today’s lifestyle and students are familiar with them, so most of the participants recommended to make use of them for educational activities.

Almost 60% of the participants were satisfied and extremely satisfied with the usage of social media tools in eLearning while nearly $1/3^{rd}$ of the participants were neutral, and only 10% disagree. More than half of the participants also agree that social media tools could contribute effectively to learning process within eLearning systems, although many of them showed concern about their privacy when using these tools in connection with educational activities.

Facebook as evident is the preferred choice for many followed by discussion forums and blogs. Facebook is mostly supported by LMS while discussion forums and blogs are features commonly found in MOOC eLearning platforms. Incorporating more of these tools in today's educational systems is going to help students collaborate on various educational tasks better, however, how effective these tools can be for study purpose is a question that needs to be answered.

By examining the impact and evaluating the advantages and disadvantages of such social media tools in educational activities, better 'personalized services' can be provided to learners. Such as, artificial intelligence based pedagogical chat bots that can mimic the responses of a live instructor for one to one communication with learners.

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