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IMPLEMENTING SOCIAL MEDIA AS A LEARNING ENVIRONMENT TO FACILITATE LEARNING ANYTIME/ANYWHERE FOR ENGINEERING COURSES

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ABSTRACT

In an era of modern technology, social media has speeded into almost every aspect of the lives of almost all ages of people who utilizes the internet. Using social media as teaching/learning tool parallel with the traditional learning methods in a hybrid technique may provide a convenient, self-paced learning methodology in an interesting coordinated way. It is an approach that implement education and communication tools to support educational goals and enhance learning in a more convenient and cost-effective manner. This study reflects the advantage of the use of social media in engineering education. The sample of this study consists of different levels of engineering students attending different courses at the Faculty of Engineering at Hashemite University. This study reveals that there is a significant difference between the traditional teaching method and the hybrid one that combines the traditional educating system with the facebook social media as a supporting learning environment. Overall engineering education/ learning loop provides the instructor with a solid foundation for further development and pushing him/ her to follow up learning technology systems in order to improve his/her professional practice as a lecturer.

Key words: Higher education, social media, facebook groups, learning loop

INTRODUCTION

The current generation of youth, often described as Digital Natives, They may have thoughts against traditional methods of teaching and learning, (Bosch, 2009). To follow up the new generation, the traditional educators should re-evaluate their experiences. I have been teaching engineering courses for decades; therefore I'm looking to translate my educational experience into real-life career success by making use of very fast advancing communication technology. Adopting digital media for learning allows flexibility for retrieving required material according to student needs in terms of time and techniques. Though, not all students are interested to engage in digital learning, especially those students who are attracted in face-to-face learning environment.

For the past two years I have been contacting students for different three courses as a hybrid class using the facebook combined with the traditional class lecturing. (Traditional class lecturing depends on white board writing, discussion, data show presentations).

Learning style, in which a person perceives, conceptualizes, organizes and recalls information may vary in many ways according to the variation in teaching systems There is no one best learning style or one best teaching approach that match the demand of all engineering students. How much a given student learns in a class is governed in part by that student's built-in ability and prior preparation (Felder and Silverman, 1988). Implementing continuous

teaching and learning environment using different methods and communications may be reflected positively on the students performance. Changes in education system for sustainable development in higher education is not limited to the organization itself. Verhulst and Lambrechts (2013), studied higher education from the viewpoint of organisational change management but can be reached by the instructor through adopting different tools in his classes according to the subject and to the learning style preferred by his students. Leite et al., (2010) categorized some learning styles to be:

- Visual: learners have a preference for seeing (visual aids that represent ideas using methods other than words, such as graphs, charts, diagrams, symbols, etc.).
- Auditory: learners best learn through listening (lectures, discussions, tapes, etc.).
- Tactile/kinesthetic learners prefer to learn via experience through science projects and experiments

Engineering topics requires certain teaching style that address almost all of these areas to match students learning needs. Traditional teaching may face difficulties in fulfilling all students learning abilities due to limitation of time and space. For engineering mechanics as an example, the instructor may face difficulties to explain theory, solve problems and display visual aids within one hour. Therefore, this study looking for changing the traditional teaching to fulfil the different learning styles in an easy, economical accepted way by adopting social media to make teachers and students take the maximum profit of the learning-teaching relationship. It is necessary to recognize their preferences and use all the available resources to guarantee the success and to use the social network sites in productive ways. Most students are able to learn effectively as long as the instructor provides different learning activities. Active learning might be enhanced by presenting models and demonstrations, discussions, debates, answering questions, and role playing, (Alkhasawneh, Israa M., et al, 2008). Social media is a computer-mediated tool which implies two-way interaction that allow people to create, share or exchange information, ideas, and pictures/videos in virtual communities and networks making recourses more accessible to teachers and students and community. Furthermore, social media depend on mobile and web-based technologies to create highly interactive platforms through which individuals and communities share, co-create, discuss, and modify user-generated content. Facebook is one of these social media tools that almost all of our students are already familiar with and regularly accessed medium, and supports the integration of multimodal content such as student-created photographs and video and URLs to other texts, in a platform. Further, it allows students to ask more minor questions that they might not otherwise feel motivated to visit a professor in person during office hours to ask (Moody, 2010).

This study will focus on the possible uses of a very popular Web site, Facebook, which is accessed in a daily basis by the majority of students in the university and even other people.

Facebook social media is not an e-learning application but its popularity makes it a tool for spreading information and learning. It allows students to discuss their homework online with each others and receive instant feedback on their work from the instructor and older students since the course group will not be limited to the registered students. There are three main components that asset learning : Read lectures covered in the traditional class, study related materials posted by the instructor & discuss engineering problems (Bynum, 2011). “Social media means new opportunities to create and communicate with people that care”(LeFever 2008). Facebook is a contemporary technological tool that can offer teachers and students a unique method to support the student-teacher relationship, which can ultimately create a encouraging learning experience for both parties (Mazer et al., 2007).

The created Facebook group for a class has the instructor as the admin who has total control over who joins the group and what they can post to the group's wall. Students in the class can join the group and write on the wall on the group's page. The course group contains full online texts and may also include other study materials to help students learn about the subject in addition to YouTube posted videos from other local or international universities. The admin has a unlimited control on what to post on the group.

Learning is more than simply taking a class discussing a chapter from a book especially for engineering topics which is under innovation in time basis.

Removing the time limit for learning by extending the class time to be open and to unlimited boarders to be anytime/anywhere learning, then extreme benefit will be gained from such courses. This timeless unlimited boarder class with the use of Facebook is still under control of the instructor. As it is known that some students may comment negatively but such behaviour may not affect the learning process since the instructor can steer such negative comments which miss direct any discussion. It is found that with time students will stick to the discussion topic and make benefit of it for learning purposes. Facebook is one of the 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 with faculty (Bosch, 2009). It allows for the following key professional practices:

- Direct teaching by asking questions or sharing information before/after class or can be used as reminders of key dates, homework, preparation, deadlines, Cancelled/rescheduled classes (or change of room, late arrival etc)
- developing self and others
- leading improvement, innovation and change
- leading the management of the course
- engaging in the community.

It is not an easy task facing students requirements in anytime/anywhere environment. The instructor should be characterized by certain requirements mainly vision and values in addition to knowledge and learning more than just lecturing and should be within students expectation.
Main benefit points using course Facebook groups are :

- Post articles and information about various topics
- Instructors can chat with students who have questions about a project and need a few minutes of their time, versus stopping by for an in-depth office visit.
- Students who are too shy to talk in front of their peers may open up on the Web.
- Allows students to post information in a public setting and get feedback in a nonthreatening manner from facing people.
- Instructors can encourage students to follow current events

Creating Facebook group to any course does not worth if the instructor is not going to be able to add regular content to it and have time to respond immediately or the students will lose trust of the course group. The interactive nature of social media environment of learning has increased students involvement in the course.
Facebook can help users to create, and manipulate information on many levels and in real time under the supervision of the instructor.
This study examines the importance of the use of the hybrid digital- traditional learning system by the use of social media in addition to the traditional learning system for selected engineering courses by drawing in comparison with the traditional class lecturing.

DATA AND DISCUSSION

The sample for this study comprises Hashemite University, Faculty of Engineering students from different levels and from different disciplines. This study started by obtaining data about the students awareness of social media, to determine which one is the most popular for students to be selected as a tool for enhancing traditional teaching of engineering courses.

Student's level of awareness of popular social media sites as personal or learning sites is examined and the results are shown in fig.1. It is clear that Facebook is the most popular among other social media networks and preferable one by the Hashemite University students. Frequency use of social media by students is also studied and shown in fig. 2.

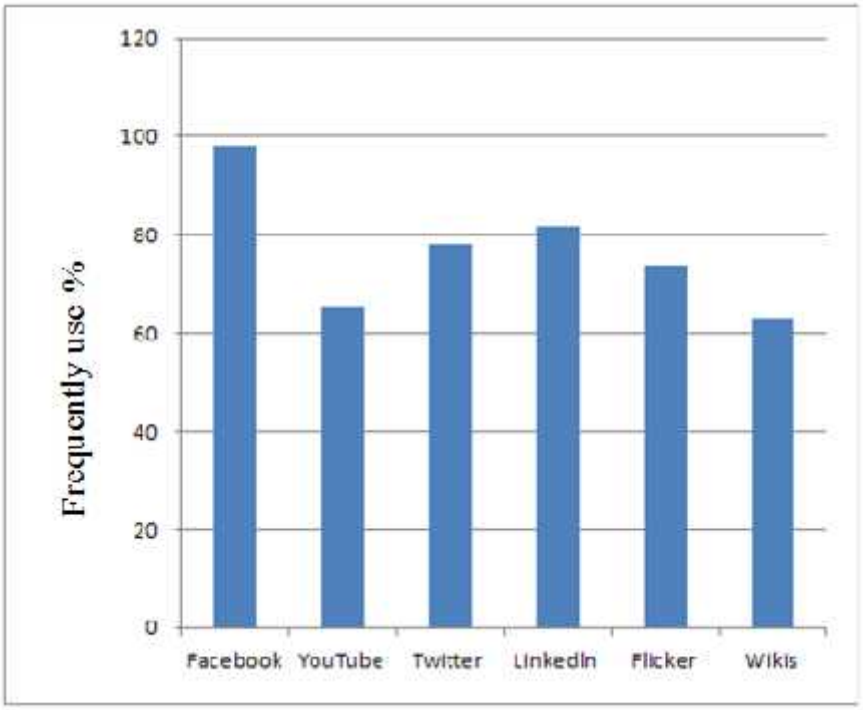

Fig. 1 Students level of awareness of popular social media sites

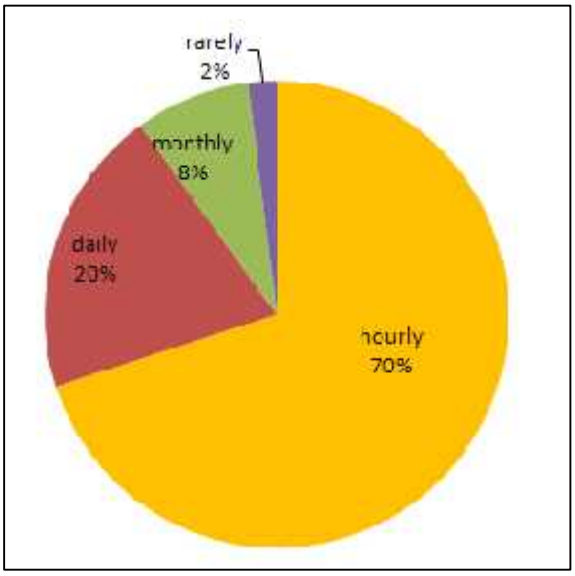

Fig.2. Frequency use of social media by students

Students have vast awareness of social media, and the majority of them use the sites daily for both personal and learning reasons. Using social media as a non-class tool for education is positive with the majority of students using it on a daily basis with about less than 2% reported that is take more time than it worth and it is a non-effective learning tool for them .
It seems important for educators to believe the fact that Facebook becomes part of the students daily life and they do use it daily with availability for 24 hours.
When the students were asked about potential difficulty in using social media, they stated that the main two most important concerns are:

1. Blockage of the webpage by the university but this affecting about 50% of the student who has no connection on their mobiles.
2. Distraction of the personal use on their studying period

According to the previous results obtained for the students facebook awareness,
Facebook groups are created for some courses and the performance of the students has been studied for about 4 academic years since 2012.
Table 1 shows the courses and the student enrolment.

Table.1 Students enrolment (2012 -2016) for different Groups, (I.Marie, 2016)

No.	Course title	Course level	Students speciality	No of students	Group Nature
1	Statics	2nd	Civil, mechanical & industrial	2900	Public
2	Engineering Geology	4th	civil	750	Closed

In closed group anyone can find the group and see who is in it. Only members can see posts and post their comments, while in public group anyone can see the group, its members and their posts and share comments and post their files, images and comments. Students from different local and international universities collaborate and construct technical creations in a learning platform. That will give the learning process a global dimension.

Asking the students about their enthusiasm towards using public or closed group, 78% of a total of 500 students appreciate public groups to communicate other local or global members. The 22 percentage prefered closed groups to communicate colleges from their home university.

The course period is divided into four stages: course learning, exams including first exam, second exam and the final, activities stage including quizzes, homework and project, the last stage which is after finishing the course.

The students show most availability on the facebook for learning on the exams period with 88% presence while the lowest was after passing the course with 20% presence.
Fig. 3 shows the students most preferable presence time on facebook for learning, discussion and searching for tips to assist them in their study.
To achieve the required results, it should be known that learning is a closed loop cycle. This is clear for three month engineering courses assuming anytime anywhere learning environment by adopting the social media facilities. Within this cycle working with and through others may build a professional learning/teaching community that is focused on continuous improvement of teaching and learning. This reflects the development on self and others to achieve high standards. The course learning cycle is shown in fig. 4.

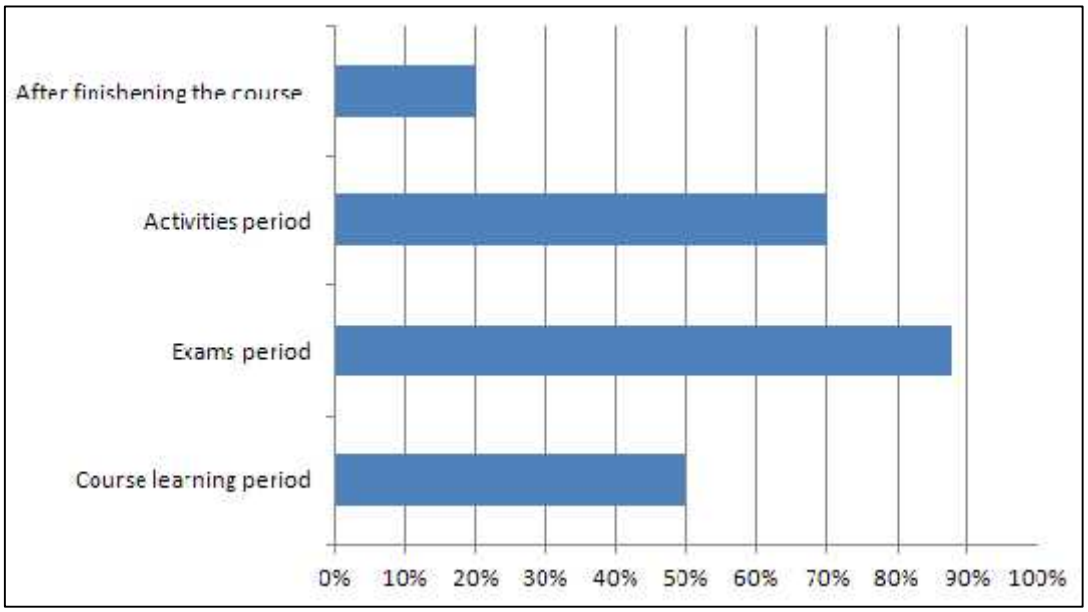

Fig. 3. The students' most preferable presence time on Facebook for learning

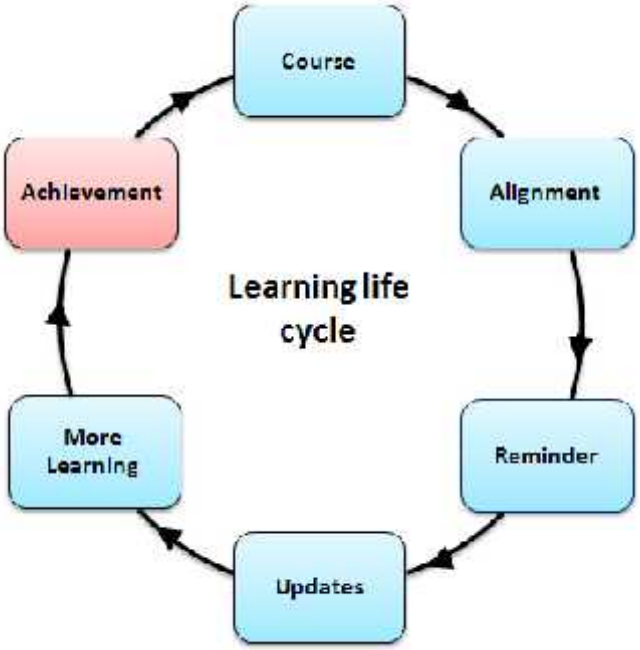

Fig. 4 Course Learning Life cycle

Within the alignment stage the instructor got the opportunity to share beliefs, knowledge and skills across teaching the course and thus develop student learning techniques.
A set of criterion are set for assessing group performance to reach the required achievement:

- Frequency of participation in the group.
- Quality of participations in the group (questions, discussion, comments)
- Homework discussion.
- Interpersonal communication (appreciating other points of view, showing a positive attitude, positive feedback)
- Suitable handling of argument

- Follow educational online links

A set of questions was given to the students in each group for getting feed back from them about using facebook in learning to support their academic goals. Fig. 5 shows a sample of such questions.

Fig. 5. Sample question posted on each group for feedback gathering

From the four years' experience in using the facebook groups to enhance engineering courses and communicate with students, it is found that the students achievement is affected according to the approach as shown in fig. 6. Starting with the Awareness which represent the awareness of the individual benefits of learning associated with change in communicating behaviour followed by the attitude of the individual towards change learning and discussion habits. The stronger the intention, the more likely change will occur. The next step towards achievement will be knowledge followed by action and finally achievement when outcomes of each course achieved successfully with high limit of satisfaction, (Kuri, 2000).

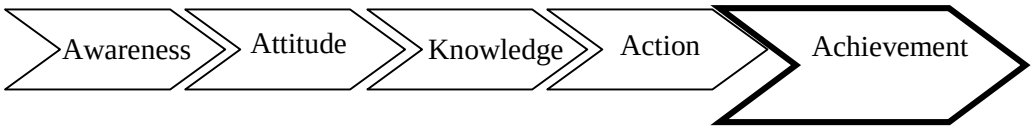

Fig. 6. Achievement approach

At the beginning of the construction of these groups some members of less than 1% showed odd behaviour by using rude in-words in their comments but by the control of the instructor to the group as an admin by either deleting this comment or make a private chat with this member, this percentage reduced to less than 0.2% . This shows the effectiveness of the social media groups in enhancing the behaviour attitude of some students in a private environment.

The effect of using facebook by students on their grades of the engineering mechanics/ statics course is measured as the percentage passed the course from 140 students during academic years 2015 and 2016 for all the 5 semesters was found to be increasing as shown in fig. 7

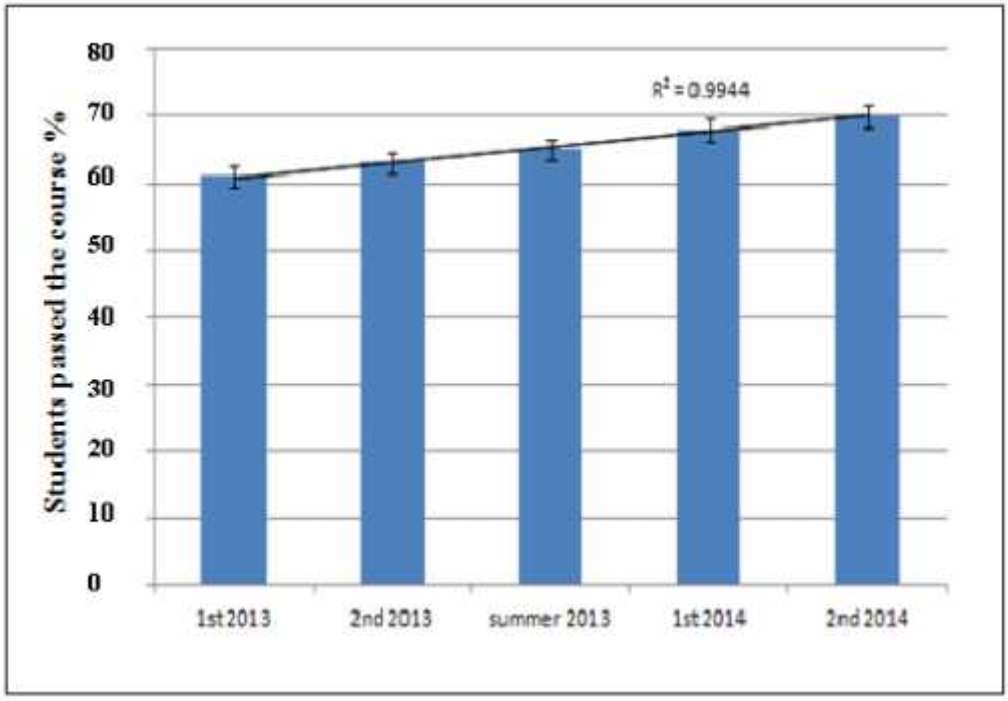

Fig. 7 Percentage of students passed statics course for 5 semesters in two academic years

The progress of students' behaviour that show shyness is their communication in the class was very clear after joining the course Facebook group. This study was done on 50 students per semester who showed themselves as shy persons. The semester was divided into 4 time quarters to detect the improvement of the students' communication behaviour during the course progress. Fig.8 shows that during the first quarter of the semester the students show no interaction in the class or within the facebook group. With time they start posting their questions and shared the discussion with others. They sent private messages for any question then showed themselves in office hour with confidence. The progress in students behaviour and communication abilities during their university life is very important since it will affect their career life after graduation (Cabrera et al., 2001).

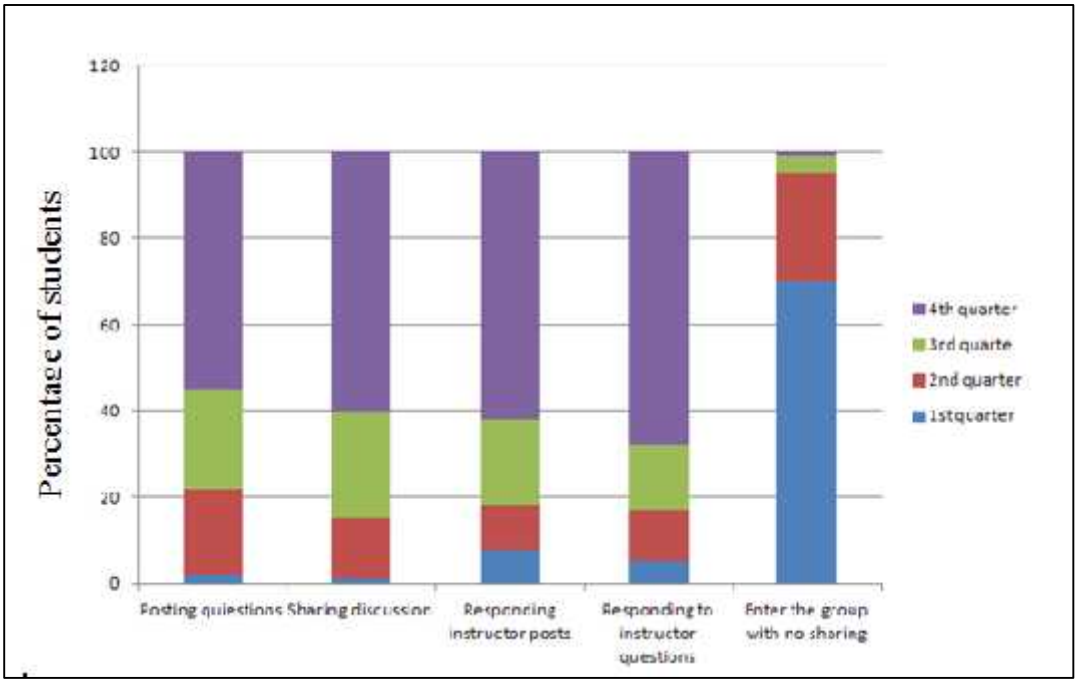

Fig. 8 Percentage of shy student's interaction on facebook group with time

CONCLUSION

In all courses, the results indicate that combination of traditional and Facebook learning is more important and agreeable to the almost all students.

This experience in implementing Facebook social network in engineering education showed a healthy anytime/anywhere educational environment. I found it an interesting educational practice. It keeps both the instructor and students in a teaching learning loop in a friendly-based environment, allowing students to track their studies, in a collaborative and interactive way. The Facebook groups will help student to discuss their creative ideas for solving engineering problems. Moreover, instructor can match different educational or real time sites to his teaching needs as an extension to his traditional class lecturing. Engineering education/ learning loop provides the instructor with a solid foundation for further development and pushing him/ her to follow up learning technology systems in order to improve his/her professional practice as a lecturer.

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