Students' use of Facebook for peer-to-peer learning

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Abstract

This paper presents the findings from an empirical study of five non-institutional Facebook groups created and managed by students in Danish upper secondary schools. The objective of the paper is to study educational potentials of Facebook with a focus on students' self-organized academic communication. The empirical study includes a questionnaire distributed to 2035 students and 182 teachers and a qualitative analysis of communication spanning more than two years within each of the five Facebook groups. The study provides an insight into how students communicate about school work without the participation of teachers. The findings from the questionnaire show that whereas students and teachers primarily use institutional learning management systems to communicate among each other, students clearly prefer social media when they communicate with fellow students. The study shows that students' school-related use of Facebook is widespread. More than 80 % of the students in the questionnaire specified that they use Facebook as a communication tool in relation to their school work. Further, 67 % of the students state that they "almost all the time" or "often" use social media (which is primarily Facebook) to help each other with homework and other school-related work. Only 11 % answer "rarely" or "never". Based on the findings from the questionnaire, a qualitative analysis of student communication in five Facebook groups is completed. The paper presents findings from the study that demonstrates students' extensive use of Facebook groups to help each other with all kinds of school-related matters, including issues relating directly to academic subjects. The study rejects the claims that students do not wish to use Facebook for school-related activities. The empirical study demonstrates that students are using Facebook groups to help each other with all kinds of school-related matters, including issues relating directly to academic subjects. Based on the findings from the study, the paper concludes that there is an educational potential of Facebook groups in supporting peer-to-peer learning between students. The study has identified a usage of Facebook among students that differs from studies of Facebook being used as a learning management system, where the teachers is present and manages the groups.

Introduction

Facebook for educational purposes has received increased attention within the last few years. This is not least due to the advent of Facebook groups, which have made interaction among people who are not Facebook friends much easier. The basis of this paper is a study of Facebook use for academic communication in a non-institutional forum created and managed by students. The paper presents a qualitative study of the actual communication between students in five Facebook groups in upper secondary education - with no participation or intervention from teachers.

The global penetration of Facebook and its massive use - especially among youth - can be seen as a central cause for an increased interest in Facebook within educational settings. However, there are other sound arguments for educational institutions to direct their focus towards Facebook.

From the institutional perspective, educational use of technology is dominated by use of institutional systems termed Virtual Learning Environments (VLE) or Learning Management Systems (LMS). Although these systems integrate more and more functions inspired by developments within social media, these systems are almost solely used by teachers to share materials and presentations and to send out messages to students. Already in 2005, an OECD report (2005) stated that the integration of technology, including LMS, in higher education has primarily had effects on administrative services. As Sclater (2008) writes, it is a limited use of the systems:

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> The communication features of LMSs are poorly utilized in most institutions, the LMSs being used primarily as storage facilities for lecture notes and PowerPoint presentations. LMSs tend to restrict students to content designed for a particular course and to interactions solely with participants in that course. (Sclater, 2008)

The criticism is not technology-oriented, but is rather of a pedagogical nature. The criticism is raised from the perspective of pedagogical approaches that highlight communication and collaboration of students. From this perspective, LMSs have further been criticized for reproducing the structure and hierarchy of a teacher-centered classroom (Sclater 2008; Dron, 2006). LMSs tend to be utilized as centralized and hierarchical systems that manifest the role of the teachers and support their management of courses. Put differently, the systems do not have a focus on the learning activities of the students (Dalsgaard 2006).

The field of literature behind the criticism of LMS has pointed towards a need for directing the attention of educational technology towards tools that support the activities of the students (Atwell 2006; Wilson et al., 2006; Martindale & Dowdy, 2010; Bang & Dalsgaard 2006). Although this is a pedagogical shift in focus, it has a strong influence on the view on choice and usage of educational technology. Most dominant is the concept of Personal Learning Environments (PLE), which covers tools that help students manage and organize their own learning activities (Martindale & Dowdy, 2010). Atwell (2006) defines PLE as "systems that help learners take control of and manage their own learning". The key aspect of this concept is that it takes the student as the starting point for technology with the objective of encouraging and empowering students to take control of and manage their own learning activities. This paper follows the pedagogical approach from the criticism of LMS. Facebook will be viewed from a pedagogical approach, which focuses on learning activities of the students. More specifically, the pedagogical approach of the paper emphasizes self-governed work of students and communication, collaboration and transparency among students (Dalsgaard 2006; Dalsgaard & Paulsen 2009).

Institutional management of Facebook groups?

The empirical study of this paper differs from existing studies of educational use of Facebook. Looking more specifically at the literature on educational use of Facebook, many of the studies hold the perspective of the institution, whereas this paper will take the perspective of the students.

Many studies show examples of Facebook being used as an LMS (Maleko et al. 2013; Wang et al. 2012; Meishar-Tal et al. 2012). In line with this there are several studies of Facebook groups organized by the institution and with participation from the teachers (Kio & Negreiros 2013; Baran 2010). Thus, many of the existing studies are of Facebook groups that are targeted directly at school work. The groups are created and managed by teachers, which gives the institution rather than the students the ownership of the group. In that way, the Facebook groups are institutionalized and become reminiscent of traditional LMS. This is also evident in examples of Facebook usage relating to distance education, where the technology is a necessity for communication (Maleko et al. 2013).

The empirical study of this paper differs from such studies in that it takes the perspective of the students and examines their self-governed activities uninfluenced by the institution. Taking the students as the starting point makes it relevant to study educational use of Facebook without the participation of the teacher. The study will not focus on Facebook groups that are not managed by the institution or teacher. Rather, the objective is to study Facebook groups that are independent of the institution and managed entirely by students themselves.

Educational potentials of Facebook

Although the current literature on educational use of Facebook has a different focus than the current study, they present a range of findings of relevance to this paper. They point towards educational potentials, that the current study will expand on.

Existing studies conclude that there are promising potentials of educational use of Facebook. Meishar-Tai et al. (2012) argue that Facebook groups support "evoking mutual support and social consolidation" (p. 44). They conclude that Facebook is not just an alternative, but has major advantages over traditional LMSs in promoting collaborative and active learning. Madge et al. (2009) conclude that the central potential of Facebook relates to socialization in school, and that Facebook communication is essentially a "social glue".

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However, there are also examples of studies that indicate that students not only use Facebook for socializing, but alto for school work directly related to the subjects. Studies show that students are utilizing Facebook groups to help each other on subject-related issues, and that students are sharing resources of relevance to the disciplines (Petrovic et al. 2013; Fewkes & McCabe 2012). These studies point towards potentials within peer-to-peer learning or peer-based learning. This relates to studies of social media use in informal settings organized by young people outside institutions. Ito et al. (2009; 2013) have highlighted the potentials of social media for peer-based learning in informal contexts. In other words, several studies point towards educational potentials related to peer-to-peer learning organized by the students themselves.

These studies underline the relevance of studying Facebook groups organized by students without influence from the institution. A number of questions arise from these conclusions. What takes place within Facebook groups organized by students? Do students post status updates, share links, or do they ask questions and help each other on Facebook? What is the balance between social and discipline-specific communication? What areas of school work do students discuss? These questions form the basis of the empirical study in this paper.

Empirical study

Following the pedagogical approach outlined above with a focus on students' self-governed activities, it is most relevant to study Facebook groups that are not created, managed or encouraged by the institution or teachers. As opposed to several other studies of educational use of Facebook, this study is not based on an experiment, where students and/or teachers have been asked to use Facebook. Rather, the analyzed Facebook groups have all been created by students on their own initiative without any encouragement from the institution, teachers or researchers. The context of the current study is upper secondary schools, where students attend school five days a week. This means that the Facebook groups are not essential for their participation in school - they are a supplement. Again, this highlights the self-governed nature of communication within the groups.

Methodologically, many of the previous studies of educational use of Facebook are quantitative based on large surveys (Fewkes & McCabe 2012; Madge et al. 2009). The empirical study of the current paper consists of an analysis of communication within 5 Facebook groups from three Danish upper secondary schools. Each Facebook group has around 30 student members and no teachers. The logged communication covers between 2 and 2½ years for each group. The analysis of the Facebook groups is a part of a larger research project studying use of technology in Danish upper secondary schools (Mathiasen et al. forthcoming). As part of this research project, a questionnaire has been distributed to 2035 students and 182 teachers. The questionnaire was answered by 1463 students and 148 teachers providing af response rate of 72 % for students and 81 % for teachers. The questionnaire includes questions on Facebook that support the analysis of the five groups. In the questionnaire both teachers and students have been asked about the frequency of their use of social media (including Facebook) and LMS for communication related to school work.

The objective of the analysis is to study educational potentials of the Facebook groups. The groups have been coded and analyzed from a range of categories based on the review of literature and pedagogical perspective described above. Because of the focus in the literature on Facebook's potentials related to socialization, the analysis will examine whether the posts are of a social or an academic nature. Thus, the analysis will first of all make a distinction between:

- Social posts not relating to school work
- Academic posts relating to school work and subjects

Secondly, the analysis will go into details with the content of the academic posts related to school work. What areas do the students write about within the academic posts? From a content analysis of the posts, the following academic categories were identified:

- Subject matter
- Study technique
- Administrative issues

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The first category relates to posts that are directly related to content and concepts of the subjects. The second category concerns questions relating to formalities of assignments, etc. The final category covers practical issues such as deadlines for assignments. Finally, the analysis will examine whether there are elements of peer-to-peer learning within the groups. Thus, the posts were also coded using the following distinction:

- Asking questions
- Providing information

These categories will clarify, whether students engage in discussions and help each other with their school work.

Findings

In the questionnaire answered by 1463 students, students were asked about their use of the institutional LMS and social media respectively. The tables below show students' use of these technologies when communicating with the teacher (Table 1) and with each other (Table 2).

Table 1: Students' use of institutional LMS (left) and social media (right) to communicate with teachers regarding homework and assignments.
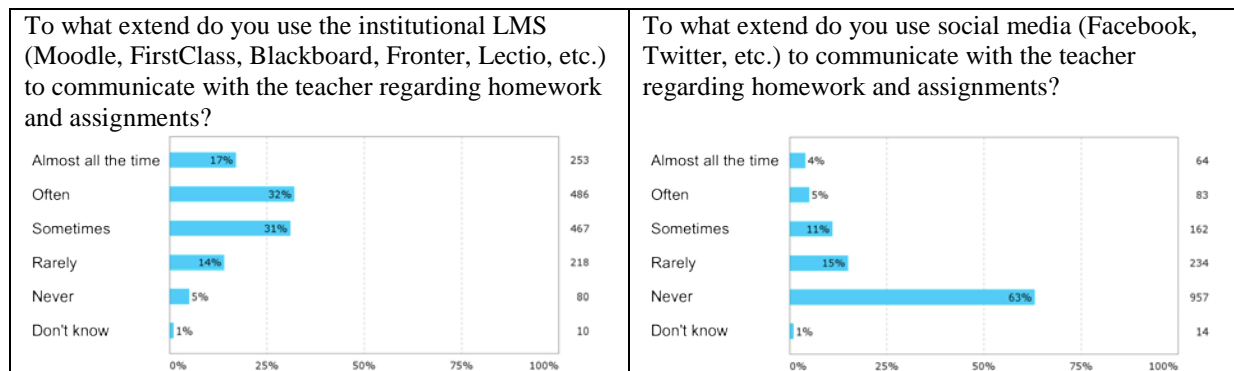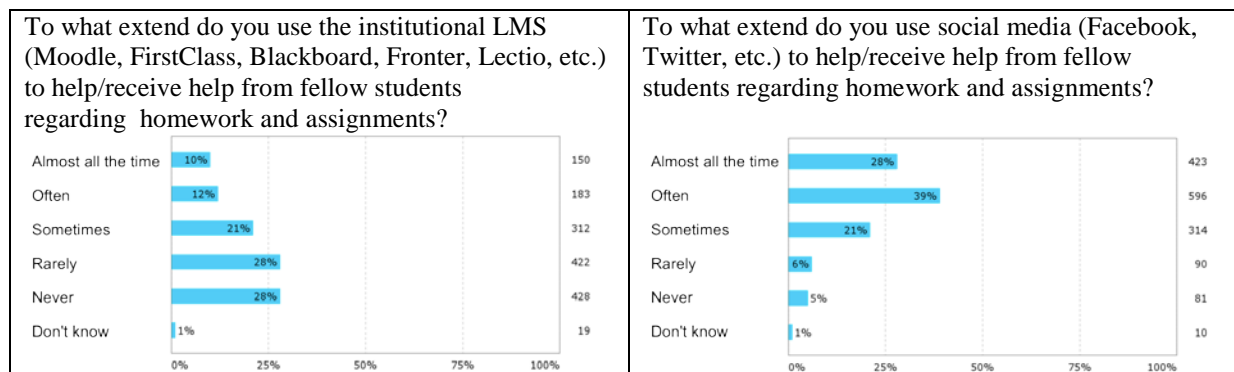

Table 2: Students' use of institutional LMS (left) and social media (right) to help or receive help from fellow students regarding homework and assignments.

Whereas students and teachers primarily use the institutional LMS to communicate among each other, students clearly prefer social media when they communicate with fellow students. Also, it is interesting to see, that many more students use social media to help or receive help from fellow students than students who use the institutional system to communicate with the teacher. Students were asked to write in plain text the specific tools they used for communication. More than 80 % specified "Facebook" meaning that "social media" in reality is almost entirely Facebook.

Whereas the study below of the five Facebook groups provides a qualitative data on the content of a few groups, the questionnaire outlines the extent of school-related usage among students in secondary schools in Denmark. What is of special interest from these figures is that 67 % of the students state that they "almost all the time" or

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"often" use social media (primarily Facebook) to help each other. Only 11 % answer "rarely" or "never". It can be conclued from these figures that students' school-related use of Facebook is widespread among students. Finally, the figures motivate a thorough study of Facebook communication among students.

In Table 3 is an overview of the quantity of communication within each of the five analyzed Facebook groups. A total count of posts and comments show that students write an average of 1 post and 4 comments every day (including weekends and holidays).

Table 3: Number of posts and comments in the five Facebook groups.

Class	Period	Total posts	Total comments	Posts per day	Comments per day
1	10.8.2011 - 8.5.2013	502	3576	0.8	5.6
2	2.11.2010 - 21.5.2013	403	1749	0.4	1.9
3	15.8.2011 - 3.5.2013	643	2601	1.0	4.1
4	31.8.2011 - 22.5.2013	950	4430	1.5	7.0
5	10.8.2011 - 10.5.2013	641	2662	1.0	4.2

The initial coding of posts of a social and academic nature show that both categories exist within all the groups. However, in some groups the social element dominates the groups, whereas other groups have a majority of academic posts related to school work. This result shows that it is not possible to clearly state that the educational potential of Facebook is primarily related to socializing. On the contrary, it shows that the academic aspect of Facebook use is of equal relevance. Following this initial coding, the content of the academic posts was analyzed according to the three subcategories. Finally, the posts were analyzed from the distinction between questions and information. The results are presented below.

Administrative issues

There are several examples of students asking each other about practical, administrative and technical issues. Typical examples are (all examples are translated by the author):

> Biology is moved to Thursday
> Where are the materials for classical civilization?
> Where should we submit the math assignment?

These are often quite simple questions with straightforward answers provided by fellow students. Although these questions and answers may be simple, they can, however, be very important for the individual student. Many of the questions show problems that - if not solved - could prevent the students from moving on in their assignments:

> How do you define something in Maple?
> How do you use sinus in Maple?

The groups hold many examples of students helping each other with practical and administrative problems.

Study technique

Students also use the Facebook group extensively to write post that relate to study technique and academic form. Typical examples of posts related to study technique are:

> Have you written an introduction?
> References - should we include that?
> Can someone quickly explain to me how to begin an English essay of a short story?

Some of these posts are in the form of questions that require a brief yes or no answer. However, there are also examples of longer discussions on these topics.
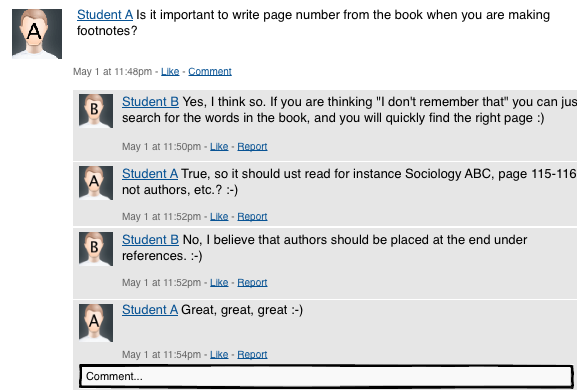

Figure 1: Example of communication related to study technique *(translated by the author)*.

Subject matter

The Facebook groups also hold many examples of posts that directly address subject matter and content of the disciplines. The posts are primarily questions related to assignments. Typical posts related to assignments are:

> What are your results for assignment no. 5?
> How do you find out which substances are volatile?
> Just to be sure, are we talking about Great Britain or England?

There are both examples of posts with no comments, posts with brief answers, and posts with lengthy exchanges and discussions. Figure 2 provides an example of a lengthy discussion.
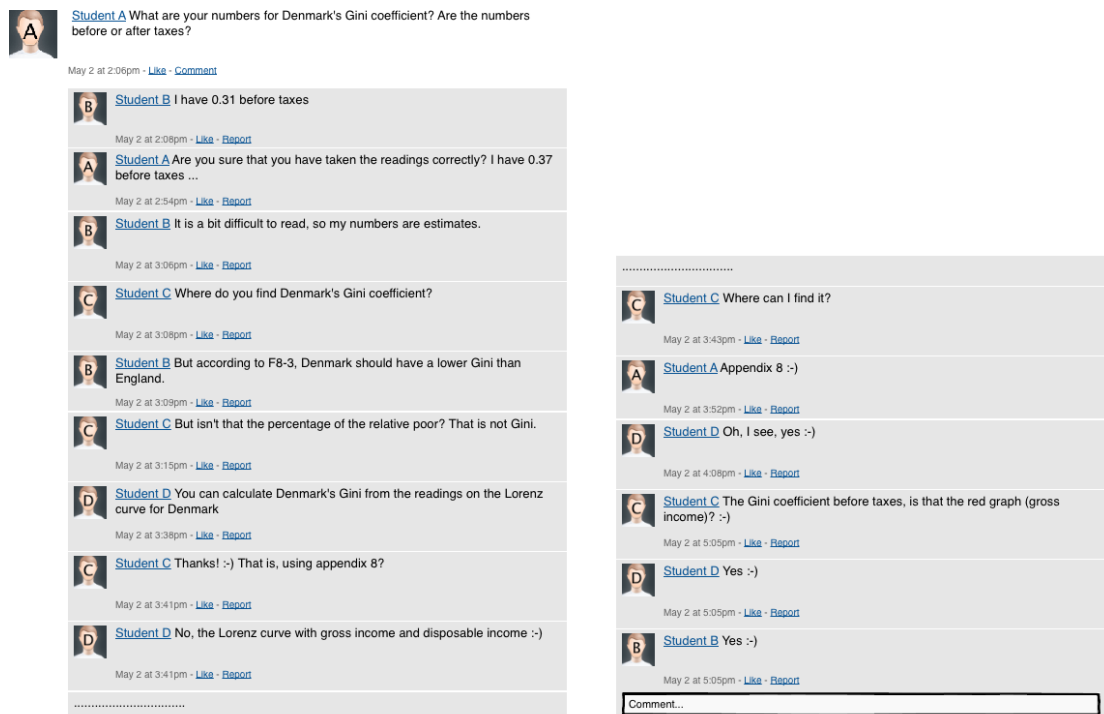

Figure 2: Example of communication related to the course content *(translated by the author)*.

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It is interesting to note that the students are helping each other with *individual* assignments. They are not using the Facebook groups to collaborate and coordinate group assignments, but to discuss and exchange questions and solutions to individual assignments. The teacher has not encouraged collaboration between students, but has - on the contrary - given them the same individual assignments. Students themselves organize a joint work on the assignments.

Asking questions

The predominant character of the posts within the groups is questions. Students ask each other about practical issues, concepts, interpretations of assignments, solving problems and tasks, etc. Whereas questions related to administrative issues can just as well be answered by a fellow student as by a teacher, questions of the other two categories related to study technique and the discipline would best be answered by the teacher rather than the students. Thus, it is interesting that the students ask each other these kinds of questions. There are numerous examples of students taking the role of a teacher or instructor by helping fellow students understand an assignment or finding the right solution. There are many examples where students are helping each other the evening before a deadline. Students can receive help in the very moment they encounter a problem.

Providing information

Besides the many questions, there are also examples of posts in which students share information with each other. Students share note, pictures of whiteboards, answers to assignments, videos, presentations, etc.

Conclusion

Given that the literature on the field of educational use of Facebook shows many different examples of students' and teachers' use of Facebook, and that the empirical study of this paper shows a varied use of Facebook groups, the paper will not make any one-sided conclusions on educational use of Facebook. The paper will, however, dispute the conclusions that Facebook is primarily for socializing and for non-academic communication. The current study rejects the claims that students do not wish to use Facebook for school-related activities. On the contrary, the empirical study has demonstrated that students are extensively using Facebook groups to help each other with all kinds of school-related matters, including issues relating directly to the subjects.

From the findings of the study the paper concludes that there is an educational potential of Facebook groups related to peer-to-peer learning between students. The study has identified a usage of Facebook among students that differs from studies of Facebook being used as a learning management system, where the teachers is present and manages the groups. The extent of the educational potential of Facebook groups for peer-to-peer learning was indicated by the questionnaire, in which 67 % of students stated that they "almost all the time" or "often" use social media (primarily Facebook) to help each other.

The in-depth empirical study of five Facebook groups shows evidence of potentials for peer-to-peer learning. Some groups are dominated by examples of peer-to-peer learning within academic issues, where students help each other find solutions. Of special interest is the fact that students use the Facebook groups to help each other with *individual* work, not for group work.

The analysis of the five Facebook groups only provide a limited insight into the multitude of different usages that schools and classes employ. The five Facebook groups are all examples of well-functioning groups, which possibly reflect well-functioning classes. Also, the current study has strictly focused on analysing the nature of *academic* communication within the Facebook groups. However, there are many other perspectives on students' Facebook usage that are of relevance in discussions of the educational potentials of student-managed Facebook groups. Further studies of Facebook groups are necessary to examine other perspectives on Facebook communication between students. The findings from this study call for future studies that examine social dynamics within similar Facebook groups, for instance studying dimensions of inclusion and exclusion among students. It is obvious that self-organized activities of students and peer-to-peer learning does not necessaritly include all students within a class. A future analysis and comparison of individual students contributions would expand on the findings of the current study.

Although the current study has analysed Facebook groups within secondary education, the findings are of high relevance to higher education as well. Especially, the questionnaire shows that Facebook plays a significant role

in the school-related work of students within secondary education (in Denmark). Higher education institutions should be aware of the importance of Facebook for their students. Further, self-governed activities and peer-to-peer learning, which the findings have shown that Facebook groups can support, are possibly even more relevant within higher education, where students are expected to govern their learning activities to a higher extent than within secondary education. Thus, the paper also calls for both studies of Facebook usage within higher education, but it also concludes that educational institutions should be aware of the students academic use of Facebook.

References

Atwell, G. (2006). Social Software, Personal Learning Environments and Lifelong Competence Development.

Bang, J. & Dalsgaard, C. (2006). Rethinking E-Learning: Shifting the Focus to Learning Activities. In: Sorensen, Elsebeth K. & Murchú, Daithí (eds.). Enhancing Learning Through Technology. Information Science Publishing.

Baran, B. (2010). Facebook as a formal instructional environment. British Journal of Educational technology, 41(6), 146-149.

Dalsgaard, C. (2006). Social software: E-learning beyond learning management systems. European Journal of Open, Distance and E-Learning, 2006(II).

Dalsgaard, C. & Paulsen, M. F. (2009).Transparency in Cooperative Online Education, The International Review of Research in Open and Distance Learning, 10(3).

Dron, J. (2006). Any Color You Like, As Long As It's Blackboard. E-Learn Conference, Honolulu, Hawaii, 2006.

Fewkes, A.m. & McCabe, M. (2012). Facebook: Learning Tool or Distraction? Journal of Digital Learning in Teacher Education, 28(3), 92-98.

Ito, M., et al (2013). Connected Learning: An Agenda for Research and Design. Irvine, CA: Digital Media and Learning Research Hub.

Kio, S.I. & Negreiros, J (2013). Facebook as an Informal Learning Space Channel: The São José, Macao, Cases. Learning and Teaching in Computing and Engineering, 2013, 70-76.

Madge, C., Meek, J., Wellens, J. & Hooley, T. (2009). Facebook, social integration and informal learning at university: 'It is more for socialising and talking ato friends about work than for actually doing work'. Learning, Media and Technology, 34(2), 141-155. et al. 2009

Maleko, M., Nandi, D., Hamilton, M., D'Souza, D. & Harland, J. (2013) Facebook versus Blackboard for Supporting the Learning of Programming in a Fully Online Course: The Changing Face of Computing Education, Learning and Teaching in Computing and Engineering, 2013, 83-89.

Martindale, T., & Dowdy, M. (2010). Personal Learning Environments, I:Veletsianos, G. Emerging echnologies in Distance Education, AU Press, Athabasca University.

Mathiasen, H., Bech, C.W., Dalsgaard, C., Degn, H., Gregersen, C., Thomsen, M.B. (forthcoming). Hovedrapport 2013. Undervisningsorganisering, -former og -medier på langs og tværs af fag og gymnasiale uddannelser [Teaching organisation, forms and media: through and across subjects and upper secondary education in Denmark]. Aarhus University, Centre for Teaching Development and Digital Media.

Meishar-Tal, H., Kurtz, G. & Pieterse, E. (2012). Facebook Groups as LMS: A Case Study. The International Review of Research in Open and Distance Learning, 13(4), 33-48.

OECD (2005): E-learning in Tertiary Education.Where do we stand?

Petrovic, N., Jeremic, V., Cirovic, M., Radojicic, Z & Milenkovic, N. (2013). Facebook vs. Moodle: What do students really think? International Conference on Information Communication Technologies in Education (ICICTE) 2013 Proceedings, 413-421.

Sclater, N. (2008).Web 2.0, Personal Learning Environments, and the Future of Learning Management Systems, Educause, 2008(13).

Wang, Q., Woo, H.L., Quek, C.L, Yang, Y. & Liu, M. (2012). Using the Facebook group as a learning management system: An exploratory study. British Journal of Educational Technology, 43(3), 428-438.

Wilson, S., Liber, O., Johnson, M., Beauvoir, P., Sharples, P. & Mil- ligan, C. (2006). Personal Learning Environments: Challenging the dominant design of educational systems, ECTEL 2006 Proceedings.

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