Enhancing Engagement in Large Course: The Facebook Experiment

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ABSTRACT

The use of social media in higher education is attracting attention by a number of researchers. In this paper the results of the study into the use of Facebook in two offerings of a large first year Information Systems course and one offering of a large second year Accounting Information Systems course are presented. The courses that were the subject of the study were offered during 2011 at the University of Canterbury in Christchurch, New Zealand. This creates added context for the study of the major disruptions caused by the earthquake on 22nd February of that year and the significant snowfalls in August of that year. In these courses Facebook was used as an alternative communication channel to the usual emails and posting from the Learning Management System that has been adopted by the University. The disruptions that were experienced resulted in many students being without power for periods of time, and during these times they were able to access a text-only version of Facebook on their mobile phones at no cost. As many of the students were already regular users of Facebook for social communication there was a degree of ease of use and familiarity that enhanced the level of engagement that students had with the respective courses. The results show that the decisions to use Facebook as an additional communication channel in these courses was justified, provided that joining the groups was not a mandatory requirement for enrolment in the courses.

Keywords
Student Engagement, Social Media, Facebook

1. INTRODUCTION AND METHODOLOGY

The use of social media tools have been the subject of a number of experiments in higher education. The purpose of this paper is to present the results of a study into the effectiveness of using a social media tool (Facebook) as an additional communication channel between staff and students in large classes, particularly in the wake of natural disasters and extreme weather events.

Facebook was used extensively as an additional communication channel in two offerings of a large (approximately 300 and 500 students respectively) first year Information Systems course and one offering (approximately 170 students) of a second year Accounting Information Systems course at the University of Canterbury during 2011, a year which was disrupted significantly

by earthquakes and to a lesser extent by snow storms.

A literature review covering some aspects of the use of social media in educational contexts is presented. This is followed by an outline of the methodology followed in the paper and a description of how Facebook was used across the courses. The results from a survey of students enrolled in the courses are then presented. This is followed by an analysis and discussion after which conclusions pertaining to the success of the experiment are drawn.

2. LITERATURE REVIEW
2.1 Introduction to Literature Review

The literature that has relevance to this study can be found in four bodies of literature. Firstly that of student engagement and different aspects of student engagement; secondly in the social nature of learning; thirdly in the use of social technologies in education; and fourthly in the use of social media surrounding crisis events.

2.2 Engagement

Engaging students and keeping them engaged has often proved to be a problem. As can be imagined, this problem gains new factors that influence it and compound to produce a larger student engagement issue in the wake of a crisis.

The concept of engagement in learning has been the subject of much research in an attempt to address student motivation in learning situations [2]. Three types of engagement have been identified as being behavioural engagement, emotional engagement and cognitive engagement [2].

Behavioural engagement relates to positive conduct and following rules and norms [3,4,5]. Emotional engagement refers to students' affective reactions in the classroom, including interest, boredom, happiness, sadness, and anxiety [1,13]. Cognitive engagement refers to psychological investment in learning, a desire to go beyond the requirements, and a preference for challenge [1,10], [16]. Cognitive engagement includes flexibility in problem solving, preference for hard work, and positive coping in the face of failure [1].

The nature of engagement referred to in this study is predominantly that of cognitive engagement in particular the "student's psychological investment in an effort directed toward learning, understanding, mastering the knowledge, skills or crafts that the academic work is intended to pro-mote" [10], however in the analysis section of this paper are some aspects that emerge that relate to behavioural engagement and some that relate to emotional engagement.

2.3 Social Nature of Learning

Tying student engagement into a form of social activity relies on the idea that learning has a social nature has been well established in Social Learning Theory [15]. This has been evident in studies involving the use of technology in education. This is particularly used when the technology being used by the students is also used by the students for social communication [7].

The term Prevailing Personal Social Communication Technologies (PPSCTs) has been developed to cover those technologies that are personally owned and/or used by a large percentage of students in a given context, where the students frequently use those technologies for personal and social communication [9].

2.4 Social Technologies in Education

Although interaction through social media is not providing true social activity in a face-to-face setting, social media interaction does provide a platform for people with common interests and goals to put an almost anonymous voice to their questions and their social transactions/dealings. Basing this in an educational setting could mean increased learning potential.

The volatile nature of interaction enabled by social media can sit uncomfortably within existing higher education practice [6].

A number of issues have been identified in the use of social media in education, but despite these, there are a range of student and tutor perspectives which show that these technologies have significant potential as new collaborative, volatile and challenging environments for formal learning [6].

A study conducted in 2010 that included a survey of a similar group of students at the University of Canterbury showed that Facebook was by far the most dominant form of social media amongst them. This study went on to identify a number of potential risks and challenges relating to the use of social media in a business setting (see Table 1), and that these had the potential to be generalised into a higher education setting [8].

Table 1 – Risks and Challenges from Using Social Media in a Business Setting [8]

Divulging of confidential information outside the organisation and breaches of security
The organisation itself being unaware of their use, wasting employee time and loss of control
Reducing trust and use of the tools being incompatible with the culture of the organization

The use of social media such as Facebook is one of the latest examples of communications technologies that have been widely-adopted by students and, consequently, have the potential to become a valuable resource to support their educational communications and collaborations [12]. The indications from this study were that students would be much more likely to use Facebook and other similar technologies than academic teaching staff.

Of particular note is the significant difference between the perceived role of technologies like Facebook as being social, rather than educational [12] with this having potential links to Social Learning Theory [15] and the ideas of using PPSCTs as part of students' learning [9].

2.5 Social Media and Crisis Event

In the same way that social media replaced the church as a form of support after the Christchurch earthquakes [14], social media also replaced the classroom to support students.

Investigation of recent disasters reveals use of online social media as an emergent, significant, and often accurate form of public participation and backchannel communication. This highlights the value of social media as an additional communication channel in the wake of natural disasters [11].

The large earthquakes in Christchurch (New Zealand) in February 2011 had significant impacts on many aspects of life in the city. A study investigating how first year commerce courses at UC were managed in the wake of the earthquakes described briefly how Facebook was used as an additional communication channel with students [9].

2.6 Summary of Literature Review

The focus of this study is on student engagement, and in particular cognitive engagement [2]. The concepts of Social Learning Theory [15], social communication in education settings [6,7] and exploring the use of social media or PPSCTs [9] are relevant to this study.

The use of social media such as Facebook has the potential to become very valuable in a higher education setting, provided there is awareness of some of the risks and challenges in the use of social media in an educational setting [8].

When it comes to crisis events, studies have indicated that the use of social media is very valuable [11], and this coupled with the high potential for use of social media in a education setting suggests that this is a very advantageous approach to dealing with students in a higher education setting in the wake of a crisis [9] and can become quite a significant source of support not just in an education setting [14].

3. USE OF FACEBOOK IN THE COURSES

The Facebook group for INFO123 in semester one of 2011 was created by the lecturing staff within 3-4 hours of the earthquake at 12:51pm on Tuesday 22nd February 2011, which was one day after the semester had started.

The first lecture for this course for the semester was to have commenced at 2:10pm that day, just over one hour from when the earthquake happened. As a direct result of this, and that over half of the students were in their first week of study at the University, it was very important that some form of contact could be attempted with the students.

Emails were sent to the students asking them to reply if they could, and that if they were Facebook users, to join the Facebook group that had just been created. They were also advised that there was a text-only version of Facebook that they could access for no cost using their mobile phones if they had problems with their internet connection due to loss of power or other problems associated with the earthquake.

In the weeks after the earthquake the postings on the Facebook group wall and the conversations in Facebook chat revolved around many students seeking clarifications about how the course

was being organised and any other issues that they were facing as a result of the earthquake.

As events settled down, the use of the Facebook group in INFO123 in the first semester became an additional way of communicating between students, and between students and the lecturer. This was also the case during the second semester of the year in INFO123 and INFO243. However further large earthquakes in June and a significant snow fall during semester two saw increased activity in the Facebook groups as students sought reassurance about what was happening, particularly as these extra events saw the cancellation and postponement of tests and exams for the courses involved.

4. THE SURVEY

4.1 The Population Surveyed and Introductory Questions

The survey was made available via the Moodle (the Learning Management System used at the University of Canterbury) for the students in the course offerings shown in Table 2. Note that for the purposes of this paper INFOXX3 refers to either INFO123 or INFO243.

Table 2 – Courses Surveyed

Course Code	Title	Year	Semester
INFO123	Information Systems and Technology	2011	One
INFO123	Information Systems and Technology	2011	Two
INFO243	Accounting Information Systems	2011	Two

The students were asked to indicate the following in the demographic section of the survey:

- Gender
- Age at the start of the semester
- Frequency of use of Facebook prior to the semester starting
- Whether they joined the Facebook group
- Their reasons for joining or not joining

4.2 Perceptions of the Course Facebook Group

The students were asked to rate each of the statements shown in Table 3 on the following 5 point Likert scale.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

Table 3 –Statements the Students Were Asked to Rate

Having the Facebook group made it easier to ask questions and have them answered
Having the Facebook group helped me feel part of the INFOXX3 class
INFOXX3 should have a Facebook group created every semester
All students in INFOXX3 should be required to join the Facebook group

The students were also asked the following open ended questions:

- What do you think was the biggest advantage of having the Facebook group for INFOXX3 in this particular semester?
- Do you think there were any risks in having the Facebook group for INFOXX3 this semester and if so, what were they?
- Are there any other social media tools (eg Twitter, bebo, yahoo messenger etc) that you would have preferred to use instead of Facebook?

5. RESULTS

Prior to analysing the result from the survey, students who had been enrolled in semester one in INFO123 were removed from the responses from the semester two courses so that their responses were not counted twice.

5.1 Enrolments and Response Rates

The number of students enrolled in each of the courses and the numbers that responded to the survey are shown in Table 4.

Table 4 – Responses to the Survey

Course	Enrolled	Responses	Percent
INFO123 Sem 1	278	69	24.8%
INFO123 Sem 2	491	78	15.9%
INFO243 Sem 2	167	64	38.3%
Total	936	211	22.5%

5.2 Responses to Closed Ended Questions

The responses to the statement "Having the Facebook group made it easier to ask questions and have them answered" are shown in Figure A. This shows a very high level of agreement across all three course offerings that the use of the Facebook group with 169 of the 211 total respondents (80.1%) either strongly agreeing or agreeing with the statement.

	Total	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	I didn't join
INFO123 Sem One	69	40	16	6	0	0	7
INFO123 Sem Two	78	34	31	5	0	0	8
INFO243 Sem Two	64	29	19	6	0	1	9
	211	103	66	17	0	1	24
% of all respondents		48.8%	31.3%	8.1%	0.0%	0.5%	11.4%
% of those joining		55.1%	35.3%	9.1%	0.0%	0.5%	

Figure A – Responses to "Having the Facebook group made it easier to ask questions and have them answered"

The responses to the statement "Having the Facebook group helped me feel part of the class" are shown in Figure B. This shows a reasonably high level of agreement with the statement with 129 of the 211 respondents (61.1%) either agreeing or strongly agreeing with the statement and a further 47 respondents (22.3%) being neutral.

	Total	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	I didn't join
INFO123 Sem One	69	25	16	18	3	0	7
INFO123 Sem Two	78	15	35	16	4	0	8
INFO243 Sem Two	64	16	22	13	3	1	9
	211	56	73	47	10	1	24
% of all respondents		26.5%	34.6%	22.3%	4.7%	0.5%	11.4%
% of those joining		29.9%	39.0%	25.1%	5.3%	0.5%	

Figure B – Responses to "Having the Facebook group helped me feel part of the class"

The responses to the statement "INFOXX3 should have a Facebook group created every semester" are shown in Figure C. this shows a very high level of agreement with 185 of the 211 respondents (87.6%) either agreeing or strongly agreeing with the statement.

	Total	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
INFO123 Sem One	69	36	26	5	1	1
INFO123 Sem Two	78	49	25	4	0	0
INFO243 Sem Two	64	29	20	12	1	2
	211	114	71	21	2	3
		54.0%	33.6%	10.0%	0.9%	1.4%

Figure C – Responses to "INFOXX3 should have a Facebook group created every semester"

The responses to the statement "All students in INFOXX3 should be required to join the Facebook group" are shown in Figure D. This shows a much lower level of agreement than the other statements with only 29 of the 211 respondents (23.2%) agreeing or strongly agreeing with the statement and a total of 81 of the 211 respondents (38.4%) either disagreeing or strongly disagreeing with the statement.

	Total	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
INFO123 Sem One	69	5	16	25	16	7
INFO123 Sem Two	78	6	11	33	21	7
INFO243 Sem Two	64	4	7	23	18	12
	211	15	34	81	55	26
		7.1%	16.1%	38.4%	26.1%	12.3%

Figure D – Responses to "All students in INFOXX3 should be required to join the Facebook group"

5.3 Students Reasons for Joining or Not Joining the Facebook Group

The students were asked to describe their reasons for joining the facebook group. Table 5 shows an analysis of the main reasons that were given for students joining the facebook groups. This shows that the three most cited reasons were all communication related. Note: Some students gave more than one reason whilst other students gave no reasons.

Table 5 – Main Reasons Cited for Students Joining Facebook Group by Course

	INFO123 Sem 1	INFO123 Sem 2	INFO243 Sem 2	Total
Access to information and updates	33	29	25	87
Easier to communicate	19	8	15	42
Getting answers to questions	8	19	11	38
Number of Students Giving Reasons	55	53	47	155

The students were asked to describe their reasons for joining the facebook group. Table 6 shows an analysis of the main reasons that were given for students not joining the facebook group. This shows that the three most cited reasons were all communication related. Of the reasons shown, less than one third were related to the students having found that other ways of accessing information was sufficient. Note: Some students gave more than one reason whilst other students gave no reasons.

Table 6 – Reasons Cited for Students for Not Joining Facebook Group by Course

	INFO123 Sem 1	INFO123 Sem 2	INFO243 Sem 2	Total
Moodle was sufficient for requirements	6	-	2	8
Didn't know it existed	-	4	-	4
Don't use Facebook (much)	-	2	7	9
Couldn't find it	2	1	-	3
Forgot to or didn't get around to it	-	2	-	2
Number of Students Giving Reasons	8	9	9	26

5.4 Biggest advantage of having the Facebook group

A representative selection of the responses to the question of what was the biggest advantage of having the facebook group for the course is presented in Table 7.

Table 7 – Representative Sample of Responses to "What was the biggest benefit of having the Facebook Group?"

Dominant social networking site on the planet, it was always going to be better than a news forum on Learn
While I didn't join the group it seemed like some students (perhaps more the first-year students?) liked feeling more connected to the university during the difficult semester.
For students to keep in touch outside the lectures, and also with the event of the earthquake may have also aided students.
Some people could access information from their mobile phones
The breakdown in communication that many people experienced during earthquakes was a big problem but something like facebook was a good way to communicate
You could find out information of what was happening with exams and quiz' around the interruptions of earthquakes.
Having the most up-to-date information of the course arrangements especially during unexpected event (eg:earthquake. The most convenient way to get information across to everyone.
All the recent happening have made face-to-face contact with others very challenging, communicating via the net and Facebook made me feel more involved.
it was especially helpful after the Jun 13 aftershock/earthquake. the facebook page enabled me to find out critical information quickly
Quick information outside of the formality of getting emails from lecturers. Could converse 'human to human' rather than 'lecturer to student'
It was a very helpful because the campus was closed for a while and any question we had about the course or what was going to happen to the course would have been answered by students or Trev and Angela.
During the snow student were kept up-to-date with information
Easy to get responses fast and see if anyone else had already asked the same question. Easier than going through forums online seeing what people have written because on facebook its all on one page.
It was helpful as people did post some helpful comments and ask useful questions.
Easy communication expecailly with earthquakes and snow disrupting the term
Increased contact with lecturer.
Usually the first way I hear about information regarding the class as I check this before Learn and my emails.
Being able to talk to other students about the course, quite often about questions we all had

5.5 Risks in having the Facebook group

A representative selection of the responses to the question of what were the risks of having the facebook group for the course is presented in Table 8.

Table 8 – Representative Sample of Responses to "What risks are associated with having the Facebook Group?"

It did make it easy for students to be more open in asking other students for help regarding assignment questions. Which to be fair, was a little annoying to see
everyone could go over their answers with classmates which can e a good and bad thing
There was a lot of unnecessary overuse by some members, but overall it was efective.
Having too many places for students to check on updates, it may all become a bit fragmented and confusing.
sabotage, and private infoormatin being available to other students.
People spending too much time on facebook and using INFO123 as an excuse instead of studying
Maybe that some people dont have facebook
People can potentially "facebook stalk" other members of the INFO123 facebook group
The chat function being used as a general chat room meant some people had to disable the function. Thats a problem for students who wanted to use it as a chat with tutors/lecturers for relevant course material
I suppose others answering the questions may not be correct, however the lecturers often checked posts and corrected any mistakes.
I don't think it was a risk as much as a disadvantage for those people that don't have facebook
There was the risk of having inappropriate content uploaded, but that didn't seem to be the case
A risk of frustration from students who receive lots of updates from the group to find that the updates were of no benefit to the course and posted by other students.
No, because it was a private group, so any possible risks can be controlled with relative ease.
Potential for answer-sharing in the assignment, although there is a risk of this anyway.
There were some unrelated or inappropriate posts, but they were relatively few and far between.
No, not at all. Privacy settings are set for the group and it was well maintained in that respect.
Probably just the fact that alot of useful info was given on the page especially regarding the exam, which if you don't have Facebook would miss out on.
Privacy between your classmates being decreased.
people relying on others for answers to problems. ie some people posted a question every time they had an issue, instead of using the page as a place for interaction between students. shouldnt be a place just to get answers from
None that I can think of. The group was restricted to INFO243 students only and supervised by the course lecturers so I would think that overall it was a fairly safe learning tool.
Ending up on facebook for a long time after checking the INFO243 page

5.6 Other social media tools that would have been preferred

The responses (that mentioned other social tools) to the question of what other social media tools would have been preferred are shown in Table 9. Note that the 14 responses shown are the only

ones that mentioned other social media tools, with this being 6.6% of the 211 respondents.

Table 9 – Responses Mentioning Other Tools Relating to What Other Social Media Tools Would be Preferred

Google+
I also use hotmail messenger to cotact my friends and families in China online.
If they were to implement it better on learn, therefore by logging 2into learn you log into a social/informal connection to students across differen subjects.
in the future, depends on what the carriers give on for free... if there's such thing as 0.twitter.com for mobiles, then give twitter a go. :)
It is easier to use messenger Skype or yahoo, but it doesn't make a big difference .
As a side note though I think it would be usefull for other courses at Canterbury to have a similar group on Facebook to this one
Nope, for me having the facebook group was most helpful, although a lot of my friends are using Twitter, and it seems to be an increasing trend, so Perhaps in future twitter and facebook? :)
Nope, perhaps Google + if that takes off in the future. ..
one is enough and easy for lectouer to look after.
Some people might like Twitter, which, depending on intentions it could be better
Twitter could be useful but facebook is the best medium for interactivity.
Twitter would be good too. Youtube?
Twitter would be interesting.
twitter.

6. ANALYSIS AND DISCUSSION

The high level of agreement to the statement "Having the Facebook group made it easier to ask questions and have them answered" as shown in Figure A is consistent with a number of the representative comments about why the students joined the Facebook groups that were created for the courses (see Table 5). Further analysis of the responses based on the age and gender of the students may reveal some interesting patterns.

The responses to the statement "Having the Facebook group helped me feel part of the class" (see Figure B) did not have as high a level of agreement as the statement regarding the ease of asking questions and having them answered, but still had more than half of the students agreeing with it and less than 6% of students disagreeing with it. Further analysis of the responses based on the age and gender of the respondents may reveal patterns of interest.

A combination of the responses to the statement relating to where the courses should have a Facebook group every semester and whether all students should be required to join the Facebook group reveals a significant difference in responses to the statements. 87.6% of the students agree or strongly agree with the statement that there should be a Facebook group created every semester whereas only 23.2% agreed or strongly agreed with the statement that students should be required to join the Facebook groups. The comparison of responses is shown in Table 10.

Table 10 – Comparing Whether the Facebook Groups Should be Created with Whether Students Have to Join the Groups

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The Facebook groups should be created every semester	114	71	21	2	3
Students should be required to join the Facebook groups	15	34	81	55	26

It is interesting to see the high proportion of students that believe that the groups should always be created, whilst at the same time not wanting the membership of the groups to be compulsory.

This particular aspect is quite important for the future as INFO123 is a compulsory course for the Bachelor of Commerce and INFO243 being a required course for entry to a number of professional accounting bodies. This required nature of both courses could create issues if use of any social media tools were enforced.

The reasons for students choosing to join the Facebook groups (see Table 5) appear to be consistent with the reasons for the Facebook groups being created in the first place. The reasons for students not joining the Facebook groups (see Table 6) reinforces the potential issue(s) of making membership of the Facebook groups compulsory.

The advantages of having the Facebook groups (see Table 7) are consistent with why the groups were created and the risks in having the Facebook groups (see Table 8) are consistent with some of the risks identified [8] and are also consistent with idea that membership of the groups should not be mandatory.

A number of students mentioned that the Facebook groups were particularly useful in the wake of earthquake and snow events that took place during the semesters under review. While it might be tempting to only create groups such of these when a crisis event occurs, having the group already available makes it easier to utilise when the crisis events take place. As a consequence of this, creating the groups at the start of a semester would in essence be a form of disaster recovery planning.

With less than 7% of the students specifically mentioning other social media tools when asked which other tools would have been preferred, the decision to have used Facebook for these courses appears to have been justified.

The extent that students used Facebook for an alternative communication, and their reasons for doing so indicated a high level of cognitive engagement [2], while a smaller number of the reasons given for joining the Facebook groups indicated some level of behavioural engagement and emotional engagement [2].

7. CONCLUSIONS

The decision to use a social media tool in these courses as an additional communication channel appears to be well justified from a student perspective, provided that it is not made a mandatory requirement for all students in these courses (partly as consequence of the compulsory nature of these courses).

The decision for the social media tool to be Facebook appears to be justified from the student perspective, mainly due to (a) it being a highly used tool amongst the students and (b) very few students suggesting other possibilities.

The use of Facebook across the course served to increase the level of student engagement, with a particular emphasis on cognitive engagement.

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