Computers & Education 68 (2013) 167–176

Contents lists available at SciVerse ScienceDirect

Computers & Education

journal homepage: www.elsevier.com/locate/compedu

From Moodle to Facebook: Exploring students' motivation and experiences in online communities

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ARTICLE INFO

Article history:
Received 21 January 2013
Received in revised form
27 April 2013
Accepted 29 April 2013

Keywords:
Computer-mediated communication
Improving classroom teaching
Learning communities

ABSTRACT

The present paper documents a qualitative study that examines the motivating and inhibiting factors that influenced students' engagement in online discussions via Moodle and Facebook. The data was collected through individual interviews with 14 pre-service teachers. Using the Activity Theory as a lens, the study reveals a set of factors concerning the technical tools, subjective perceptions, goals of online discussion, social presence within a community, rules for participation, and roles of the participants that affect their online engagement patterns. The findings of the study inform educators and software designers of how online discussions can be better promoted among students, and how a web-based environment more conducive to learning can be created.

1. Introduction

Over the past decade, pedagogical practices in higher education (HE) have undergone a significant move toward student-centered and community-based modes of learning (Rovai & Jordan, 2004). At the same time, social networking websites such as Facebook have become so popular among university students that they have formed an integral part of the students' social life. Learning within a community is concerned with participation in the community-based activities of creating, sharing and co-construction. It is thus vital to explore students' engagement in online communities, in particular the facilitating and debilitating factors that affect their participation. However, research on students' motivation to take a part in online discussions is still rather limited (Cheung, Hew, & Ng, 2008; Thompson, 2007; Xie, Debacker, & Ferguson, 2006).

This study focuses on Moodle and Facebook, two popular web-based platforms in the academic and social life of a group of pre-service teachers pursuing an Education degree at a university in Hong Kong. Moodle is an open source Course Management System (CMS) that allows educators to create an online environment in support of teaching and learning activities. Within CMSs are features such as file uploads, discussion forums, assignment submission functions, calendar entries and grading options. One commonality shared by CMSs is that they are organized in a course-based mode, and linked with course enrollment. Moodle is the CMS most commonly used by course instructors in the program where the study is carried out. For the designated course under investigation, Moodle was used to encourage the students to take the discussion beyond university-based classes and into their teaching practice (TP) which is equivalent to internship experience. Facebook is a social networking website gaining popularity around the world. The company reported that there were 618 million daily active Facebook users in December 2012 (Facebook, 2013), with university students accounting for a huge proportion of the users.

This paper examines the student teachers' experiences with and perceptions of using these two online platforms, Moodle and Facebook, in an effort to explore the motivating and inhibiting factors that impact on their engagement in web-based discussions. It investigates why they were not actively involved in voluntary online discussions on Moodle, yet keen on using Facebook on their own initiative for discussions and exchanging peer support during their TP. The results of the study inform educators and instructional designers of how online discussions can be better promoted, sustained and enhanced among students and of how the educational potential of social networking websites can be harnessed. The findings also shed light on areas for improvement on ways of creating a web-based system more conducive to learning.

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http://dx.doi.org/10.1016/j.compedu.2013.04.028

2. Review of related literature

The review of the literature will first center on the notion of learning communities and present the Activity Theory as the theoretical lens for data analysis and interpretation. Following this is the synthesis of a collection of work focusing on the factors that influence learners' participation in online discussions. The final part of the review will focus on some current work on the educational use of Facebook.

2.1. Learning communities and the Activity Theory

With the growing recognition of learning as an active and social activity, the notion of learning communities has become increasingly prevalent in schools at all levels. In simplest terms, a learning community is a group of people who are engaged in learning activities (Cross, 1998). What bonds members of learning communities together are their common causes of learning, mutual support, and shared values and experiences (Jonassen, Peck, & Wilson, 1999). The overall goal of a learning community is to advance the collective knowledge of the community (Bielaczyc & Collins, 1999), thus members within a learning community share the commitment to a common educational purpose or interest and a belief that their educational needs can be satisfied through participating in community-based activities (Rovai, 2002). A learning community allows for joint exploration and reflection of ideas, a mode of learning in a collaborative and supportive atmosphere (Palloff & Pratt, 2007). A learning community also has the potential of offering learners a ready source of peer support that is manifested through instrumental help as well as emotional support (Bruckman, 2006).

The Activity Theory can serve as a useful framework for designing and understanding an online learning community. The Theory provides a view of learning involving individual learners (subjects), tools, an object, a community, and the rules and division of labor that regulate community activities (Engeström, 1987). It places emphasis on the activities in which people are engaged, the tools they use in these activities, the social and contextual relationships, the goals as well as the outcomes of the activities (Jonassen & Rohrer-Murphy, 1999). On the basis of the Activity Theory, Lewis (1997) highlighted a set of relationships within a distributed learning community (e.g. subject–community–object, subject–tools–object) and essential conditions for students' collaboration. In a similar vein, Hewitt (2004) employed the Activity Theory as an analytical lens for evaluating learning communities supported by an online platform. Barab, Schatz, and Scheckler (2004) drew on the perspectives from Activity Theory in designing and developing an online platform (ILF) for teachers to create and share inquiry based pedagogical practices. In this study, the Activity Theory is conceptualized as the lens for interpretation and presentation of the findings.

2.2. Students' participation in online discussions

The pedagogical values of online asynchronous discussions have been documented by several studies. Web-based discussions can contribute to the development of students' reflective ability and critical thinking skills (Barnett-Queen, Blair, & Merrick, 2005; Burge, 1994; Chang, 2006; Whipp, 2003). Written communication on cyberspace enables students to take part in discussions at a time convenient to them and articulate their ideas in more carefully thought-out and structured ways (Tiene, 2000). Compared to face-to-face (F2F) interaction, students are more willing to voice their views or even disagreement and are more attuned to others' opinions in online discussions (Barnett-Queen et al., 2005). Researchers have also provided evidence to show that students' online participation is correlated with their learning performance. Hoskins and Van Hooff (2005) reported that the active participants in online bulletin boards outperformed the passive or non-users. Huang, Lin, and Huang (2011) also noted a positive correlation between students' online activities (e.g. forum posting, viewing files) and the stated learning outcomes.

It has been widely accepted that students' participation is a vital condition for effective online discussions (Bento & Schuster, 2003; Dennen, 2005; Mazzolini & Maddison, 2003). Yet teachers and researchers also share the feeling that "you can lead a horse to water, but you can't make it drink". A persistent and widespread problem identified by research on educational online discussions is superficial and short-lived discussion threads (Hewitt, 2005). There is a small body of literature on students' participation in and motivation for online discussions or learning that points to a range of factors which can be grouped under four dimensions: individual, social, pedagogical and technological.

2.2.1. Individual factors

From the individual's point of view, students' knowledge about a subject or topic is a key element affecting their perceptions of and motivation for contributing to discussions on the web (Cheung et al., 2008; Vonderwell & Zachariah, 2005). If students are not familiar with a subject or topic being talked about, they simply do not have much to say, therefore accounting for their limited interest in sharing. Since online asynchronous communication demands more time (Barnett-Queen et al., 2005), time constraint and information overload have also been indicated by several studies as a deterrent for students' participation (e.g. Chang, 2006; Cheung et al., 2008; Vonderwell & Zachariah, 2005). What's more, students' learning styles, preferences, their perceptions of learning (Bullen, 1998; Vonderwell & Zachariah, 2005) and their intrinsic motivation (Xie et al., 2006) influence their engagement in online discussions too.

2.2.2. Social factors

The factors in the social dimension are mostly concerned with relationships among students and the online participation activities of their peers. Cheung et al. (2008), in their study of students' motivation for contributing to online forums owned and facilitated by their peers, identified social relationships as the most common motivator. Similarly, Thompson (2007) reported that students were more willing to participate online after a closer rapport had been established. Furthermore, the level of participation of instructors and/or other peers in the online activities, has been shown to either motivate or demotivate students (Cheung et al., 2008; Mazzolini & Maddison, 2003; Yuen, Deng, Fox, & Tavares, 2009).

2.2.3. Pedagogical factors

Pedagogical design elements such as course requirements, discussion activities or topics chosen have a role to play in students' motivation. Course requirements and reward structure could act as an effective stimulus for promoting students' contributions (Alexander, 2001;

Concannon, Flynn, & Campbell, 2005; Xie et al., 2006). However, forced participation inevitably engenders anxiety, resistance and resentment among students (Althaus, 1997; Pena-Shaff, Altman, & Stephenson, 2005). What has also been discovered is that if students perceived the discussion and topics to be interesting, they would have a higher level of motivation to take part in the discussions (Cheung et al., 2008). Along the same line of argument, Dennen (2005) maintained that the relevance of discussion topics and connection of online discussions to other course activities immensely affected students' motivation for participation. Instructors' presence, participation and facilitation are also noted as important mediating factors for students' online engagement (Bullen, 1998; Xie et al., 2006).

2.2.4. Technological factors

From the perspective of technology, technological usability and support could fosters or inhibits students' participation in online discussions. Many studies (e.g. Escobar-Rodriguez & Monge-Lozano, 2011; Sánchez & Hueros, 2010) which adopted the Technology Acceptance Model (TAM) found that the usefulness and ease of use of the tools greatly influenced students' decision to engage in online activities. In addition, Alexander (2001) highlighted that adequate technical support was crucial in raising students' motivation for using online platforms, and this finding was further endorsed by Sánchez and Hueros (2010).

2.3. Educational use of Facebook

Accompanying the explosive growth of Web 2.0 technologies in the past decade is a soaring interest in using these tools for educational purposes. A small battery of studies on the use of Facebook in academic settings has shown optimistic results. Schroeder and Greenbowe (2009) reported that undergraduate students had a stronger preference for using Facebook than WebCT for online discussions as a supplement to F2F teaching. English and Duncan-Howell (2008) used Facebook as a tool to enhance peer support among Business Education students during their TP and detected that students' exchanges were mostly of the affective type facilitating group cohesiveness through encouragement and support. Engagement with Facebook has also been shown to be closely related to an increase in college students' social capital, especially for those low in self-esteem and life satisfaction (Ellison, Steinfield, & Lampe, 2007). The study carried out by Yu, Tian, Vogel, and Kwok (2010) revealed that online social networking helped strengthen social relationships among students, heighten their self-esteem and boost their learning performance. Other researchers such as Wang, Woo, Quek, Yang, and Liu (2011) explored the application of Facebook in formal educational settings and denoted that Facebook could offer features similar to CMSs for putting up announcements, sharing resources and conducting discussions.

However, the studies examining the relationship between the use of Facebook and students' academic performance yield less positive results. Junco's (2011) study indicated that university students' time spent on Facebook and the frequency of checking Facebook were negatively associated with their engagement in educationally relevant activities. Kirschner and Karpinski (2010) also reported that Facebook users tended to have a lower GPA and invested less time on their studies than non-users. Through researching into undergraduate students' experiences with and perceptions of Facebook, Madge, Meek, Wellens, and Hooley (2009) concluded that they used Facebook primarily for social purposes. Although interactions with their peers on Facebook were partly about academic matters, they were not keen on using Facebook for formal teaching-and-learning-related discussions or for liaising with instructors.

On the whole, empirical studies on the educational use of Facebook are still in their infancy and findings are inconclusive. Students' perspectives of using Facebook in their academic and social life merit further investigation. Moreover, many studies on students' experiences with and perceptions of technologies are confined to classroom settings. There is a lack of attention given to self-organizing online communities (Hur & Brush, 2009) and, in particular, how students use various technologies to support learning on their own initiative and beyond the classroom (Lai & Gu, 2011; Vaughan, Nickle, Silovs, & Zimmer, 2011). Meanwhile, more research endeavors are also needed to deepen our understanding of students' motivation for participating in online discussions (Cheung et al., 2008; Thompson, 2007; Xie et al., 2006). In an attempt to probe deeper into these areas, this study compares student engagement in Moodle discussion forums and their Facebook group, and looks into factors that promote or limit their online engagement.

3. Methods

The participants in this study are a cohort of final-year student teachers in their early 20s enrolled in a four-year English Education program at a university in Hong Kong. The study focuses on a core course that spans over a year with an eight-week TP in the second semester designed to enable the students to put into practice what they have learnt from the course. The instructor set up discussion forums on Moodle with the aim of supplementing and reinforcing F2F teaching and learning beyond university-based classes. Their Moodle participation was made voluntary so that students did not have to feel the pressure of being assessed for their contributions or took part solely for the sake of assessment. The instructor (the second author) discovered during the course that the students were far more active in their own Facebook Group than on Moodle. This triggered the authors' interest in digging into the reasons behind their disengagement with Moodle and motivation to use Facebook.

The study took an exploratory qualitative orientation with interviews as the main instrument for data collection. Individual interviews were carried out with students who either volunteered to take part or were identified through snowballing techniques (Patton, 1990). Fourteen students (six male and eight female) participated in the individual interviews that lasted between 30 and 80 min after completion of the course. Most interviews were conducted by both authors together. An interview protocol was developed consisting of general questions that tapped into students' experiences with and perceptions of Moodle and Facebook, and tailor-made questions based on individual students' online activities. Based on the protocol, more active participants were asked, for instance, for the reasons for their motivation to post online in a specific platform while the less active counterparts were prompted to account for their limited online activities. Questions were also posed to guide them in comparing Moodle and Facebook as well as to comment on their use of other tools for communication. Since the authors were not granted access to their Facebook group, interviewees were invited to give concrete examples of their interaction and activities there. The interviews were transcribed verbatim and coded using NVivo 10. The authors worked on the same data files, performed coding separately on different sections first, then examined and discussed the coding schemes together until

agreement was reached. Data analysis began with open coding followed by several rounds of recoding and categorization that involved constant comparison within categories and between categories (Strauss & Corbin, 1998).

The usage data in the Moodle system (views and posts) was gathered in order to provide an overview of students' online behaviors. Online posts on discussion forums and some examples of the interaction in the Facebook group were collected in a bid to verify the self-reported data gathered through interviews. Through preliminary analysis of the interview data, several themes emerged, after which online posts were studied to provide further evidence.

4. Findings

4.1. Descriptive data of online activities

Within the course space on Moodle, ten discussion forums were created throughout the course. Each forum allowed the students to share ideas on a certain topic. All participants of the forum could add new discussion topics (also known as "threads") and/or reply by building on existing threads. Yet students' participation in the voluntary discussions was rather sporadic in spite of the instructor's constant encouragement and online presence. To provide a macro view of students' forms of participation there, the data of online activities such as the number of discussion threads, posts and views was extracted via the "Report" feature inherent in Moodle and presented in Table 1. The activities of "Forum views" included viewing discussion messages and doing searches. Whenever a message was posted (whether it was to start a new topic/thread or to respond), it was counted as a post.

The first forum for exploring course-related topics (Forum 1) and the first for discussing the students' group-based micro-teaching (Forum 7) had a higher number of views and posts. Within the class of 32 students, the average number of posts in each forum was nevertheless only 4. There were four forums that had no posts, including one that was set up for peer sharing during their 8-week TP (Forum 10) when they were placed in different schools across the territory. Out of the 32 students, 11 had contributed at least one post throughout the course. There were five students who posted in Forums 1, 2 and 7, four in Forum 3 and one in Forum 9. The instructor encouraged the students to initiate discussions on Moodle by posting questions or comments, thus all the discussion threads were started by students themselves. The instructor herself actively read students' online posts, made written responses in three forums and commented on other ideas in verbal form in class.

Since the students' Facebook group was a closed group, the authors did not gain access to it. However, all interviewees were urged to cite examples of their interactions on Facebook and they generally described it as a vibrant space with lots of contributions on a daily basis. The group creator, one of the fourteen interviewees, shared several examples of typical dialogues within the group.

4.2. Factors influencing online engagement

The analysis of the interview data resulted in a huge array of factors that impact on students' online engagement. For clarity and ease of reference in the presentation and interpretation of the results, themes emerging from the data are mapped to the four major dimensions of the Activity Theory in 4.2.1–4.2.4. This will facilitate understanding and illustrate how Moodle and Facebook differ in the respective dimensions and how they exert influences on students' motivation for online engagement. Here is a brief overview of the four dimensions: Subject–Tools is concerned with the students' perceptions of the usability and their habit of using the technologies (Moodle and Facebook); Subject–Tools–Object pertains to how the students perceive or use the technologies for learning purposes; Subject–Tools–Community targets at their participation in the online community and their sense of community; Rules–Community–Division of Labor centers on how the students perceive their roles and rules within the learning community.

4.2.1. Subject–tools

The two mediating tools in the study – Moodle and Facebook – are perceived to have great differences in their interface and functionality by the students. Several students complained that the interface of and navigation on Moodle was "*very troublesome*", "*cumbersome*" and "*totally difficult to use*". After logging in, they had to look for the relevant course from a long list of other courses. As the Moodle version in use then, Moodle 1.9x, did not have the news feeds feature on its homepage, they exclaimed that they "*really hate(d) to… just click on each and every one (link) to see what's the update*" and that they sometimes had "*to log in to the system again*" because of inactivity. As shown in the screenshot of the course homepage on Moodle (Fig. 1), the course materials uploaded by the instructor occupy the central area. To access the discussion forums, students need to click on a small icon in the left menu bar.

Table 1
Descriptive data of forum activities.

	Threads	Forum posts		Forum views	
		Students	Instructor	Students	Instructor
Forum 1	5	18	3	164	16
Forum 2	1	7	2	77	6
Forum 3	1	5	0	60	4
Forum 4	5	6	0	56	1
Forum 5	0	0	0	13	0
Forum 6	0	0	0	13	0
Forum 7	7	10	2	107	11
Forum 8	0	0	0	32	0
Forum 9	1	1	0	33	4
Forum 10	0	0	0	0	0

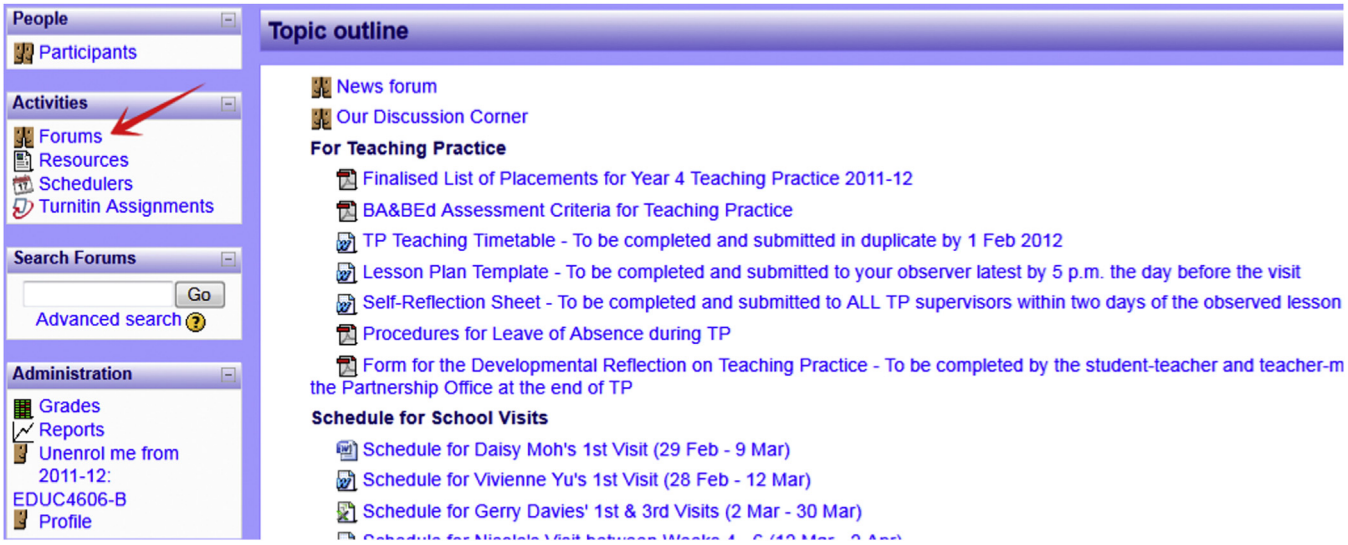

Fig. 1. Screenshot of a course website on Moodle.

To the students, Facebook allowed for much easier access as it has already "*become part of our (their) lives*". With the increasing popularity of smart phones, Facebook is within their fingertips. Since "*everyone uses it every day*", they regarded Facebook as "*more immediate and direct than Moodle*" and expressed their confidence in "*receiv(ing) feedback very instantly*". Convenience and immediacy were highlighted as crucial characteristics of online communication through Facebook which Moodle cannot rival. They depicted the discussion on Facebook as being "*more interactive and… fast*" to a point that "*it felt like a chatroom sometimes*".

An episode of their interactions on Facebook clearly exemplifies the point. A student posted a question asking for the differences between "I used to do something" and "I was used to doing something" at 10:51 PM. Two minutes later, the first reply was received. Altogether 23 responses were recorded between 10:51 PM and 11:41 PM. The average lag between posts was 2.38 min. In another instance quoted by an interviewee, a question about the formatting of an assignment was raised. Within several minutes, he got a series of replies and one course-mate even "*use(d) the iPhone to take a picture of the requirements and then post(ed) it on Facebook*". In contrast, there was a much longer time lag between original posts and responses on Moodle. We took note of the time stamp of the posts and responses on Moodle and calculated the lag between them. Take the forum with the highest number of responses as an example. The original post was created at 6:11 PM and attracted 10 responses. The first response came in around 4 h afterward at 9:51 PM and the last response was received six days later. Thus on average, the response lag was 916 min, drastically longer than that of the interactions based on a post on Facebook.

Moreover, the students felt that the Facebook interface was better designed to promote interactions. As one student put it, "*you have the comment right next to the post. So if you need to post a comment, you just click on it and type*." Another added, "*it is very natural if you respond on Facebook. It's just like a chat. You won't feel any pressure*". Another Facebook feature that the students appreciated was the news feeds that showed the most recent posts and activities within the group on the homepage. Facebook even "pushes" the latest updates to users' email box.

Nevertheless, the students admitted that Facebook had its inherent drawbacks. One limitation which many interviewees remarked was that it was not easy to upload and share files like Word documents and PowerPoints: "*you can't attach a file to a post*", "*categorize messages*" or "*create a folder, like 'Reading' (a suggested topic) and then you put everything in 'Reading'*". So they considered Facebook to be "*a good platform for us (them) to have instant contact but not for file storage and sharing*". A second problem a high-traffic online group could experience is information overload as "*it can be messy when you have too many comments*".

4.2.2. Subject–tools–object

In light of the above, Moodle and Facebook are seen to serve different purposes. In the eyes of the students, Moodle is "*a place for us (them) to download course materials and to talk about course stuff*"; it gives them "the feeling that I (they) can get something from Moodle, but I (they) won't have the initiative to give something to others through Moodle". Some even queried at interviews if they were allowed to upload materials onto Moodle. They portrayed Moodle as being "*serious*", "*formal*" and "*academic*" and associated it with "*homework*", "*assignments*" and "*assessment*".

Throughout the year, the students showed minimal interest in visiting and contributing to the forums on Moodle and stressed that they did so only when required. They "*don't really like to share our (their) ideas there*". These students' perceptions were shown to negatively affect their motivation and participation to an extent that some of them even admitted having a mental block: "*we can't be bothered to log in to the site*"; "*I hate it (Moodle)*". Only four out of the 14 interviewees were comparatively more positive about communicating with their peers via Moodle. These students commented on the benefits of having discussions there: "*if you type it out, you tend to be more careful in your typing and in your thinking. Through this process, you really have to think thoroughly and deeply, … this is quite a good way to reinforce knowledge learnt from the course*". Yet at the same time, they emphasized that the usefulness of online discussions hinged heavily on the involvement of their course-mates.

While Moodle was predominantly used for academic functions, Facebook served a mixture of informational, social and academic purposes. In students' words, "*everything happened there*." They shared "*everything happening around, from job hunting to what is the format of the*

dissertation", "*some links to teaching English, some websites that have good examples and activities for teaching*", for example. This Facebook Group was portrayed as an avenue for them not only for "*chit-chatting*" but also to "*interact with one another to solve problems*" or "*seek support*". One interviewee acknowledged that it was "*the group culture that whenever you have a problem, you can talk about it here (on Facebook)*". They "*share(d) our (their) difficulties, good or bad experience*" and exchanged views about various problems in their own classrooms such as "*the students are too naughty or if we have too many things to cover*". And as one interviewee recalled, "*even though there is a problem that no one can solve, someone just says 'Don't worry!' or 'Don't be so nervous!', it will be okay*".

Regarding the educational value of the two platforms, the students generally felt that they "*can actually learn more from my (their) friends' responses from Facebook than on Moodle*". One of the common discussion topics on Facebook, according to the interviewees, was about their assignments and schoolwork. During their TP when they were physically dispersed in different geographical locations, their conversation on Facebook began to gear toward the sharing of teaching ideas and understanding of grammar points. During their discussion, some "*used grammar references as well, so it's not just what they think but really a good intellectual communication there*." In one of the pieces of evidence gathered, a student posted:

> "*running out of ideas for the 2nd lesson observation… what remains in my scheme of work is only grammar and readers (The Witches)… these 2 areas seem not very good options for lesson observation… what can i teach?*"

This post generated 17 replies from four fellow students, each giving different suggestions and one of them even offered to share her teaching materials. The interviewees reported that there were many episodes like this during their eight-week TP. They "*talk(ed) about how we (they) teach (taught), what difficulties (they faced) in teaching*" and also inspired one another by exchanging teaching ideas. One student recalled in the interview her successful experience of the first lesson with an idea borrowed from a peer:

> "*my first lesson in that TP school was suggested by xxx because I was asking a question, 'Any ice-breaking activity?', and then he gave me one template. Actually he gave me a worksheet of a blank Facebook page for students to fill in*."

Exchanges of this type, according to interviewees, were common on Facebook but non-existent on Moodle.

4.2.3. Subject–tools–community

The students' perceived benefits of Facebook over Moodle can be understood by the immediacy of the responses they got since "*everyone is there*" and so "*you ask a question, then you get a response quickly*". This gave the students a strong sense of community within the group and acted as an impetus for them to visit the Facebook Group, post and exchange more comments. As one student exclaimed, "*I know there are some listeners, they really enjoy my sharing. I find it very satisfying, then I will keep doing it*."

The "Like" feature on Facebook was further noted by the students to enhance social presence within the community: "*if they just click 'Like', I feel appreciated. Then I will continue to do more*." In addition to motivating participation, the "Like" feature functioned as a peer rating mechanism as another student depicted what the "Like" meant to her: "*we use how many 'Like's to rate the idea*". Conversely, the perceived lack of online presence of their peers on Moodle made them think that "*nobody will respond*", hence making them feel "*very lonely on Moodle*". This thought that "*no one is there*" or "*nobody will check it regularly*" renders the Moodle forum an undesirable place for seeking help, asking questions and exchanging ideas, thereby accounting for their limited involvement.

4.2.4. Tools–rules–division of labor

Owing to the students' varying conceptions of the purposes of the two online platforms, they viewed their roles and relationships in a different light. As Moodle was associated with course registration, it "*confines you (them) to a course or a group*". The cohort of students in the same program was divided into two groups taught by different instructors. On Moodle, they then belonged to two different 'courses' and, by nature of the design of the system, could not communicate with the other group. On Facebook, however, all the students in the cohort were invited to join the Facebook Group. To them, they "*are students and classmates on Moodle rather than friends*". This influenced their perceptions of Moodle as "*a more official and formal*" platform under the supervision of their instructor, which made them feel compelled to "*type a very long passage*" as a response and "*think about how to structure it*". Even though their contributions were not assessed, they still "*tend to be more academic… and to look for journals*" to back up their ideas. Since "*our (their) lecturers are monitoring the discussion*", *they felt the pressure to* "*cite some references*" or "*check my (their) grammar, check my (their) language*". The presence of the instructor on Moodle was considered by some students to be a hindrance to free and casual discussions on Facebook where they could raise a question without feeling "*afraid that it is too stupid or it might show that I (they) haven't read enough*". Another student confirmed this apprehension: "(on Moodle) *our lecturers are monitoring this discussion, so we don't say something silly, we don't say something rubbish, and then before I contribute, I need to do some reading*". In this way, interacting on Moodle gave students the feeling that it was "*cumbersome*", "*controlled*" and with "*more restrictions*". The students' inclination to reply in a more structured, elaborate and error-free way inevitably demanded more of their time and effort, which added to their "*pressure*" and reduced their "*initiative to chat on Moodle*". When asked what might motivate them to be more active on Moodle, several students suggested making it compulsory. One student's view was that the instructor could set it as "*a hurdle requirement to make students start participating. Once they start, they will forget it is a requirement, they will just participate*."

The discussions on Facebook were described as shorter, more "*casual*", "*spontaneous*", and represented a "*free flow of discussion*". As the creator of the Facebook group maintained, "*there is no monitoring, we do whatever we like. Sometimes, we really talk about stupid things. We know we can do it because it is our group*." On Facebook, they did not feel inhibited to "*throw responses to each other's questions*" or "*afraid of being criticized*". This served to explain why they enjoyed the process of "*learn(ing) from each other's response*", "*becom(ing) more confident*" and "*empowered*" through a perceived joint exploration on Facebook.

The students were asked whether they would welcome the presence of their instructor in their Facebook group. Most expressed some reservations for fear that the instructor's presence would spoil the free and spontaneous interaction within the group. As one student expounded:

> "*(In our Facebook group), there are a lot of other things that are going on, which are not exactly relevant. If the instructor is also there, we would consciously and subconsciously try to limit or restrict what we are talking about to only about the course content*."

Another shared a similar view: "*sometimes we will come up with some stupid ideas, not really perfect ideas, but we want to ask the comments from our peers because we are more likely at the same level*…". A further comment from a third interviewee was: "*it is just a norm for students' groups, you usually will not invite the tutors*." It was obvious from the students' voices during the interviews that they shared similar concerns over privacy and were thus reluctant to open the door of their Facebook Group to the instructor in spite of repeated invitations. The authors therefore relied heavily on the students' verbal descriptions of their Facebook activities which nevertheless all cohered when they were invited to provide details and examples of their discussions. Yet although they took pride in this ownership of the Group, one problem they realized was that "some of them (the comments) are actually useless, like they just laugh out loud, or just write something off topic".

5. Discussion

Two popular online *tools* in tertiary students' academic and social life – Moodle and Facebook – are the foci of interest of this exploratory study. In the study, attempts were made to probe into the reasons behind students' disengagement with online discussions on Moodle as a contrast to their active involvement in their own Facebook group. The perceptions and attitudes of the students toward Moodle and Facebook, and their usage of the two platforms were found to be drastically different. A wide range of factors as well as issues that affect students' motivation for interacting with their peers online were identified and mapped to the dimensions in the Activity Theory, which are further reviewed from the technological, individual and community perspectives (see Fig. 2). Factors at the technological level are mainly concerned with the usability of the tools and users' habits; those at the individual level pertain to their perceived affordances of the tools; the factors at the community level, including social presence, sense of community, roles of members, and rules of community, are possibly the most influential factors in effect. In this section of the paper, we will closely examine the factors at each level.

5.1. Technological level: usability and habits

First, students' (*subject*) habits and past experiences of using the two *tools* and their perceived ease of use all add up to shape their attitudes toward the technologies. The students' familiarity with the interface of Facebook and their perception of Moodle as a system difficult to use and navigate explain their different usage patterns. On Facebook, a more easy-to-use interface coupled with a news feeds feature enabled them to be quickly informed of the new updates within the community and to respond in a timely manner. In this respect, the findings of this study confirm those of previous research projects that underscore the importance of a user-friendly web-based platform (e.g. Cheung et al., 2008; Vonderwell & Zachariah, 2005).

5.2. Individual level: perceptions

The students (*subject*) hold different beliefs toward the affordances of the two *tools*; that is, the *object* that can be achieved through using the tools. Moodle was perceived to be a formal and academic system which made them feel obliged to post long, serious and structured messages. Moodle was also largely conceptualized as an online space for them to download course materials, instead of one for uploading files for sharing and for enhancing communication. Such a deep-rooted view resonates with that reported in other studies that CMSs like Moodle are used mostly for disseminating information rather than enhancing interaction (Brown & Adler, 2008; Hamuy & Galaz, 2010; Lonn & Teasley, 2009). It was surprising to find that the students in this study were not even aware that Moodle allowed students' uploading of files. Yet unanimously, all interviewees acknowledged Facebook as a valuable platform for sharing information, exchanging experiences and teaching ideas, discussing various academic and social issues, as well as seeking help and support during their TP. It appeared to be natural for them to create posts, share information and conduct online discussions on Facebook. Unlike CMSs where the students were added by system administrators or teachers to a course, Facebook allowed those interested to form their own group and interact with a wider audience beyond their course-mates. It is plausible that social networking websites, as key components of Web 2.0 technologies, encourage a participatory culture (see McLoughlin & Lee, 2007; O'Reilly, 2007). CMSs such as Moodle, although can afford content creation and interaction, are largely restricted to a Web 1.0 mentality. The interface of Moodle puts instructor-created content at the forefront, which at least in part hinders students from playing a more active role in constructing and negotiating knowledge. From a merely technical point of view, Berners-Lee (2006) might be right in that the affordances for online content creation and communication are not unique to Web 2.0 tools. However, we contend that Web 2.0 tools might have a more far-reaching impact than Web 1.0 technologies provided that participation and user-created content take precedence over the presentation of information (Brown & Adler, 2008; Davies & Merchant, 2009). The real difference between Web 1.0 and Web 2.0 technologies might be more concerned with mentality rather than technical capabilities.

In our study, the use of Facebook is entirely student-initiated and student-maintained, reflecting that the students are enthusiastic about and capable of using social software such as Facebook on their own to meet learning needs collaboratively. We have witnessed the use of

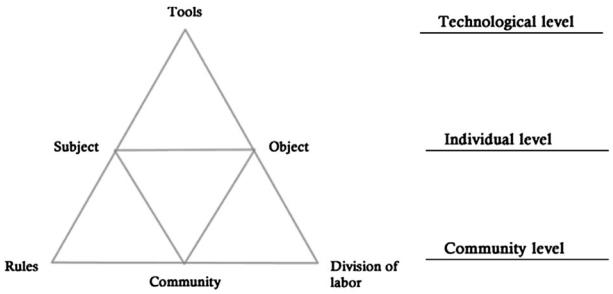

Fig. 2. Three-level factors that influence online participation.

Facebook for a combination of both social and learning functions. This is consistent with the model of teacher participation in online communities developed by Hur and Brush (2009) which identified sharing emotions and exchanging ideas as the two prime purposes of engaging in online teacher communities. Although the students were clearly not maintaining a distance between their social life and learning in two separate platforms (see Jones, Blackey, Fitzgibbon, & Chew, 2010), they did indicate a strong preference to keep the online interactions among themselves from their instructor.

5.3. Community level: social presence, roles and rules

At the community level, online social presence and sense of community are critical factors influencing students' motivation for online participation. Consistent with previous studies (e.g. Cheung, Chiu, & Lee, 2011), this study has confirmed the powerful role of online social presence in determining students' engagement. To be more precise, the more the participants are aware of the online presence of fellow students, the more likely they are to be engaged in the activities of the community. This belief in the presence of their fellows in cyberspace who are able and ready to offer help is an empowering phenomenon. In this sense, the participants are not only contributors of information, but also creators of a context for nurturing a vibrant online community. On Facebook, online social presence is engendered through posting on the web as well as through RSS news feeds and the feature of "Like". The news feeds enable everyone to receive instant updates of new posts. The "Like" feature boosts the motivation and confidence of the ones who post the messages and reinforces the online presence of members within the community. All these contribute to a sharpened awareness of an online social context where the students gather to share their feelings, thoughts and ideas.

On Moodle, the students in this study shared the same perceptions as those in Bullen's (1998): they did not regard Moodle as an interactive space, hence saw no connection with their course-mates. The whole system was viewed as academic, formal and instructor-controlled, which was not an ideal environment for them to express themselves, share and interact. Resonating Bullen's (1998) study, there is a need for social activities in online forums.

Our study attests to what Goodwin, Kennedy, and Vetere (2010) contend that students' existing social relationships are a primary determinant of how social networking technologies are used. The students were willing to share and support one another because of their established social bonding. In spite of this, it needs to be acknowledged that such relationships do not necessarily translate directly into online participation or interaction as Deng and Yuen (2007) denoted. As shown in this study, the same group of students was strongly committed to their own Facebook group, yet indifferent to Moodle discussions.

The students' perceptions of the two technologies played a vital part in shaping their online activities (*rules*) and their *roles* in the community. On Moodle, a platform that they regarded as formal, academic and instructor-monitored, they felt inclined to compose messages with solid content, references and in an academic style. This inevitably meant more effort and time, which refrained them from using the platform readily for peer interaction. In this respect, the findings echo those of a study conducted by Tsui and Ki (2002) who recognized the same self-imposed pressure Hong Kong teachers had to produce error-free online messages in a desire to maintain their self-image as competent teachers. In both studies, despite the non-assessed nature of the web-based environment, this pressure created a barrier to their full participation in discussions.

Nonetheless, as the Facebook Group was initiated, developed and run by the students themselves without the presence of the instructor, the rules for participation were subtly negotiated among members of the community themselves. The students on the whole felt more at ease posting in conversational and casual styles and on any topics of interest to them. There is also a distinctive difference in the sense of ownership they experienced in the two online platforms. The students exhibited a strong sense of belonging to and ownership of their Facebook group, hence justifying their decision to keep the group exclusive to themselves.

6. Conclusions and implications

Using the Activity Theory as a lens, this study looked into the reasons for a group of final-year student teachers' engagement with discussions on Facebook compared to their lack of enthusiasm in joining the forums on Moodle. The Facebook Group they created has proven to address their needs from casual chatting to discussion of more serious academic and pedagogical issues. The Group was found to have provided the student teachers with informational, social as well as intellectual support in a timely fashion during their TP. The study has revealed a three-level model that explains online engagement issues from technological, individual, and community aspects. Their existing habits of using Facebook, their sense of ownership, and the social presence of fellow students in their online community all had a role to play in their stronger engagement with this social networking website. Their interaction on Facebook was instant, spontaneous and organic, thus largely fostering their sense of community. In contrast, the not-so-user-friendly interface and lower activity rate on Moodle coupled with their perceptions of CMSs as a formal and academic environment have turned them away from using it for discussions beyond university-based classes. The study, however, inevitably has its own limitations. It was a great pity that the authors could not gain access to the students' Facebook group to gather more objective and quantifiable data on their interaction and participation there. This points to critical and thorny ethical issues that all researchers and educators need to pay heed to when dealing with students and social networking services. Due to a rather small sample size of the students in the study and their unique background of being in an Education course, the findings may also not be immediately generalizable to other contexts.

Still, our findings can have some important implications for software designers, teachers as well as researchers who are interested in enhancing online communication or using social networking software for learning. The student teachers' voices suggest several areas for improvement for the developers and administrators of CMSs. First, there is a need to streamline the navigation and to design a more user-friendly interface in order to give the students a better initial impression of the system. Second, instead of putting course materials in a central position, designers and developers of CMSs should consider giving discussion forums an equal focus, if not more. Third, findings of this study reveal that it is desirable to show the feeds of the new activities on the homepage of the CMS to promote stronger social presence of the community. Features such as "Like" may also be incorporated into the system.

For teachers, the findings point to a number of considerations for enhancing students' participation in online discussions. Teachers could consider modeling shorter posts with a more informal tone which, according to the interviewees, may create a more comfortable and

inviting atmosphere for their interaction online. Indeed, a strong online learning community should have its social and emotional as well as intellectual and academic dimensions (Palloff & Pratt, 1999). Acknowledging the fact that the presence of a community is necessary for online participation and learning, some researchers have argued for a need to maintain the balance between interaction for social purposes and that for learning. So and Brush (2008) are of the view that there might be an optimal level of social presence that positively impacts collaborative learning as a group of close friends tends to spend more time on off-task behavior and socializing. How to strike the right balance in using the CMSs for social and learning functions remains an area to be explored in our future research.

Arising from our study are also several other interesting and promising areas for further investigation. It has come to our understanding that more updated versions of Moodle may have addressed some of the current concerns raised about the interface and functions. For example, whether the addition of an element of assessment using 'Participation Forum' which is one of the new features in Moodle 2.3.4 will generate more and higher quality discussions is a possible area of study. The instructor's role is another promising avenue for further studies: How does the instructor's presence affect students' motivation to use and participation in varying contexts? To what extent will the instructor's presence in the Facebook group impact on students' interest in and the quality of their discussions? It will also be interesting to compare the posts in Moodle discussion forums and in Facebook groups to illuminate educators on the "depth" of the discussions there and on how instructors' roles may make a difference. While educators are making the leap onto the wagon of social networking websites, it is absolutely crucial to note the privacy issues involved in using such websites and data from such sites for educational and research purposes.

Acknowledgment

This study is supported by the start-up grant of Hong Kong Baptist University. We would like to thank Ms. Zhen Niu Low for her assistance with data analysis. We also want to thank the anonymous reviewers of the paper for their insightful and constructive comments.

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