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Transformative Higher Education Teaching and Learning: Using Social Media in a Team-Based Learning Environment

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Abstract

This study aims to assess the effectiveness of social media to enhance teaching and learning in a team-based learning environment involving large classes. The use of digital technology via Facebook, enhanced team-based learning outside the classroom, complementing face-to-face lessons. Students were also exposed to several student-centered learning mechanisms including poster presentations and expert forums in an effort to provide them with a more holistic learning experience. The theoretical framework of the study is based on the educational theories of constructivism and social learning. The students' learning experience and motivation was assessed through content analysis of their reflective portfolios and their Facebook postings. The results clearly showed the positive impact that team-based strategy had on the students' learning experience and motivation. Facebook was indeed perceived as an innovative and effective tool in a student-centered learning environment that enriched students' educational experiences, increasing the relevance of the subject matter and encouraging students to collaborate effectively with their peers and faculty. From the perspective of the educator, the use of Facebook in a team-based pedagogy setting significantly enhanced the teaching and learning process as it allowed the educator to tap into the digital learning styles of the students and provided innovative ways of involving and motivating students in the learning process.

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1. Introduction

Joosten (2012) defines social media as a term to describe any number of technological systems related to collaboration and community, including social networking sites. The rapid growth of social media such as wikis,

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blogs, Facebook and Myspace has encroached into the lives of millions of people around the world. Despite this, the education community is somewhat suspicious about the role that these sites should play in effective teaching and learning. As far as Social Networking Sites (SNS) are concerned, there appears to be a potential disconnect between the technologies that the current students prefer, as opposed to what the educators actually use. This disconnect impedes student engagement and intentional learning as the SNS-proficient students do not learn in an environment that they are most comfortable with and can relate to. Higher Education institutions and their faculty are beginning to recognise that their currently enrolled undergraduate students are also increasingly proficient social networkers and would therefore need to consider how to meet the needs of their students' digital behaviour and habits.

Facebook is one of the most commonly used sites by people of all age groups, not only as a social network site, but also as an online team-based pedagogically sound learning platform that is fast becoming recognised in the education community. Facebook has many applications that support teaching and learning and it has been found to cultivate positive learning experiences as well as to enhance the rapport between the educators and their students (Mazer et al., 2007). The main aim of an educator is to ensure student learning takes place. While it may be the prerogative of the educator to choose the type of teaching and learning technique that he/she may wish to employ in class, this privilege is somewhat curtailed by the ever changing landscape of higher education and the tremendously diverse and tech-savvy generations of students that seek higher education, forcing today's educators to pick up new skills and utilise transformational teaching and learning techniques that are deemed suitable for the current times.

While studies investigating the use of Facebook for teaching and learning (Wang et al., 2012; Roblyer et al., 2010; Selwyn, 2009; Bosch, 2009; Barnes, Marateo and Ferrisare, 2007) are still in their infancy, these studies suggest that Facebook as a social networking tool has the potential to be a transformational technique for learning and teaching in higher education. It is therefore imperative that educators understand their students' academic and social backgrounds before reflecting and planning their lessons, the pedagogical techniques they intend to use and the types of assessments that they believe will highly engage their students in the learning process.

This study investigates the use of Facebook as an enabling learning tool for an undergraduate Macroeconomics module, a first-year module undertaken by 120 students. Facebook was the main platform used for conducting online discussions and preparation to aid students in successfully completing their continuous assessments, which took the form of an individual report as well as a group presentation, at a private institution of higher education in Malaysia. The group presentation took the form of a poster presentation in an Economics Forum, collaboratively organised by the students, with academics serving as advisors while members of the Industry Advisory Panel were the invited guests.

1.2. Problem Statement

The use of social media such as Facebook has rapidly grown to become a popular and influential form of computer mediated communication. The rationale behind using Facebook for teaching and learning purposes is that it provides a platform or a meeting point for Generation Y students who can socially interact with their classmates as well as communicate about their learning in their very own non-threatening space. In addition to the traditional lectures and tutorials, the online discussion forum of the Facebook host site has a tremendous potential to enhance learning and teaching, in particular for the development of higher order learning skills, student-centered pedagogy, authentic learning and interactive learning communities. Therefore, there is a need to investigate how business students perceive and assess the effectiveness of Facebook in providing a pedagogically sound virtual learning environment that could enhance their learning experience in undertaking the Macroeconomics module.

2. Literature Review

“Being literate no longer only involves being able to read and write. The literate of the twenty-first century must be able to download, upload, rip, burn, chat, save, blog, Skype, IM, and share” (Mullen and Wedwick, 2008, p. 66). This speaks volumes of the increasing literature in recent years which focuses on the use of social media tools in enhancing learning and teaching in large classes. Selwyn (2009, p. 159), claims that *“Facebook offers perhaps the most appropriate contemporary online setting within which to explore how social software sites ‘fit’ with higher*

educational settings and communities of educational users". Koh, Herring, and Hew (2010) and LaRue (2012) on the other hand, have found evidence that the exchange of ideas and knowledge among participants in a learning community does indeed increase their intrinsic motivation to learn.

In a study on the importance of Social Networking Sites (SNS), Mason (2006) concluded that SNS could be used as educational platforms with a significant potential capacity to promote critical thinking among students. Piriyaasilpa (2010), in a study on the learning of language among university students in Thailand, revealed that Facebook was indeed a beneficial supporting tool in enhancing the students' learning experience. English and Duncan-Howell (2008) suggest the use of social networking tools such as Facebook as a support tool for business education students undertaking teaching practicum. Ziegler (2007), on the other hand, claims that social networking sites have the ability to transform students from being passive learners to becoming active and intentional learners, which is indeed the very tenet of student-centred learning. These findings concur with those of Cress and Kimmerle (2008), Schroeder, Minocha and Schneider (2010), Collins and Halverson (2010) and Wodzicki, Schwämmlein and Moskaliuk (2012) who found that the use of social software in higher education provides a collaborative landscape to learning and teaching, allowing increased peer interaction as well as interaction between the educator and the students.

Mazer, Murphy, and Simonds (2007) found that classroom climate further improved when students and faculty used SNS as their learning and teaching platform. Elsewhere, Ventura and Quero (2013) claimed that using social networks in aiding teaching and learning of Economics and Business Studies, helped improve the students' set of competences. Facebook had been suggested by McCarthy (2010) as an ideal host for a blended learning environment as it was discovered to enhance peer relationships as students appreciated the interactive discussions that took place in the virtual learning platform. The Facebook activity logs also showed an increase in learner engagement in the course, particularly with an assessment task. Recent evidence (Ellison, Steinfield and Lampe, 2007; Kabilan, Ahmad and Abidin, 2010; Ng and Wong, 2013) have shown that Facebook is one of the best ways to enhance communication, inculcate a more positive learning attitude, motivate students to learn, encourage them to take their learning tasks more seriously and increasing their social capital via virtual interactions.

Although many researchers have claimed that the use of social networking sites such as Facebook can be beneficial to students for learning purposes, there aren't enough studies that can support these claims. Meyer (2010) highlights the lack of empirical studies into the impact of Web 2.0 in higher education. Therefore, this study is in the right direction as it will add further to the existing literature on the educational benefits of social media tools.

The theoretical framework of the study is based on the educational theories of constructivism and social learning. The educational theory of constructivism posits that no matter how one is taught, learning is an active process that involves the mental construction of knowledge which is unique to every individual. Bransford, Brown and Cocking (2000) points out that learning is closely linked to experience and the contexts of experience one undergoes, irrespective of how or where learning takes place. In using social media such as Facebook as a learning platform, this involves social constructivism which invokes learning environments that are learner-centred, community-centred, knowledge-centred and assessment-centred.

As Facebook involves social interactions; using it as a teaching and learning tool allows social constructivist learning to take place. Vygotsky (1978) argues that learning is basically a social activity resulting from a combination of communication, collaborative activities and interactions with others which is believed to enhance cognitive and critical thinking skills. The online learning platform of Facebook also provides affordances to the development of learner-centred, community-centred, knowledge-centered and assessment-centred learning environments as it involves a learning community with certain learning goals and outcomes to accomplish.

The Social Learning theory by Albert Bandura highlights how learning occurs in the social media settings. Bandura (1977) draws our attention to an important aspect of learning, via observation, when he mentions how people observe others and model their behaviours accordingly. He further reiterates that a combination of environmental and psychological factors allow social learning to occur and that people's social behaviour is influenced by the reward or punishment they receive for their actions. Therefore, it follows that when social

networking sites are used as learning platforms, the behaviour of a student or a group of students is influenced by observing the actions of other students in their learning community. Bandura (1977, p.22) states that

"Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action."

2.1. Pedagogical Strategy

The pedagogical strategy for this study involved a total of five tutorial groups in the 2012 academic year cohort of first-year business students undertaking the Macroeconomics module. The teaching staff decided to adopt Facebook, a social networking site, as a resource to complement face-to-face teaching and learning. The teaching staff set up different Facebook groups, open only to students from the respective tutorial groups who had to "request for permission" to join the group through Facebook. The lecturer and the class representatives of each group were responsible for administrating the Facebook groups.

Students willingly joined their respective groups as they found it to be beneficial in terms of the academic and social discussions that took place. The students were required to research and discuss on the Economic Transformation Programme (ETP) and the Government Transformation Programme (GTP) that the Malaysian government was undertaking. As these government programmes were rather new, the students' initially were not aware or had very little knowledge of these programmes. Therefore, the opportunity to share ideas and knowledge and to post up articles and videos through Facebook was welcomed by the students, as they began taking responsibility for their own learning in a community-centred learning environment. The lecturer facilitated the discussions and spent time seeding the Facebook wall posts in order to answer questions the students were posing to each other and were unable to answer.

The advantage of using Facebook as opposed to the discussion forums in the Learning Management Systems (Moodle or Blackboard), is that Facebook is real-time and has a platform that provides a sustainable social collaboration environment away from campus, that a majority of the students are already very familiar with as they are habitual users of Facebook. Facebook allows students to intersperse both their social and academic lives, unlike the discussion forums in the University's Learning Management System.

3. Research Methodology

The data was collected based on 122 students' journals reflecting their learning experience of undertaking the group and individual projects. The reflective journals captured the students' perceptions of the effectiveness of Facebook in enhancing their learning experience and competences. This study employed a method of analysis known as content analysis or textual analysis, which Kimberly Neuendorf (p.10, 2002) defines as

"Content analysis is a summarising, quantitative analysis of messages that relies on the scientific method (including attention to objectivity, intersubjectivity, a priori design, reliability, validity, generalisability, replicability, and hypothesis testing) and is not limited as to the types of variables that may be measured or the context in which the messages are created or presented." (Neuendorf, p.10, 2002)

The content analysis technique was therefore used in this study to make inferences by objectively and systematically identifying emerging constructs and specific characteristics of the learning experiences of the students' as expressed in their reflective journals. At the end of the project, a quantitative survey was also carried out to elicit further information of the students' perceptions of using Facebook as a team-based learning tool and their acquisition of various competencies or graduate capabilities as a result. This survey was carried out to complement and further authenticate the findings of the content analysis. The survey instrument was a purposefully-

designed structured questionnaire comprising of different sections of items, one of which was aimed at exploring the students' general practices or uses of Facebook, and their views on using Facebook as an online educational platform in learning Macroeconomics, while another section specifically focused on the students' competences or graduate capabilities. The questionnaire was developed by the author based on previous studies that examined the practices and experiences of using social media tools for learning and teaching (see Kabilan, Ahmad and Abidin, 2010; Roblyer et al., 2010). For this purpose, one hundred and twenty two (122) undergraduate students were chosen to participate in the survey using convenience sampling.

4. Discussion of Findings

The students' feedback based on their reflective journals was analysed to examine the effectiveness of using Facebook on their learning experience. This broad-based, thematic analysis found a pattern of commonalities which were coded into five emerging constructs. The five themes represented the most identifiable or most frequent feedback, comprising of Medium of Discussion/Communication, Knowledge Sharing and Acquisition, Sense of Belonging, Learning Experience and Graduate Capabilities.

4.1. Construct I - Medium of Discussion/Communication

A majority of students found facebook to be a good medium of discussion/communication among themselves (peers) and between them and the lecturer. Several students reported that this was their first attempt at using Facebook. They found their experience in communicating with fellow peers and their lecturer a rather interesting phenomenon. The findings clearly indicate a higher emphasis on the effectiveness of Facebook in fostering a closer rapport among students and between them and their lecturer, as they were updated on everyone's progress on a real-time basis. The viewpoint is remarked by Student TG1.1 in the following excerpt, who mentions:

“Using Facebook as a medium of discussion and learning is something very new to me. However, I find it is a very interactive way for the students and the tutor to communicate with each other. Besides, it is another good way to foster the relationship between the tutor and the students.” (Student TG1.1, 2012)

This sentiment shows that the use of Facebook as a team-based learning platform enhanced communicative competence and built stronger rapport, concurring with the findings of Mazer et al., 2007; Collins and Halverson, 2010; Wodzicki, Schwämmlein and Moskaliuk, 2012; Lin and Jou, 2012; Ventura and Quero, 2013 and Ng and Wong, 2013. Lemeul (2006, p1), on the other hand, welcomed the capacity of social networking services to offer educators a forum for 'easy networking and positive networking with students' that could enhance learning.

4.2. Construct II - Knowledge Sharing and Acquisition

Students found that Facebook allowed them to easily share ideas, knowledge, videos, and articles related to the assignment and module concepts. Primarily, students mentioned that their peers helped them to identify and find materials in the internet and shared these materials and their knowledge with the group in a community-centred learning environment. This involved an understanding of the content of the shared resources for appropriateness to be incorporated into the project or assessment. Students needed to critically analyse their resources and discuss among their facebook group mates in order to come to a consensus on its appropriateness. This learning process thus involves meta-cognitive knowledge and cognitive process of “understanding”. This is reflected by Student TG4.1 in the following excerpt:

Facebook, a internet application which our group are using it to share, collaborate, inspire each other whenever and wherever we are available. it is convenience for us to shared our files, URL and pictures in facebook, members were discussing and sharing ideas from the things that were posted in the group. (Student TG4.1, 2012)

This results corroborated with the findings of a great deal of the previous work (Mazman and Usluel, 2010; Ooi and Loh, 2010 and Wang et al., 2011) in this field.

4.3. Construct III - Sense of Belonging

This construct appeared in reflections of several students who were more reserved and quieter in class but somehow opened up and communicated more easily on their tutorial group's Facebook wall, as they felt a deep sense of belonging to their very own, less-threatening team-based learning community. In the online aspect of the students' lives, Facebook offered them that virtual sense of belonging. This was well-reflected in this excerpt of Student TG4.2's reflection:

***Communication** leads me having **sense of belonging** as we all communicate to figure out the requirements and the answers for questions and exchange our ideas as I felt I am appreciated in this perspective. **Teamwork** also can clearly be seen under critical situation when we face problems and helping each other in order to carry on process without any delaying. (Student TG4.2, 2012)*

Evidence of such findings were also discovered in several studies on the use of Facebook for academic purposes (Nadkarni and Hoffman, 2012; Deng and Tavares, 2013). As this *sense of belonging* construct emerged from the reflections of the quieter students who went on to become active participants in the Facebook platform, this shows evidence of the role played by Facebook in transforming the passive students in active learners, reinforcing student-centred pedagogy which is a key thrust of the University's Teaching and Learning framework.

4.4. Construct IV: Learning Experience

The overall feedback students wrote on their learning experience was very positive, using words such as spectacular, brilliant, enjoyed, energetic, opened my eyes, valuable, active participation, pleasure, different, meaningful, very entertaining, best moment in my university life, interesting, delighted, best experiences; to describe their overall learning experience. Upon reading these reflections, the lecturer felt a sense of joy and gratitude for being able to motivate her students to take control of their own learning and successfully accomplish an array of learning outcomes and competences that the team-based and individual projects were set to accomplish. Using Facebook as the virtual learner-centred platform provided affordances for the class to become a synergetic learning team, concurring with the findings of LaRue (2012). Yet another major feedback given was that the assignment enhanced the students' thought processes, allowing them to overcome rote learning and generate their own evaluations of the presented topic of assignment. They perceived the overall task to have developed and improved them in a better direction, providing them with ample opportunities to achieve higher cognitive levels and deeper knowledge construction, similar to the findings of Koh, Herring, and Hew (2010). The following excerpts by student TG5.1 and student TG2.1 respectively, captures the essence of the overall students' learning experience:

Also using Facebook as an educational tool was a new and unique experience for me. I really enjoyed the learning process and I in my opinion it was a brilliant way to present and teach the module objectives to the students. (Student TG5.1, 2012)

I never did this activity before but it will be my best moment in my university life. (Student TG2.1, 2012)

Overall, the students found their learning experience to be meaningful and inspiring, as they were motivated by the unique experience of using Facebook as an educational tool. These findings concurred with those of Koh, Herring, and Hew (2010) and Irwin, Ball, Desbrow and Leveritt (2012).

4.5. Construct V - Graduate Capabilities or Competences

This construct recorded the highest number of feedback, reflecting its importance to the students. The main competences that the students perceived they acquired were communicative competence, team-work and discipline-specific knowledge that they learnt while undertaking the project via Facebook. The findings demonstrate that the students' communicative competence was enhanced when there was interactive exchange and deliberation on the economic issues related to the project topic. The team-based learning activity also involved understanding team dynamics and mobilising the power of teams, as well as assuming leadership, two very important interpersonal skills in team-based learning, ensuring the effectiveness of online discussions in aiding the learning process outside the classroom. Students also perceived Facebook to have saved them a lot of time because they could meet virtually anytime and anywhere, thus affording them more quality time to work on their projects and research. Therefore, effectively managing their limited time (time management), was yet another competence they acquired while doing this assignment.

The overall feedback was succinctly captured in the following excerpts of Student 3.1, Student 2.2 and Student 4.3 respectively:

I am part of a team that came together to do some research about the forum. We can lead people within a group by our strengths and skills such as energizing and motivating all the group members. (Student TG3.1, 2012)

In my view doing this kind of project is very helpful to students like us. This project gave us the opportunity to work in a group. Moreover helping by helping other group members we gained more knowledge on the subject. Furthermore we learnt some research techniques and some new approaches to learn. Furthermore we can apply this method of learning in our future assignments and also in our career. (Student TG2.2, 2012)

On the team work wise, I realise our team has been never failing in supporting each other in terms of meeting deadlines, giving opinion, contributing ideas and also committing themselves fully in this project. (Student TG4.3, 2012)

These students' feedback concur with the findings of studies by Ellison, Steinfield and Lampe (2007), Kabilan, Ahmad and Abidin (2010) and Ng and Wong (2013), in that social media such as Facebook, provides a collaborative landscape to learning and teaching, allowing increased peer interaction as well as interaction between the educator and the students in a highly engaging manner.

There was only one negative feedback received on the use of Facebook in completing the assignment:

"I have mixed feelings about using Facebook as a communicating medium. I like that it is online-based and we can access it at our convenience and share our thoughts and discussions in our own comfort. However, it is hard to actually encourage the others to engage in an effective discussion as only a few of the members in our class did so. This makes it hard to get feedback on our opinions to see if what we did is correct or otherwise." (Student TG1.3, 2012)

Despite the negative feedback given, this student went on to write that:

"I felt that the economic forum was a spectacular experience for me. It was the first time since I enrolled in this degree that my whole course mates participated in something as a complete group and it felt grand." (Student TG1.3, 2012)

Aside from conducting a content analysis of the students' reflections, a survey in the form of a structured questionnaire was carried out to elicit further findings on the effectiveness of using social media for learning and teaching purposes. The questionnaire contained sections of items measuring two constructs. The first section of items combined to become one construct, namely the "Facebook as an educational tool" construct, utilising a 5-level Likert scales of 'Strongly disagree' to 'Strongly agree', with a high Cronbach alpha score of 0.837. The other section of this questionnaire contained items that probed into the learning experiences of the students undertaking the Macroeconomics modules. The "Graduate Capabilities" construct comprising of 17 items also had a high Cronbach alpha score of 0.903, making it a reliable construct for analysis purposes. The results of the survey are shown in Fig. 1 and Fig. 2.

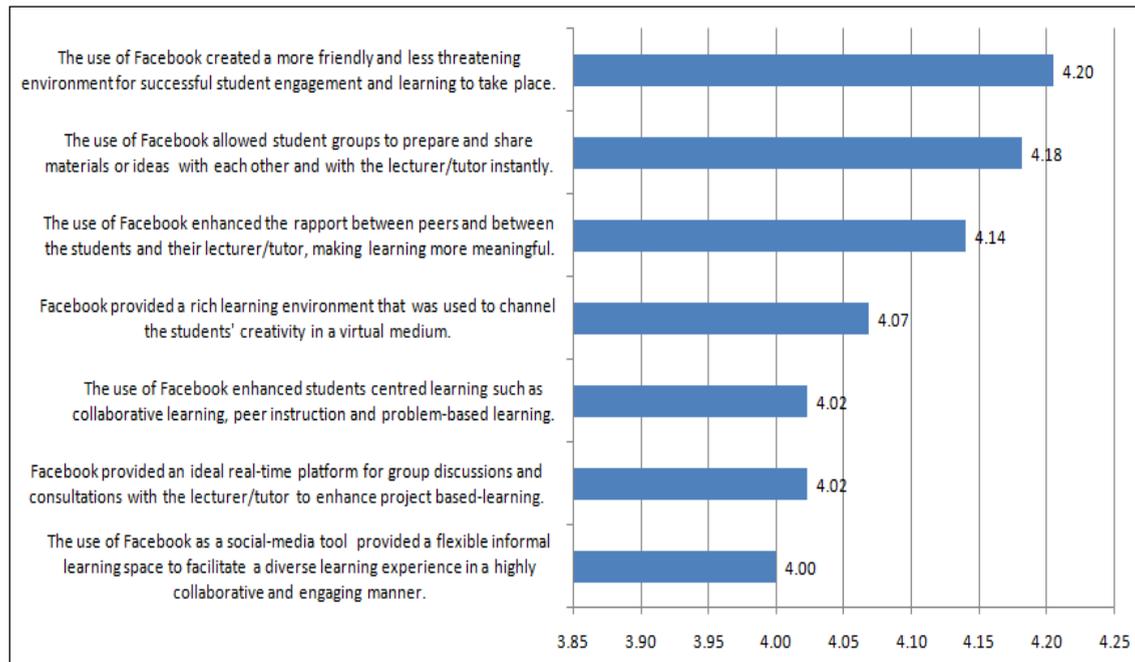


Fig. 1. Facebook as an Educational Tool

The results of the survey clearly complement the findings of the content analysis in that Facebook was a medium of exchange that created a less threatening and flexible learning space which enhanced collaborative learning, while building a stronger rapport among the students and their lecturer in a highly engaging manner as shown in Figure 1. These findings concur with those of Cress and Kimmerle (2008), Schroeder, Minocha and Schneider (2010) and Dunn (2012) who found that social media enhanced learning experience by increasing student motivation and engagement, enhancing student-to-student and student-to-lecturer interaction and providing the students with skills most sought after in aiding their employability and increasing levels of satisfaction.

Figure 2 on the other hand, shows evidence that the module and its assessments had enhanced the students' competences, namely in defining and analysing problems to arrive at effective solutions and in locating, extracting and utilising information.

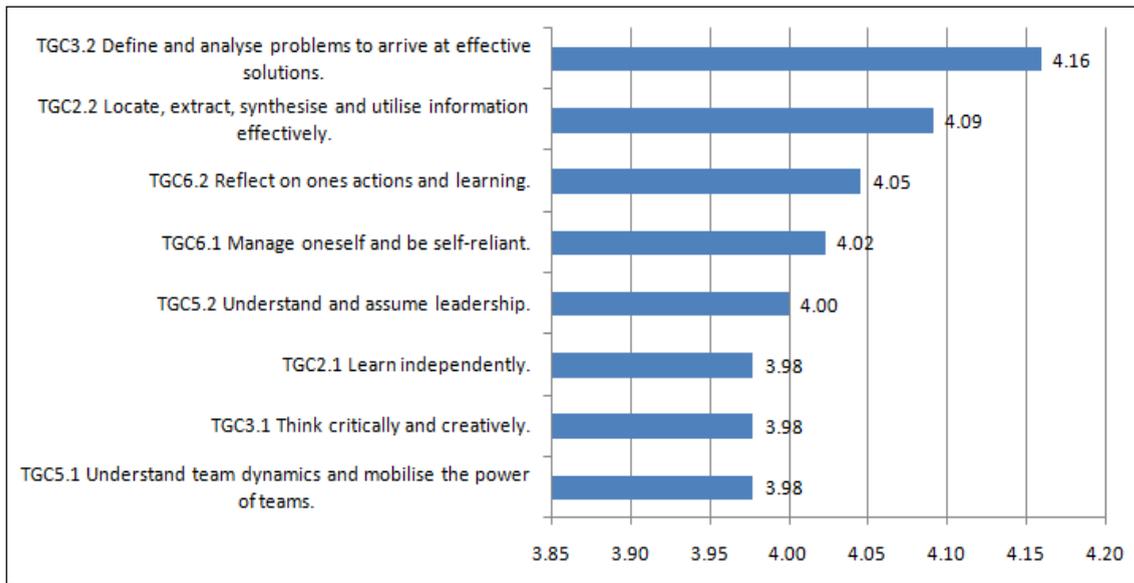


Fig. 2. Graduate Capabilities

5. Conclusion and Implications

The study does have some limitations, especially with respect to the sample size which is quite restricted. The questionnaire developed for this study has room for further improvement. Despite this, the findings provide clear evidence of the effectiveness of using social media via Facebook to enhance team-based learning outside the classroom, complementing face-to-face lessons. The findings of the five constructs of learning that emerged, strengthens the argument for the use of Facebook as an effective learning and teaching tool. The results of this study provide tentative evidence that students in the current era, perceive the use of Facebook to be beneficial for instructional purposes. The rapid growth and current popularity of Facebook and other social media tools has enhanced their role as mainstream communication tools not only for learning and teaching purposes, but for various other beneficial purposes. Therefore, the implication of this study is the need for higher education providers to be more open to explore utilising a wide spectrum of blended learning tools available to them in order to create a more learner-centred environment for lessons to take place. The time is ripe for educators to take managed risk and explore creative methods of learning and teaching.

The findings concur with those of several other studies, showing how social networking sites such as Facebook make very effective learning platforms that enhance students' engagement and learning experience, transforming them into active learners with an increased motivation to learn while fostering high quality exchange of ideas and knowledge among participants in a learning community (Wang et al., 2012; Roblyer et al., 2010; Selwyn, 2009; Bosch, 2009; Barnes, Marateo and Ferrisare, 2007; Tsai, 2003; Garrison, 1999).

This study found evidence that utilizing Facebook created a more positive and less-threatening learning environment which enhanced the students' engagement and learning experience while creating a stronger rapport between each other and with the lecturer. It was also discovered that Facebook provided a rich team-based learning environment that was used to channel the students' creativity in a virtual medium. Facebook was utilised as a virtual learning space to conduct group discussions and aid students to finalise their projects. Both student-centred learning as well as intentional learning, the two basic tenets of the University's Teaching and Learning framework was further enhanced as a result of this team-based learning activity. The graduate capabilities or competences that students acquired or further included communication skills, team work skills, interpersonal and intrapersonal skills, leadership skills, time management, discipline-specific knowledge and digital literacy skills.

As Rasiah (2009) aptly concludes in her study on the transformed role of teachers and the need for student engagement: “When an activity is carefully planned and organized (where the learning outcomes are clearly explained), engaging students from the very beginning (student-centred in nature), students of diverse backgrounds will become actively involved and take responsibility for their own learning”; emphasizing the need for careful planning and reflection on the part of the educators in employing the right teaching and learning techniques and assessments that are most effective in promoting the highest levels of motivation, learning and achievement for all learners. Last but not least, let’s not forget that technology alone cannot bring transformation as what is far more important is the all-compassing pedagogy without which, no amount of technology can transform a student.

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