USE OF FACEBOOK FOR ENHANCING STUDENT ENGAGEMENT IN A HIGHER EDUCATION BLENDED ENGINEERING COURSE

Ravi Foogooa[1], Debra Ferdinand-James[2]

Abstract
In spite of the fact that many universities include blended learning in offering their programmes, student engagement in courses remains a challenge. This research started off as an investigation into the use of the Learning Management System (LMS) by students of an engineering course and into ways to improve student engagement. The heavy usage of social media by the students prompted us to find how Facebook could be used in a course in conjunction with an LMS. A closed Facebook group was created by the lecturer and used to interact with the class. Data collection was done through an online survey of the students at the end of the class. A social media analytics software was also used to analyse the interactions on the Facebook group. A journal was also kept for the lecturer's thoughts throughout the class. To avoid bias, the second author, an educational technologist whose conference paper on Social Media inspired this one, was involved in the analysis and interpretation of the data.The results were very encouraging. A majority of students were actively engaged by the Facebook group. However, this research put into perspective a series of potential issues with the use of Facebook or any other social media in higher education which would warrant further research.

Keywords: social media, higher education, learning management systems, student engagement

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Introduction

In today's hi-tech lifestyle, we blend technology into our lives as an everyday experience such as for shopping, paying bills, banking, socialising, and communicating (Glazer, 2012). Hence, universities worldwide now include blended learning in offering their programmes. Blended learning can be defined as "an integrated and planned approach to teaching and learning that appropriately combines face-to-face and online strategies and technologies to advance student-centred learning" (The University of the West-Indies, 2012, p. 1). But, the use of a specialised learning management system (LMS) such as Moodle dedicated to delivering online sessions for non-technical subjects is a challenge in a Telecommunications Engineering blended program at a University in Mauritius. Students often view such subjects as superfluous despite the fact they are part of programmes approved by engineering councils. As attendance is flexible at this university that offers blended programmes, many students do not attend F2F classes except for class tests, assignment submissions and other milestones. Registered students have access to lecture notes, reading materials and participate remotely in class discussions via the course's LMS. Yet, these remote or asynchronous sessions (i.e., delayed student-teacher interaction online) in Moodle also suffer from low student attendance and interaction in delivering a Project Management course in a Telecommunications Engineering program. Social media appears to be a viable alternative to the prescribed LMS discussion tool as youths frequently use it as their medium of communication (Facebook, 2013). Social media refers to "a set of online tools that support social interaction among users" (UWI, Social Media Policy, 2013, p.1).The purpose of this research study is to investigate how Facebook, a social media platform popular among Mauritian students, can be used to enhance student engagement in a project management course with low online participation in the prescribed LMS.

The research questions which directed this study were as follows:

1) To what extent do students use a prescribed learning management system in a selected blended course?
2) To what extent does the use of the Facebook social media site enhances student engagement in a selected blended course?

This research was carried out by the first author, who was also the lecturer delivering the Project Management course. Pring (2000) and Louisy (1997) advocated that inside researchers depict a more genuine image of reality because of their socio-cultural immersion inside the field. In contrast, Tuhiwai-Smith (2004, p. 139) contend that both internal and external researchers are 'problematic' but attempt to resolve their dilemma by humbly engaging in critical self-analysis. Thus, I take the stance of Pring (2000) and Louisy (1997) as an inside researcher in

wanting to depict a more genuine account of reality by being socially and culturally immersed in my research. Still, with ample opportunity for proper insight into my research, there can also be the risk of researcher bias. Therefore, the second author, a researcher with experience in education technology and not participating directly in the intervention, was able to correct any possible bias in the data collection and interpretation. The students were informed of the problem of low student attendance and engagement and that their participation in the research study was voluntary. They were also informed that the prime study objective was to enhance student engagement and attendance in successfully delivering the module on Project Management for the semester with the use of Facebook.

Literature Review

The growing trend of universities worldwide offering blended programs and courses has prompted an increase in the use of mobile devices to access such programmes. Gikas and Grant (2013) indicated that students claimed mobile devices had certain advantages for learning, including the following: quick access to information anywhere and anytime, facilitating communication and collaboration, varied ways of learning, and opportunities for situated learning. Watson and Ferdinand (2015) supported this view in finding much success in using the online debate as a learning strategy in their online courses which students could access via their mobile devices. In contrast, Gikas and Grant (2013) also found that students experience frustrations in accessing their higher education programmes using mobile devices that included the following: uncooperative instructors, technical problems on devices, and the distractive nature of these devices and their applications. In developing countries, other problems related to accessing courses online include insufficient bandwidth and unreliable electrical supply (Rooyen, 2015; Hussain, 2012). Although students are more prepared to use technology, recent research showed that some are less inclined to be involved in courses that use technology than before (Dahlstrom et al. 2015). However, it appears that social media as a forum do appeal to Mauritian youth, who were inclined to participate using Facebook for class activities as reported by Ferdinand (2013). The current study would build on existing research in assessing whether the same holds true in using Facebook for class activities as an alternative to the prescribed LMS.

The main uses of social media include communication, collaboration, sharing of internal resources, accessing external resources and self-managed learning (Cheung et al. 2011; Manca & Ranieri 2013). Although social media is supposedly used for social interaction, many

students, out of the 30 minutes spent daily on Facebook, spend more time observing content rather than actually posting content (Pempek et al. 2009). Social media is also popular in universities in the developing world – it is used for entertainment as well as to support higher education with tasks such as resource sharing and communication (Falahah & Rosmala, 2012; Hussain, 2012). Thompson et al. (2014) found that students involved in the use of social media technologies exhibited a certain sense of personal and group engagement in learning, but evidence of collective intelligence was still lacking.
Roblyer et al. (2013) revealed that students were more liable to use Facebook than academics who preferred more traditional technologies. Vie (2008) was more concerned about teachers who are less familiar with social networking and were thus not able to integrate these technologies into their teaching. Academics seem to perceive Facebook more as a social tool rather than a pedagogical tool and reported that Social media use in higher education in Italy was still limited and restricted. Some academics appear to have a positive attitude toward social media but were reluctant to integrate them into their teaching, especially in an institutional manner. Reasons range from cultural resistance to pedagogical issues and institutional constraints. Overall, academics seem to have mixed feelings about social media with the perceived risks being higher than the perceived usefulness (Manca & Ranieri, 2016). Nevertheless, the current authors are open to exploring the use of Facebook in taking advantage of its perceived usefulness for class activities.

Friesen and Lowe (2012) compared social media with television and claimed that due to their commercial nature, their potential for education and learning is limited. Similarly, Hew (2011) and Lee (2014) found that the use of social media was not related to the use of higher order thinking skills and was used mainly to connect with people in an online space. Apparently, social media is used more to visualise resources rather to critique resources or create new materials (Manca & Ranieri 2016). In addition, Kirschner and Karpinski (2010) contended that the supposed ability of digital natives to multi-task can be detrimental to their learning. They found that Facebook users have lower GPAs and studied fewer hours per week compared to non-users. Conversely, the use of Web 2.0 technologies in informal learning spaces revealed that learning does occur with students practicing self-regulation learning to this end (Scott et al. 2015).

There are privacy issues both for students and teachers as they disclose information on themselves when they add one another as friends as pointed by (Maranto & Barton 2010) (Hew 2011). However, students are

for the institutional use of their data for educational purposes and this is already exploited in existing learning management systems (Dahlstrom et al. 2015). Other researchers such as (Sobaih et al. 2016) report barriers which are specific to developing countries. It is thus important to consider socio-cultural aspects when making use of social media in higher education.

Balakrishnan and Gan (2016) warned that social media should be included only after well-defined goals and clear guidelines for its use are determined. They pointed out that students with different learning styles have different preferences on social media with introverts preferring anonymity and asynchronous communication as compared to extroverts preferring collaboration and chatting. Moreover, the use of social media is regulated by the Government for political in Malaysia – "misuse" could thus result in an offence being committed by lecturers or students. Some students are also uncomfortable with the use of informal tools such as Facebook. The current study would help to determine whether this uneasiness by some students for using Facebook in class activities is a prevailing or decreasing trend.

Although social media such as Facebook is popular among some students and academics, its educational usefulness is far from proven - there is ample evidence for it but there is also worrying evidence against it. The latter warrants further research in discovering how social media can enhance student engagement and contribute to higher forms of learning according to the revised Bloom's Taxonomy (Krathwohl 2002). The current study would help to add to the limited literature on the perceived usefulness or uselessness of Facebook as an informal learning space for class activities.

Research Methodology

The research took place in a course on project management with second year Telecommunications engineering students. The research approach consisted of two parts. The first one involved setting up a closed group on Facebook for interaction between the students and the lecturer for a period of about 6 weeks (out of a semester of 15 weeks). The second part involved collecting feedback and reflecting on the intervention through the journal of the lecturer, analysis of Facebook posts and via an online survey administered to the students at the end of the semester.

Facebook was chosen as it is the most popular social media used by Mauritian students. It is also used by older people and in this case, the lecturer also had a Facebook account. One of the problems faced was

the lack of participation of the students on the LMS (powered by Moodle) used by the lecturer in his class. So as the students were active on Facebook, it seemed interesting to move to their social space to stimulate participation.

Thus, although all lecture notes and reading materials were posted on the LMS, the Facebook group was used for all interactions concerning assignments – there were two assignments given in the course: an individual feasibility study assignment and a collaborative planning assignment done in groups of three. The assignments were given at the beginning of the 15-week semester but by mid semester, there was barely any progress on the students' part. Then the Facebook group was created, and the students were asked to post their work on the Facebook group for the lecturer to comment. The students were also requested to critique the work of their peers. This activity was not marked but encouraged (the lecturer would only comment any work if there had been at least one meaningful comment). Posts concerned mostly the assignments although some discussions were held in the context of revision for class test and exams.

The students were informed that the Facebook group was being created to stimulate participation and also formed part of a research study for publication by the lecturer. All 23 students volunteered to participate. Two students did not want to post their work on the group at the beginning and were allowed to request feedback from the lecturer through email. Review of students' progress was not done in face-to-face sessions due to lack of time. Although the Facebook group was created and administered by the lecturer, the student representative was also made Administrator of the group to promote the collective nature of the group. Students like to feel in charge of such interactions.

As there were a substantial number of posts over the duration of the experiment, the help of software was sought to analyse the posts. Several software for analysis of Facebook posts such as Simply Measured, Social Bakers amongst others exist. However, they are more concerned with analysis of posts for a Fan page and not for a Facebook group. Other software such as Google Analytics are more geared towards the analysis of Internet traffic to a website coming from Facebook. Fortunately, we found one software named Grytics (available at https://grytics.com/) that allowed the analysis of posts for Facebook groups. It is available freely but for our research, a 'pro' package was taken to allow analysis for a period up to 90 days. An automatic report was generated for the analysis of students' posts. A survey was also carried out with the students at the end of the semester (but before the

exams). The survey was administered electronically with Google Forms which also provided a summary of responses.
The thoughts of the first author were also kept in an electronic diary to record his own experiences and to allow for reflective thematic analysis of the data and to uncover meaning out of the experiment.

Results & Analysis

a. Lecturer thoughts

The group started on May 9, 2016 around mid-semester. Attendance had been low. No progress had been made on assignments issued since Week 1. Moreover, students did not seem to even access their accounts on Moodle. After reading a paper on the use of Facebook to teach English in a secondary school in Mauritius, I decided to try Facebook. Most students are permanently connected to Facebook and so, it seemed a good idea to go and get them in their territory. I asked the students to add me as their friend so that I could add them to the group. I expected some of them to resist due to the age gap and the fact that not everyone wants a teacher as a Facebook friend. I was also wary of letting them into my social space. I usually only add students once they leave the university, and I am selective. The first day I was encouraged by the good response. They seemed to like the idea of having a Facebook group. I uploaded some additional reading to lure them. It was not necessary – in a few days I had the whole class.
Initially, the students were reluctant to post on the group page. They appreciated the proximity with the lecturer though. However, they preferred to use private messaging to ask questions about their assignments. I also did not have enough time to review assignments in class. Those who were asking questions were asked to post their work on the Facebook group page. Many of the questions on the Facebook group concerned tutorials and notes that were already posted on the LMS. Obviously, these students were not using the course website. I did not duplicate materials on the Facebook group – all notes, tutorials, main readings and assignment submission were left for the course LMS. The group was used mainly for interactions. Nevertheless the response was so overwhelming that I wondered if I should move the class to the Facebook group.
After a week, I was submerged with reviews. This group required about one hour of my time every day. Students liked it when I reviewed their work in the minutes or hours which followed their post whether it is in the middle of the day or late at night. However, the reviews took a toll on me. I was tired and started shying away from Facebook itself. The expectations of the students were too high though and I could not let them down. I even reviewed work during weekends. I was extremely pleased with the effort which was being provided by the students.

I needed them to move to another level though. I wanted them to criticise one another's work. So I put a rule that I would not review interim work until someone else reviewed the work. This worked but the reviews were not meaningful – it was mostly like "Good work" or even "Nice title". I told the students that any review would have to be at least 20 words. It seemed to do the "trick". Reviews became more interesting. The more interesting part is that students were inspired by their friends' work. I was weary in case some were upset by the criticism. However, everyone took negative criticism very well, and there were no incidents which required my intervention.

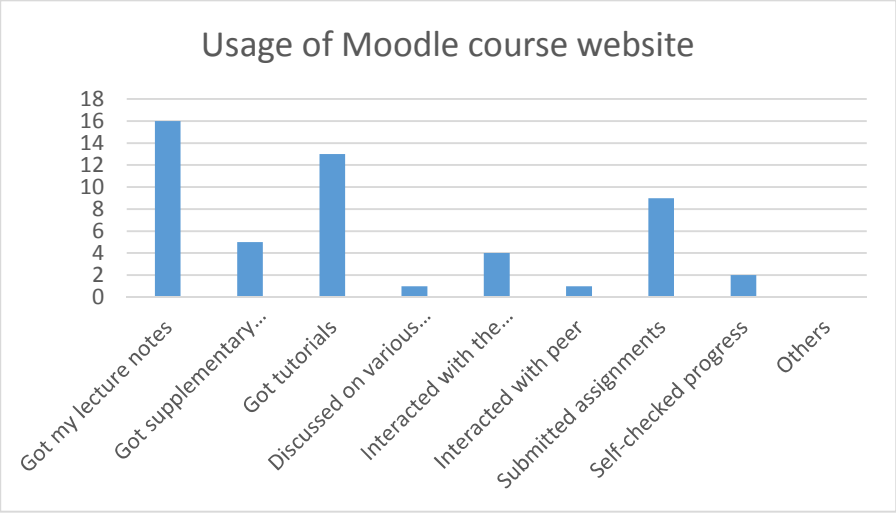
The reviews kept coming. I had to take breaks in between them. The students were very sporty when I was late though. There were no nasty comments – merely repeated requests. Some students still had to clarify my answers in class or in my office. One student told me that he would not post his work on the group as he was using it to participate in a competition. In the last days, the students resorted to private messaging again to ask questions on exams. I suppose they need some privacy for some issues. Overall, it was an extraordinary experience. I needed the formal feedback from survey to confirm the positive results though. It would also help to review the delivery of the lecture next semester.

b. Survey results

Research Question 1: *To what extent do students use a prescribed learning management system in a selected blended course?*

The survey results were downloaded in CSV format and analysed with Microsoft Excel. The number of responses was 19 out of a class of 23 students which gives a response rate of 82.6%. As expected, the main usage of the course LMS was for downloading lectures, tutorials followed by submission assignments as shown in the figure below:

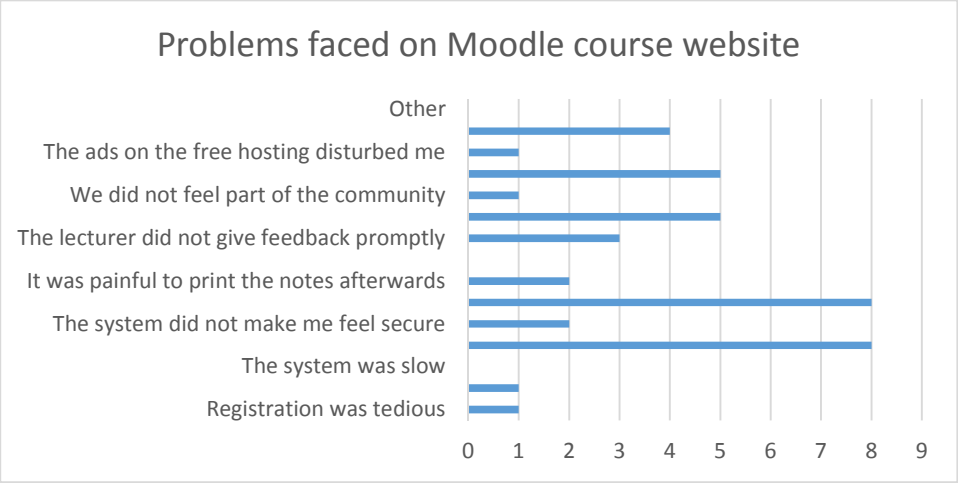
Figure 1: Usage of Moodle course website



The low usage of the course website for interaction, discussion and progress self-checking was also noted. Surprisingly, getting supplementary reading material was lower than expected. This is probably because students expect this reading to be optional as compared to the lectures and tutorials.

The main problems faced by the students on the Moodle course website were related to the user experience on the course LMS related to features such as strong password, size limit for assignment submission, user-friendliness as shown in the figure below:

Figure 2: Problems faced on Moodle course website

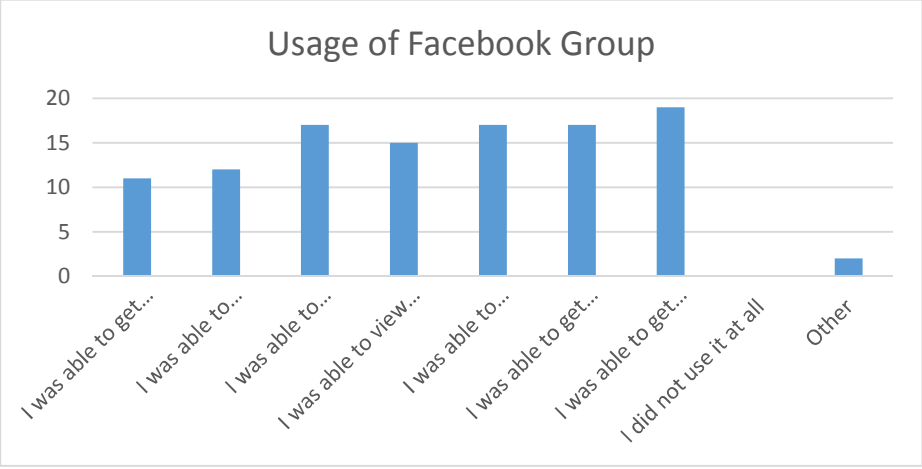


However, lack of interaction on the LMS also came up high on the list of problems. The latter shows that there was an expectation of interaction from the students and this expectation was not met by the course LMS. It seems that the possibilities of Moodle for interacting with students have not been put to their maximum use in this case. Other contextual problems such as connection problems and response time were very low in the list of problems. This shows that students are equipped in most cases to access the course website. Registration problems reports by one student was a bit surprising as students were registered by the lecturer due to issues related to automatic student registration. There were also a few students who had problems to print the materials posted on the course website. This preference of students for hard copy handouts is in line with (Foogooa & Panchoo 2012). The problems are probably related to the difficulty or cost of printing the notes.

Research Question 2: *To what extent does the use of the Facebook social media site enhances student engagement in a selected blended course?*

The usage of the Facebook group by the students is shown in the figure below:

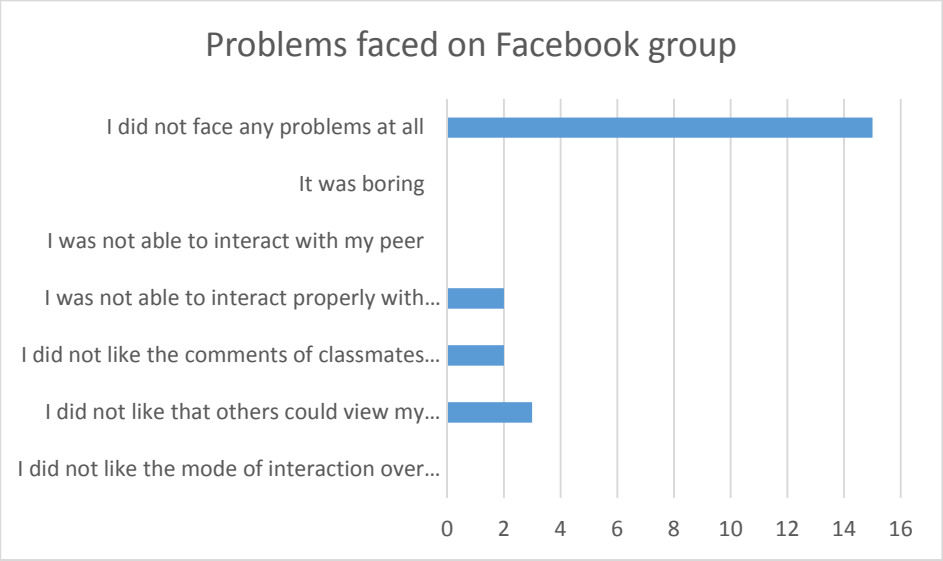
Figure 3: Usage of Facebook Group



It is clear that the Facebook met the interaction expectations of the students – interacting with the lecturer, getting comments on their work by the lecturer and their peer and commenting on the work of their peer were among the top uses. This also shows that this interaction may also have contributed to the students trying out higher forms of learning as per Bloom's taxonomy (Krathwohl 2002). It was surprising to see more people find additional reading material on the Facebook group than on the course website. In fact, standard additional reading material was generally posted on the Moodle course website. However, in the course of interaction with the students, ad-hoc supplementary materials were posted on the Facebook group following their requests or to make the point of some discussions. It would seem that these were more noticed than the ones on the course LMS. One might conclude that students need to be more convinced for reading supplementary material instead of expecting automatic compliance to instructions. One comforting result was that no respondent complained that he/she did not use the Facebook group at all.

However, the usage of the Facebook group was not without its own problems as shown in the figure below:

Figure 4: Problems faced on Facebook Group



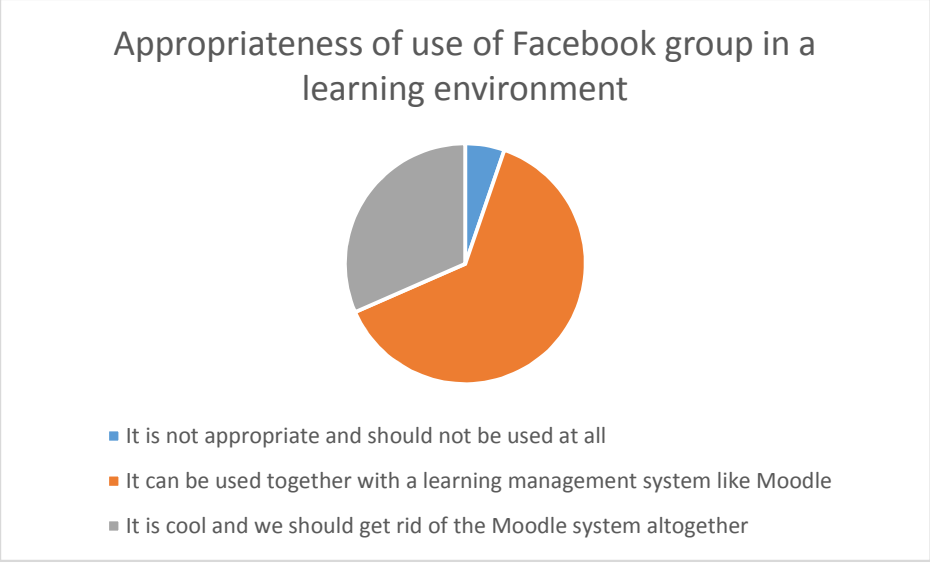
As expected after the reactions of the students in class, most students did not find any problem with the Facebook group. No one found the Facebook group boring or lacking interaction features. However, there were a few students who found it difficult to interact with the lecturer over the Facebook group and did not like the fact that their work was viewable and commented by other students. This shows that there is no unanimous support for the Facebook group. There are always some who cannot interact properly on Facebook. One of the reasons could be the language – on Facebook English was used whereas face-to-face communication is mostly in the local language, namely Mauritian Creole.

The responses of the students to the question asking them to summarise their experience of the use of Facebook provided interesting insight. It confirmed the positive feedback obtained from the use. The words used to describe the experience range included “first ever experience”, “super duper” and “cool”. The responses when analysed also gave the underlying reasons for this feedback. The students were clearly motivated by this experience and found it engaging as compared to the course LMS. Someone found it “eco-friendly” on top of being “useful”. They also appreciated the “rapid response” from the lecturer – which shows that the prolonged interaction outside the class was an important factor. Others found that it was a good platform for “learning and sharing” and for developing “proper judgement” and “time management” skills. One of the main reasons is also the fact that the students are always logged on Facebook and are thus immediately notified of any updates on the group.

The responses also provided the reasons for those not liking the Facebook group experience. It would seem that they felt that not all the work submitted was reviewed or reviewed fast enough. It would seem that there should be an agreement on the expectations of the students in terms of delay to review work. As per our records, all work was reviewed within a couple of days. It seems that the expectation of the students was that review would be done faster than that. However, in an attempt to encourage students to review the work of their peer, the students were told at some point in the semester that their work would be reviewed only after at least one peer would have reviewed the work. This probably increased the impression of delay in reviewing of work.

Overall, there was support from the majority for using the Facebook group as shown in the figure below:

Figure 5: Appropriateness of use of Facebook group in a learning environment



However, it was felt that it should be used in conjunction with the course LMS. Many students have remarked that the course LMS is efficient for storage of lecture materials. Moodle is also more efficient for searching of lecture materials as compared to a Facebook group. However, there was still an impressive proportion which would not mind doing away with the course website and manage the class solely with the Facebook group. The students especially appreciated the interactive nature of Facebook and its use for reviewing work of students. They also seemed to appreciate the personal touch of Facebook. One student commented “If everything can be done on Facebook then why having two systems!”

Although this seems an interesting option, Facebook is clearly not equipped to manage a class entirely on its own. However, the facilities it offers to students cannot be neglected either. There was also a small minority which felt that Facebook is not appropriate and should not be used at all. There is thus a small minority who seem to be in favour of Hew(2011) and Lee(2014). It is nevertheless important that the concerns of the minority are still addressed in class.

c. Facebook posts

The Grytics statistics report contained several pieces of interesting information. The summary group statistics were as follows:

- 80 posts
- 251 reactions
- 24 active members
- 358 comments
- 18.13 activity
- 12.09 engagement

This shows that it was a popular group with the whole class enrolled and almost 2 posts per day. The number of reactions and comments also indicate the posts generated emotional reactions (in the form of likes) as well as comments. The activity and engagement scores were calculated by the following formulae:

Activity score =(Number of posts + Number of comments + Number of reactions)/Number of days for period concerned

Engagement score = (2*Number of comments + Number of reactions)/Number of posts

The top posts for the group for the period concerned are shown below:

Table 1: Top posts

Title	Engagement	Url
Hey Guys & Sir Ravi Foogooa, this is a new Update for our Planning Assignment Ti...	70	https://www.facebook.com/456715361191237/posts/467409723455134
Hello Sir and friends, Below is the feasibility study (till technical feasibilit...	39	https://www.facebook.com/456715361191237/posts/463160943880012
Hello Sir , Its a third review, i wanted you to check the economic part..i have ...	36	https://www.facebook.com/456715361191237/posts/460306100832163
Hello Sir and mates, here is the feasibility study (till operational) on my car ...	35	https://www.facebook.com/456715361191237/posts/463240303872076
Last minute news: tomorrow's test is open book. Let this not be an invitation no...	33	https://www.facebook.com/456715361191237/posts/465071577022282

The post engagement score was calculated from the following formula:

Post engagement = (Number of comments x 2) + Number of likes

It is worthwhile noting that the top posts for engagement value were from students. The posts concerned the uploading of their work. The engagement shows that students had a look at the work of their peer. It is funny that the announcement that the class test was going to be open book – usually a very popular piece of information only made it to the 5th rank in terms of engagement.

The top 5 reacted posts for the group for the period concerned are shown below:

Table 2: Top reacted posts

Title	Reactions	Url
We should take a souvenir picture in next class to personalise our gro...	13	https://www.facebook.com/456715361191237/posts/457321987797241
Last minute news: tomorrow's test is open book. Let this not be an inv...	9	https://www.facebook.com/456715361191237/posts/465071577022282
Ravi Sir, I have reviewed and updated the operation part. I have also ...	9	https://www.facebook.com/456715361191237/posts/458192854376821
Dear all, I am requesting you to fill a short survey online to give yo...	7	https://www.facebook.com/456715361191237/posts/467228730139900
Hello Sir and friends, Below is the feasibility study (till technical ...	7	https://www.facebook.com/456715361191237/posts/463160943880012

The post which generated most reactions was a personal note asking for a souvenir picture. It shows the emotional bonding of the group. Second most reacted post was also an emotional message about the class test. Surprisingly, even the request to fill the online survey generated a lot of reactions.

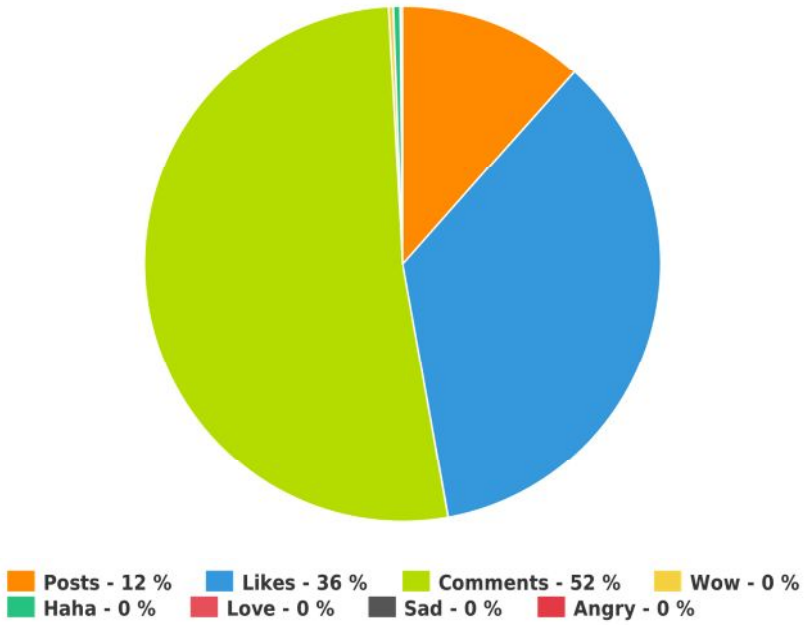
A word cloud was generated with the 'wordle tool' available on www.wordle.net from all the posts and the comments with the as shown below:

Figure 6: Word Cloud for posts and comments

The tool made all words lower case and removed common English words (e.g. ‘the’, ‘I’, ‘and’, ‘you’ etc.) to avoid clutter and for meaningful words to show up. The word cloud shows that the interactions were well centred on assignments mainly a feasibility study. The high frequency for the words ‘sir’, ‘review’, and ‘work’ show that there were a lot of requests to review the work of students. The emotional words are quite positive (‘thank’, ‘great’) and depict a harmonious working relationship. Negative words are barely present – although this could be viewed positively it could also indicate a lack of critical commenting in the interaction.

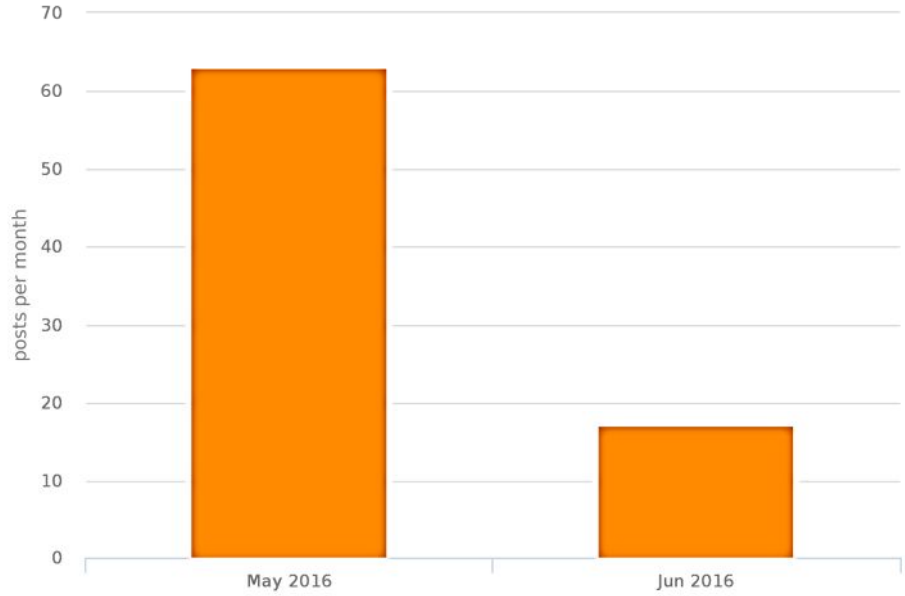
The group interactions are shown in the chart below:

Figure 7: Facebook Group Interaction



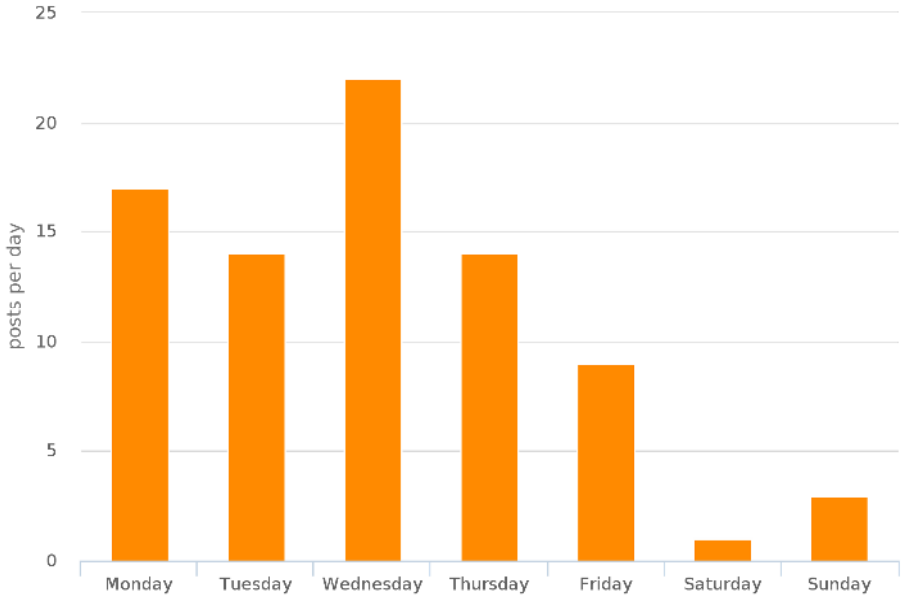
Posts accounted only for 12% of interactions. It is interesting to note that comments accounted for 52% of the interactions (with about 4.48 comments per post) which show that the interactions were also rich in content (average number of words per comment being 18.71) as much as in emotions (as shown by 36% of interactions being likes). The types of posts were mostly text in status messages – interactions did not make use of multi-media. This might be an area of future improvement. Nevertheless, 96.25% of posts were either reacted or commented – this shows that there was a lot of interaction in the group. This is confirmed by the number of likes received (193 in all) which amounted to an average of 0.54 likes per comment.
The distribution of posts for the period concerned is shown below:

Figure 8: Distribution of posts over time



One explanation for this distribution is that only half of the month of June was considered. Moreover, the class ended on 1st of June. This also shows the extent of interaction which occurred after the official classes were over. The reports also provide a distribution of the posts over the different days as shown below:

Figure 9: Daily distribution of posts



It is to be noted that the face-to-face sessions were held on Wednesdays which probably explains the peak. There are less posts during the weekend. The distribution of comments follows more or else the distribution of posts.
The top comments are shown below:

Table 3: Top comments

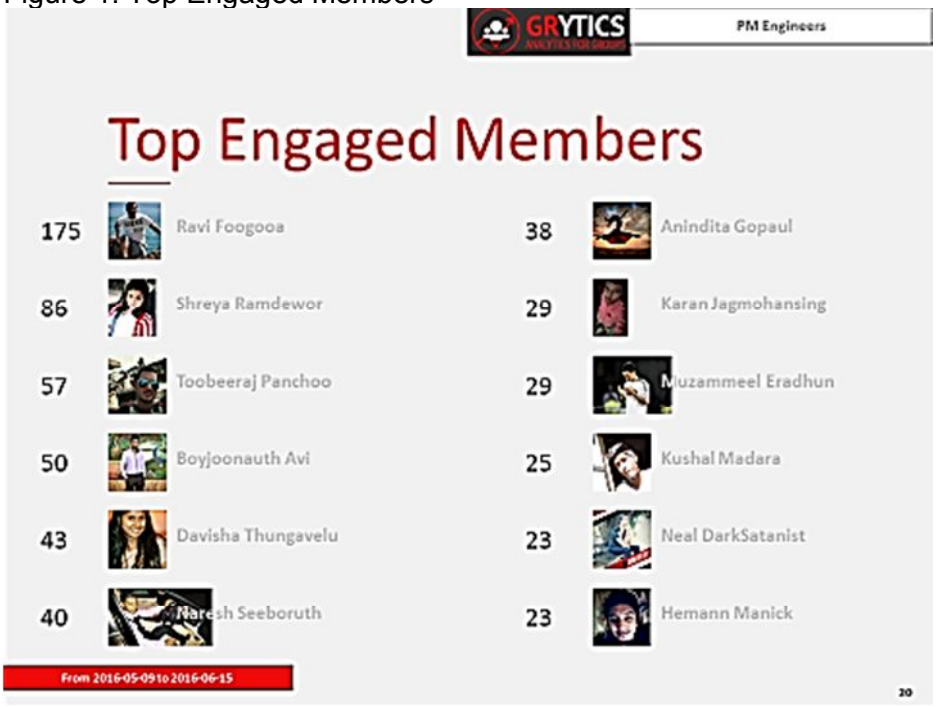
Comment	Likes	Author	Post
No title	4	Karan Jagmohansing	Sir (Ravi) could you please upload the question on...
concerning the wbs, u need a wbs dictionary	3	Christopher Patrice	Hello Sir, We (Boyjoonauth Avi, Arvind Abhishek Ba...
It is not a favour dear. I only said that after looking at the test. There is no...	3	Ravi Foogooa	Last minute news: tomorrow's test is open book. Le...
Nopes test is average.	3	Ravi Foogooa	Last minute news: tomorrow's test is open book. Le...
lol :P Anyway.. Great work! :)	3	Shreya Ramdewor	Hey Guys & Sir Ravi Foogooa, this is a new Update ...

The comments which were most liked were mostly a request to upload a specific tutorial, comments on forthcoming class test and updates on assignments. Surprisingly, there was no discussion following the class test.
The engagement of the members were calculated with the following formula:

*Engagement score = 2*Number of posts + Number of comments + Number of reactions*

The top engaged members are shown below:

Figure 1: Top Engaged Members



It is no surprise that the most engaged member was the resource person as he was the one who had to comment almost all the posts of the students. Nevertheless, there were many other students whose engagement ranged vary from average medium to high. Grytics also gives in its weekly report, a list of students who were not engaged. This feature can be used by the lecturer to try to engage such students.

The top publishers and top commenters followed the same trend with the lecturer leading the students by a large gap but with the students still interacting in a fair manner:

Figure 2: Top Influencers

The influence score was calculated by the following formula:
Influence = (Number of comments received x 2) + Number of likes received
The top influencer, as calculated by Grytics, was unsurprisingly the lecturer but many other students achieved an honourable score in terms of influencer. Surprisingly, the class representative, although among the top influencers, was not the most influential student. This information can be used by the lecturer to collect feedback and interact with the students.

Conclusion & Future Work
This research clearly brought the limitations of learning management systems to light. Although one might argue that a lot depends on the configuration of the LMS, it still remains that its limitation is reduced interactive features and user friendliness. It is also important to note that contrary to what is observed in class, students prefer interactive systems. This obviously requires a lot of time and dedication from the lecturer and any want of responsiveness on his part is felt immediately by the students.
The intervention of using Facebook was a success as demonstrated by the student feedback. Even in terms of additional opportunities for higher

learning, the experience was positive. However, there is still need for further research in this regard. One notable limitation of this research was about the risks of using Facebook in higher education. A few students expressed reservations about the use of Facebook and further research is needed to understand the nature of these reservations and what can be done about them. The literature has also warned about privacy issues when using Facebook between lecturers and students. One sometimes feels that it would have been nice to have a second profile on Facebook dedicated for professional use. However, this is a currently not allowed. It would also be interesting to investigate into the use of more interactive social features of learning management systems.

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