USE OF SOCIAL MEDIA, STUDENT ENGAGEMENT, AND ACADEMIC PERFORMANCE OF BUSINESS STUDENTS AT UNIVERSITI UTARA MALAYSIA

BY

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MASTER OF SCIENCE (MANAGEMENT)

UNIVERSITI UTARA MALAYSIA

2015

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ABSTRACT

Social media is considered an important phenomenon in today's generation and is more popular among youngsters in many nations. This study aims to investigate the effect of social media on academic performance of students of College of Business at Universiti Utara Malaysia through the mediation of student engagement using self-determination theory. A total number of 227 students were randomly chosen to participate in this study. Questionnaire was used as the main data collection technique, which was personally administered during class sessions. Structural equation modelling-partial least square (SEM-PLS) was used as the main data analysis to test the research hypotheses. Result showed no direct relationship between social media and academic performance, but the effect was mediated by agentic engagement and behavioural engagement. The result suggests that social media has the potential to be used in a learning environment as it promotes engagement of student in class and subsequently their academic performance and success. Recommendations for future research and limitations of the study are also highlighted.

Key words: social media, academic performance, student engagement, self-determination theory, university students

ABSTRAK

Media sosial dianggap satu fenomena penting dalam generasi hari ini dan lebih popular dalam kalangan anak-anak muda di banyak negara. Kajian ini bertujuan untuk mengkaji kesan media sosial terhadap prestasi akademik pelajar Kolej Perniagaan Universiti Utara Malaysia melalui perantaraan penglibatan pelajar dengan menggunakan teori penentuan nasib kendiri. Seramai 227 pelajar telah dipilih secara rawak untuk mengambil bahagian dalam kajian ini. Soal selidik telah digunakan sebagai teknik pengumpulan data utama, yang telah ditadbir kendiri semasa sesi kelas. *Structural equation modelling-partial least square* (SEM-PLS) telah digunakan sebagai analisis data utama untuk menguji hipotesis kajian. Keputusan menunjukkan tiada hubungan langsung antara media sosial dan pencapaian akademik, tetapi kesannya diperantara oleh penglibatan agentik dan penglibatan tingkah laku. Hasil kajian menunjukkan bahawa media sosial mempunyai potensi untuk digunakan dalam persekitaran pembelajaran yang kerana ia menggalakkan penglibatan pelajar di dalam kelas dan seterusnya pencapaian dan kejayaan akademik. Cadangan untuk kajian dan batasan kajian masa hadapan adalah juga diserlahkan.

Kata kunci: media sosial, pencapaian akademik, penglibatan pelajar, teori penentuan nasib kendiri, pelajar universiti

بسم الله الرحمن الرحيم

ACKNOWLEDGEMENTS

All praise due to Allah S.W.T for giving me the strength, courage and determination to complete this study.

I would also like to thank my supervisors, Dr. Darwina Hj. Ahmad and Dr. Faridahwati Mohd Shamsudin, for their advice, guidance, critical assessment and useful suggestions during the entire course of this study. Big thanks to you Drs.

I must thank my internal examiner, Dr. Shahbudin Bin Ishak, for providing me with fruitful feedback and critical suggestions to my thesis, and to Dr. Fais Ahmad who chaired the viva session for his insightful observations and advice.

I would like also to thank my parents for their selfless and endless support. Forgive for being away from you and for not able to spend much time with you. I promise I will be home to be with you once I have achieved my aspiration. To all my brothers and sisters, thank you for all the warmth and support all this time.

Mohammad Sa'id Alshuaibi
June 2015

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

The evolution of the Internet has helped empower users in a wide variety of ways. One of the more interesting transformations occurring in higher education is the use of existing technologies to help advance educational concepts and connect with students in new and meaningful ways (Bergen, 2000). Social media is a huge part of this technology use. The integration of social media within the education sphere is made easier because nowadays college students tend to have an account on many social media sites. For instance, a new survey conducted by the Pew Research Centre on American adults who use the Internet found that 53 percent of young adults ages 18-29 uses Instagram and overall Facebook remains the most popular social media site (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015). The survey also reported that 58 percent of them had Facebook, 23 percent used LinkedIn, 22 percent used Pinterest, 21 percent used Instagram, and 19 percent Twitter.

The proliferation of online social media has undoubtedly affected how students nowadays learn. Twenty first century learners, often considered critically engaged learners, are the technologically savvy students in today's classrooms (Moore et al., 2008). They tend to have access to technology at home, including MP3 players, cell phones, personal computers, and other multi-media devices. They also tend to be plugged into social media sites such as Facebook, Twitter, Instagram, Pinterest, YouTube and many more throughout the course of their everyday activities (Rhoades, Friedel, & Irani, 2008). In this manner,

technology is a key difference in the way students in the 21st century gather knowledge as compared to their counterparts enrolled in higher education in previous centuries.

Social media is different from more traditional forms of media because it allows students or users to interact more closely with their peers and teachers and engage and comment on the course material (DeAndrea, Ellison, LaRose, Steinfield, & Fiore 2012). This peer-to-peer or student-to-teacher outside the classroom environment contact allows for a more engaging experience for the user, offers many opportunities for students to interact with information, and provides a richer experience than traditional media (Stageman, 2011). By interacting with the material and commenting, reshaping, and sharing the messages presented to them over social media, students are able to invest more time and energy into that material (Kuh, 2001). Indeed, Browing, Gerlich and Westermann (2011), who surveyed 141 undergraduate students regarding their beliefs and perceptions about social media, revealed that students had a strong and favorable perception of social media and a high degree of willingness to embrace social media as a way to deliver course content.

Although higher education institutions are trying to understand how to integrate online social networking tools such as Facebook and YouTube into the campus culture to connect with students (Kolek & Saunders, 2008), whether or not the application of such tools is useful is still debatable as research data produced no consensus as to whether social media use is a positive or negative predictor of academic participation (Junco, 2012). Hence, a systematic investigation needs to be conducted to validate and confirm the assertion that social media use is indeed capable in making a difference in the students' learning experience.

1.2 Problem Statement

Social media is used extensively by college students, and increasingly by college faculty. However, the literature reveals a paucity of research on the effect that media outlets use on the learner retention and academic success (Junco et al., 2011) especially within the context of higher education setting (Junco, 2012). Secondly, even the existing studies on the effect of social media do not produce consistent results, reflecting the on-going debate about the usefulness and benefits of social media integration in learning experience. For instance, while some found a positive effect of social media use on academic performance (e.g., Ainin, Naqshbandi, Moghavvemi, & Jaafar, 2015; Al-rahmi, Othman, Yusof, & Musa, 2015; Junco, Heiberger, & Loken, 2011; Yu, Tian, Vogel, & Chi-Wai, 2010), others found a negative link (e.g., Akyildiz & Argan, 2012; Hamat, Embi, & Abu Hassan, 2012; Junco, 2015; Kirschner & Karpinski, 2010). Yet, others found no link (e.g., Alwagait, Shahzad, & Alim, 2014; Camilia, Ibrahim, & Dalhatu, 2013; Hargittai & Hsieh, 2010; Ozer, Karpinski, & Kirschner, 2014).

The mixed findings suggest that the relationship between social media use and academic performance may not be as direct as previously thought, and it may be mediated by a third factor. At the heart of the debate is whether the use of social media tools will help students to be more engaged in their learning experience. Student engagement is an important concept within the education sphere because it can predict whether a student will achieve academic progress, performance, and growth. Student engagement has been studied as a mediator in previous studies (Curby et al., 2009); however, to what extent it mediates the social media-academic performance link within the Malaysian context is yet to be investigated. Indeed, studies on social media use for academic purposes in Malaysia

are very limited to date, as suggested by Leng et al. (2011), and Salvation and Adzharuddin (2014).

As Malaysia aspires to become a developed nation in 2020, it requires human capital that is strongly based on knowledge. A knowledge-based society will allow the country to diversify its economic activities and reduce reliance on export-led manufactured activities. In the course of developing a knowledge-based society, many higher academic institutions in the country have begun to experiment with the integration of social media in their course delivery and content (Barbour & Reeves, 2008). Such move is driven by the understanding that the integration can help the learning-teaching experience more meaningful and effective (Harris, 2012).

In the attempt to help understand how the use of social media affects student learning experiences and outcomes, we employ self-determination theory (SDT). To date, SDT has not been used to explain the role of social media in determining individual academic performance particularly with the consideration of student engagement as a motivational process that links between the two even though some scholars tend to equate engagement with motivation (see Fredericks & McColskey, 2014 for further discussion). So in this regard, we intend to contribute to self-determination theory by integrating student engagement as possible motivational mechanism that links between social media use and academic performance.

1.3 Research Questions

Based on the gaps highlighted above, the present study attempts to answer the following research questions:

1. What is the level of use of social media among students of higher academic institutions?
2. Does the use of social media play a role in student's academic performance?
3. Is the link between the use of social media is mediated by student engagement?

1.4 Research Objectives

Consistent with the above questions, the present study aims to examine the influence of the use of social media on student's academic performance through student engagement. Specifically, the present study attempts to meet the following objectives:

1. To determine the level of use of social media among students of higher academic institutions.
2. To investigate the relationship between the use of social media and student's academic performance.
3. To examine the mediating role of student engagement in the relationship between the use of social media and academic performance.

1.5 Significance of Study

The findings of the proposed study can contribute to both theory and practice. From the theoretical perspective, this study aims to contribute to the ongoing debate and literatures by exploring the effect of social media on academic performance through student engagement in the Malaysian context. Although studies on the role of social media in student learning are growing in the West, they are very limited in number in Malaysia. Furthermore, this study is important as it further contributes to the growing literature on

student engagement. In particular, it seeks what role social media plays in influencing student engagement and hence the learning outcomes.

Practically speaking, if the findings are correct, the present study will help practitioners and academicians and decision makers re-examine the teaching methods by employing more roles of social media in order to achieve higher levels of student engagement and better academic performance.

1.6 Scope of Study

To answer the research questions and meet the research objectives, a survey was conducted among university students at one of the universities in the northern region of Malaysia. The university, which specializes in management studies, was chosen because it has begun to integrate social media as educational tools to enhance students' learning experiences.

1.7 Key Terms and Definition

The following are the key terms used in the present study and their definition.

1.7.1 Academic performance

Academic performance is defined as having two components: objective and subjective assessment. The objective assessment is measured by the cumulative grade point average (CGPA). The use of the objective measure of CGPA is appropriate in the study because it is the most common measure of academic performance/ability used in many higher education institutions around the world (Junco, 2015). On the other hand, the subjective assessment is defined as the degree to which students are satisfied with their current CGPA.

1.7.2 Social media and its use

Social media is defined as an internet-led technology used for promotion of social interaction among the user community (Hussain, 2012). To enhance communication, media tools and internet sites termed social networking sites (SNS), which have audio and visual capabilities, are used. Some examples of SNS tools and internet sites include Facebook, Twitter, LinkedIn, MySpace, WhatsApp, YouTube, and Yahoo, to name a few. All these SNS allow people to connect with other for various purposes such as sharing common interests in sports, politics, academics, and culture. In this study, social media and SNS are used interchangeably because social media tends to be more inclusive than SNS as it "includes platforms that allow users to communicate with one another and to share content online" (Hamidy, 2014, p. 16).

Use of social media is defined as frequency of logging in to social media for academic purposes (Lindberg & Tavakoli, 2013; Stagno, 2010).

1.7.3 Student engagement

Generally speaking, engagement refers to the extent of a student's active involvement in a learning activity (Reeve, 2014). Student engagement is a multi-dimensional construct of four dimensions or components (Fredericks & McColskey, 2014; Reeve, 2014), as follows:

a. Behavioural engagement reflects students' involvement in academic, social, or extracurricular activities. A student is said to be behaviourally engaged when he/she follows the rules, adheres to classroom norms, and refrains from committing disruptive behavior.

b. Emotional engagement focuses on the extent of positive (and negative) reactions to teachers, classmates, academics, or school. A student is said to be emotionally engaged when, for example, he/she identifies with the school or feels that he/she is important to the school.

c. Cognitive engagement is defined as student's level of investment in learning. It includes being thoughtful, strategic, and willing to exert the necessary effort for comprehension of complex ideas or mastery of difficult skills.

d. Agentic engagement reflects the idea that students are active agents in their learning experiences and in so doing do not simply wait passively for instructions from their teachers; rather they also contribute actively and proactively to their learning activities such as by asking questions, making suggestions, and seeking clarifications.

1.8 Outline of Research Report

This research report is organized in five chapters. The first chapter sets the background of the study. In particular, it explains the rationale for conducting the study by highlighting the practical and theoretical gaps that exist in the present body of knowledge. It then delineates the research questions, research objectives, significance and scope of the study. The key terms used in the study are also noted here.

The second chapter discusses the state-of-the-art literature on the role of SNT in influencing student's engagement and academic performance. Relevant literatures are used to develop the research hypotheses. In this chapter also, a discussion on self-determination theory that underlies the present study is offered.

The third chapter explains in detail how the study was practically carried out. Methodological issues such as sample and population, sampling method, data collection procedure, survey design, instrumentation, and data analysis are elaborated.

The fourth chapter presents the results derived from the data collected. The results are then discussed in relation to self-determination theory and previous works in chapter five. The last chapter also highlights implications to practice and future research. Also, some limitations of the present study are noted. Some final remarks conclude the research report.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In the previous chapter, background information on the need to investigate the role of social networking tools (social media) in academic performance through student engagement was presented. In this chapter, we attempt to present the relevant literatures to assist us in developing our hypotheses. Toward this end, we first discuss self-determination theory that essentially underpins our work before moving on to conceptualizing the main constructs under investigation, starting with social media and its use, student engagement, and academic performance.

2.2 Self-Determination Theory (SDT)

This theory was developed by psychologists Edward Deci and Richard Ryan (2000a). This theory is essentially a motivation theory. It proposes that individuals have three primary needs: need for competence, autonomy, and connection or relatedness. The need for competency reflects the desire for individuals to gain mastery of tasks and learn different skills, while the need for connection/relatedness refers to the desire for the individuals to relate to others. Finally, when individuals feels that they have to be in control of their goals and behaviours, they are said to have the need for autonomy. In essence, these three needs reflect the need for individuals to grow and develop themselves. In order for them to grow, individuals are motivated to behave in ways to fulfil their needs. Deci and Ryan (2000b)

further postulated that the social environment plays an important role in facilitating individual growth.

In the context of the present study, SDT is relevant because we assume that students of higher learning institutions are growth oriented. This means that the students desire to be competent, to relate to others, and to exercise autonomy. Social networking sites (social media) are an important tool within the social environment that facilitates the achievement of personal goals, which in this case good academic performance. The use of social media allows them to master new skills and technologies, connect with others, and take charge of their learning experience in ways that make them more engaged in their studies.

In sum, essentially a theory of motivation, SDT assumes that individuals have innate propensity for personal growth and development (Ryan, Kuhl, & Deci, 1997). To help them grow, individuals are motivated to use cues from the social environment. In the context of education, students use social media to be successful academically because such tools enable them to be more engaged and experience meaningful learning experiences.

Thus, consistent with SDT, the key constructs of use of social media, student engagement, and academic performance are conceptualized below.

2.3 Social Media and Social Networking Sites (SNSs)

Social media consists of two key words: "social" and "media." According to Safko (2010), the combination of these words reflects the innate desire of human being to connect with others in one way or another through various media/means (reflected in the contemporary technologies of communication). Closely related to the term "social media" are social networking sites or social network sites (SNSs). As with social media, social networking

sites refer to the platforms that individuals can use to connect, relate and communicate with others. So, in the context of the present study, social media and SNSs are going to be used interchangeably.

With the invention of the Internet and hence the proliferation of social media platforms, such as Facebook, MySpace, LinkedIn, Twitter, and Google Plus, for instance, the social connection is enlarged and expanded beyond physical space, boundary, and time. Now, individuals can connect, relate, and communicate with each other at their own pace and convenience anywhere and everywhere. For these reasons it is not surprising that SNSs tools such as Facebook and Twitter have garnered a lot of subscribers, as seen from the survey conducted by the Pew Research Center in 2014. Figures 2.1, 2.2, and 2.3 below show the staggering growth of social media subscription vis-à-vis the world population, the use of social media using various platforms, and the time spent on social media.

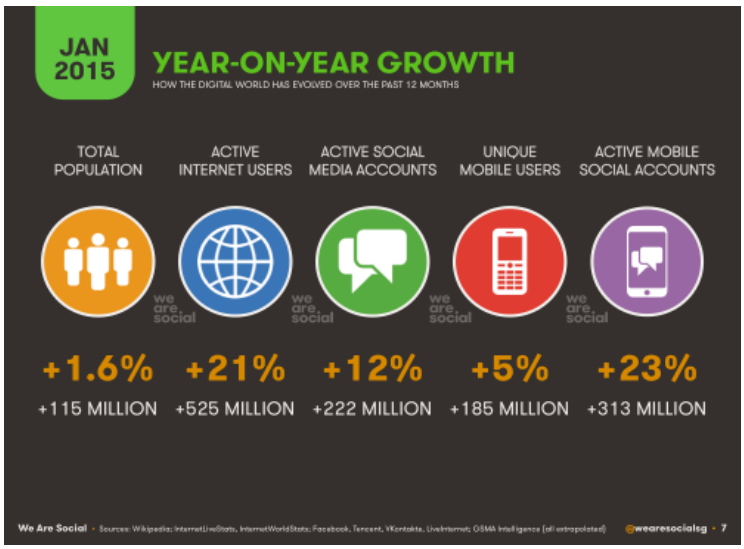

Figure 2.1
Evolution of the digital world in the last 12 months
Source: Digital, Social and Mobile in 2015
(http://wearesocial.net/blog/2015/01/digital-social-mobile-worldwide-2015/)

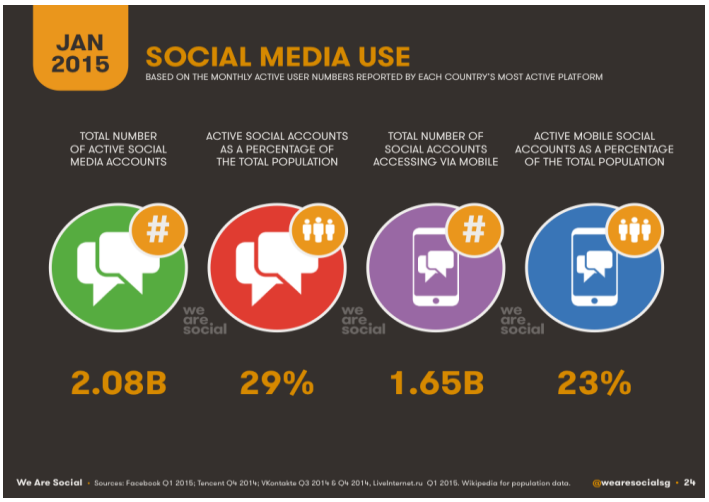

Figure 2.2
Social media use
Source: Digital, Social and Mobile in 2015
(http://wearesocial.net/blog/2015/01/digital-social-mobile-worldwide-2015/)

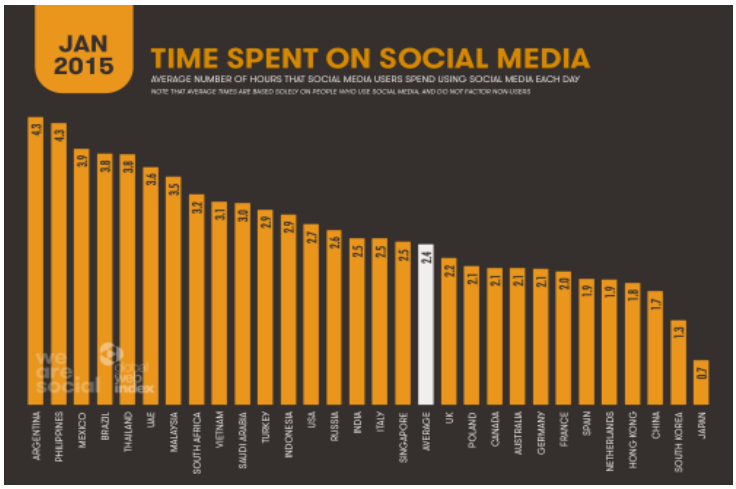

Figure 2.3
Time spent on social media
Source: Digital, Social and Mobile in 2015
(http://wearesocial.net/blog/2015/01/digital-social-mobile-worldwide-2015/)

Some of the staggering information about social media growth reported by Digital, Social and Mobile in 2015, who surveyed 30 different countries on all things digital, reproduced here is as follows:

- Worldwide social media users exceeded 2 billion in August 2014.
- Social media continues to grow apace around the world, with active user accounts now equating to roughly 29% of the world's population.
- Monthly active user (MAU) figures for the most active social network in each country add up to almost 2.08 billion – a 12% increase since January 2014.
- Facebook continues to dominate the global social media landscape, claiming 1.366 billion active users in January 2015. Crucially, 1.133 billion of the platform's global users – 83% of the total – now access the service through mobile devices.

2.3.1 Use and applications of social media/SNSs

Why the use of social media or SNS? Within the context of educational environment, students use social media for variety of purposes, which can be broadly categorized into two groups: for academic and non-academic purposes. The latter is also known as socializing purposes. Various studies have confirmed the various uses of social media. For instance, In Pakistan, Hussain (2012) conducted a study among 600 university students to examine their use of social media. He found that the students used social media like Facebook for both academic and non-academic purposes. For instance, 92 percent of them used it for enjoyment, 73 percent for searching and making friends, 76 percent for sharing their learning experiences and research findings, 59 percent for sharing academic events over the media, and 92 percent for getting the latest information related with their studies.

A big majority (87%) used it for academic networking at national and international level. Yet 80 percent used social media for killing the time.

But importantly, within the educational setting, social media can be used to support the creation of supportive social networks and learning communities. The perception that a student is a part of a caring and supportive campus environment not only reduces feelings of isolation, but has been identified as a factor that contributes to increasing persistence rates and academic success for at-risk students (Kuh et al., 2007).

2.4 Student Engagement

Various terminologies have been used to describe student engagement. Burrows (2010) cited different terms of engagement that have been used by scholars and researchers in the last 25 years. Among the terms used include engagement, academic engagement, and participation identification. Not only do the terms differ, student engagement has also been defined differently by different authors. The following highlights some of them:

a. The time and effort students invest in educational activities that are empirically lined to desired college outcomes (Kuh, 2009).
b. The centripetal experience of bonding the student to the school (Veiga et al., 2012).
c. The extent of a student's active involvement in a learning activity (Reeve, 2014).

Nonetheless, despite the variety of terms used, Burrows (2010) noted that they share similar features of behavioural, emotional and psychological components. Reeve (2014) tends to agree that student engagement is a multi-faceted or multi-dimensional construct. In a similar vein, Fredericks and McColskey (2014) defined student engagement

as a meta-construct that includes behavioural, emotional, and cognitive engagement. They defined each component as follows (p. 764):

e. Behavioural engagement draws on the idea of participation and includes involvement in academic, social, or extracurricular activities. A student is said to be behaviorally engaged when he/she follows the rules, adheres to classroom norms, and refrains from committing disruptive behavior.
f. Emotional engagement focuses on the extent of positive (and negative) reactions to teachers, classmates, academics, or school. A student is said to be emotionally engaged when, for example, he/she identifies with the school or feels that he/she is important to the school.
g. Cognitive engagement is defined as student's level of investment in learning. It includes being thoughtful, strategic, and willing to exert the necessary effort for comprehension of complex ideas or mastery of difficult skills.

However, Reeve and Tseng (2011) contended that these three components do not reflect the reality and dynamic nature of student-teacher interactions. They noted,

In large, diverse, fluid, and multi-activity classrooms in which teachers are engrossed in instruction, teachers necessarily miss (are unable to monitor) a good deal of students' displays of engagement vs. disengagement. What is missing from an understanding of how students intentionally contribute into the instruction they receive is a direct (rather than inferential) path (pp. 257–258).

Because students also contribute constructively and proactively to what they learn, they propose the fourth component of student engagement, i.e. agentic engagement. They

defined agentic engagement as "students' constructive contribution into the flow of the instruction they receive" (p. 258). In this component, students are assumed to be an active agent in the learning process. Instead of just receiving information, they also provide information to the whole learning process by giving suggestions, asking questions, seeking clarifications, etc.

In this study, student engagement is defined consistent with Reeve's (2014) proposition in that it consists of four components i.e. behavioral, emotional, cognitive, and agentic.

2.5 Academic Performance

In this study, academic performance is defined as having two components: objective and subjective assessment. The objective assessment is measured by the cumulative grade point average (CGPA). The use of the objective measure of CGPA is appropriate in the study because it is the most common measure of academic performance /ability used in many higher education institutions around the world (Junco, 2015). On the other hand, the subjective assessment is defined as the degree to which students are satisfied with their current CGPA.

The topic of academic achievement is important because it directly decides the positive outcomes of the students after graduating. Studies showed that students who were successful academically tended to be more employable and received higher salary than those who did poorly in their academic studies (Pan & Lee, 2011). Other scholars also contend that academically successful students will be able to tackle the technologically demanding occupations (Lent, Hackett, & Brown, 1999). In other words, academic

achievement is important for future career development and growth. In addition to career wise, students who did well in their academic studies tended to refrain from engaging in negative behaviors such as participation in sexual activities (Schvaneveldt, Miller, & Berry, 2001), misuse of alcohol and social unexpected performance (Kasen, Cohen, & Brook, 1998), and chemical abuse (Hallfors et al., 2002).

2.6 Empirical Evidence

The following sections present previous works on the use of social media, student's engagement, and academic performance. Because the literatures indicate two disparate streams of research, i.e. use of social media and student's engagement, and student's engagement and academic performance, we present the literatures as such.

2.6.1 Use of social media and academic performance

At least there are two opposing views on the effect of social media on academic performance. One of the social media platforms that is most popularly used is Facebook (Junco, 2015). As such, many studies have been conducted on the use of Facebook and its impact on students' learning experiences. Despite the scholarly interest in the role of Facebook as an important learning platform (Junco, 2015), studies that investigated its impact have produced mixed result. The mixed findings support the on-going debate on the impact of social media on individuals' well-being in general (Ainin et al., 2015). The following presents empirical evidence on the role of social media particularly Facebook on students' academic performance. As shown, the results are split into three major camps: positive link, negative link, and no link.

2.6.1.1 Positive evidence of social media use

The optimists believe that social media use in a learning and academic environment is facilitative toward student's academic progress and achievement (Yu et al., 2010). This is because social media allows collaborative learning, where students learn from peers and teachers not only in the classroom but also outside the classroom. Through social media such as Facebook, students can find support from their peers and teachers with regards to their learning experiences. They can share information and exchange ideas on their course assignments or projects, which contribute to their academic development and progress. It is through knowledge sharing exercise that enhanced understanding of the course content can be enhanced and hence their academic performance (Ainin et al., 2015). To support their Ainin et al. (2015) surveyed the effect of Facebook use on the academic performance of 1165 Malaysian university students. They found that when the students used Facebook more frequently, the better they performed academically.

Also in Malaysia, Al-rahmi et al. (2015) found a significant and positive relationship between social media use and academic performance with collaborative learning as the mediating variable of that 323 research students in one public university in Malaysia. Their result suggested that social media was able to allow collaborative learning to take place among students and teachers. When such collaboration took place, the students' learning process was enhanced, which increased their academic performance.

In his experimental study to examine the effect of Twitter on student engagement and grades among 125 students taking a first year seminar course for pre-health professional majors, Junco, Heiberger, and Loken (2011) found that 70 students who were in the experimental group showed a significantly greater increase in engagement as well as

higher semester grade point averages than the control group. In the experimental group, the students had used Twitter for various types of academic and co-curricular discussions. No treatment was provided for the control group. He recommended that Twitter can be used as an important learning tool for students' academic and psychosocial development because Twitter can improve contact between students and faculty, encourage cooperation among students, promote active learning, provide prompt feedback, and maximize time on task. In a later study, Junco, Elavsky, and Herberger (2013) found that regular use of Twitter amongst students and teachers enhanced students' engagement and their grades.

2.6.1.2 Negative evidence of social media use

The pessimists, on the other hand, argue that social media can be detriment to students' academic growth and progress because it distracts their attention from learning (Tariq et al., 2012). That is, instead of using it for academic purposes, students tend to use it for socializing activities. Other researchers also supported such claim (e.g., Akyildiz & Argan, 2012; Hamat, Embi, & Abu Hassan, 2012) and concluded that social media users spend more time for socializing rather than learning. This is because, they noted, excessive use of social media reduces student's academic performance since time meant for studies is used on non-academic issues like chatting and making friends.

In a later study, Kirschner and Karpinski (2010) confirmed the findings of previous research. In their explorative study, they surveyed the differences in the academic performance of college student FB users and nonusers. Academic performance was measured by self-reported Grade Point Average (GPA) and hours spent studying per week. They found that users of Facebook reported having lower GPAs than non-users of

Facebook and that the former spent less time studying. For the users, the negative impact on academic performance was attributed to procrastination behavior.

In a study to investigate whether the negative relationship between Facebook use and academic achievement can be mitigated by multitasking, Junco (2015) online surveyed 1774. U.S. university students in the north-eastern United States. He found that GPA of freshmen was negatively affected by the time they spent on Facebook. He further observed that when students multitasked with Facebook, all students (i.e. freshmen, sophomores, and juniors) except seniors performed poorly as reflected in their GPA. He explained that freshmen's poor GPA performance was attributed to their being "new" to the university environment where they have yet to learn how to develop important academic skills such as multitasking. In his earlier study on 1839 college students in the USA, Junco (2012) also found that time spent on Facebook predicted negatively and significantly students' actual GPA. Despite the negative relationship found, Junco dismissed the notion that time spent on Facebook is detrimental to academic performance. This is because the time spent on Facebook did not influence the academic task of studying. He remarked that whether or not the time spent on Facebook would make a difference in performance depends on how Facebook is being used.

In a different study involving 314 middle and high school students of African American and Hispanic descents in the USA, Lee (2014) examined the effects of Facebook use and text messaging on their academic performance, measured by math grades. He revealed a negative relationship between Facebook and math grades, while cell phone ownership was found to be associated with self-identity and their sense of self-worth. In Germany, Skiera, Hinz, and Spann (2015) also found a negative relationship between

Facebook use and academic performance for both male and female students. Academic performance was measured by GPA of students. They explained that Facebook use means misappropriation of time, which is a limited resource. So when the students spend their time more on Facebook, their time for studying is limited.

2.6.1.3 No evidence of social media use

In addition to the two groups of research, some researchers were not able to find a significant link between social media use and academic achievement. For instance, in a study among Nigerian students, Camilia et al. (2013) observed that the frequent use of social media by students had no effect on their studies. In Saudi Arabia, Alwagait, Shahzad, and Alim (2014) found support for Camilia et al.'s study. Collecting data from university students in Saudi Arabia, they observed that the frequent use of social media did not have any significant effect on their academic performance, measured by CGPA of the students.

Hargittai and Hsieh (2010) found that neither social media usage intensity nor social practices performed on these sites is systematically related to students' academic performance. Ozer, Karpinski, and Kirschner (2014) conducted open-ended surveys among students in the US and Europe. They attempted to examine the impact of social networking sites (SNSs) and students' academic performance. They found that, overall, the majority students perceived that SNSs did not have any impact on their grades.

Other studies also found insignificant result between social media use and academic performance (e.g., Ahmed & Qazi, 2011; Lubis et al., 2012). In explaining the non-significant relationship, Ahmed and Qazi (2011) concluded that because Pakistani students were able to manage their time efficiently and fulfill their study requirements, the use of

SNSs did not have bearing on their academic performance. In three separate studies, Pasek, More, and Hargittai (2009) were not able to find robust evidence that the use of Facebook is associated negatively with students' GPA. Their findings suggested that Facebook users and Facebook non-users were less likely to have significant grades. In their quasi-experimental study, Smith and Tirumala (2012) also did not find significant correlation between Twitter use for class discussion and higher scores on objective questions testing students' memory of class content. Despite the insignificant result, they dismissed the idea that Twitter is not an effective teaching tool because "Perhaps the benefits of social media use are found for students in additional knowledge that Twitter users could accumulate from their classmates" (p. 28).

In sum, since the majority of the empirical evidence on social media-academic performance indicates a negative relationship, hence, we hypothesize:

H1: Use of social media is negatively linked with academic performance.

2.6.2 Use of social media, student engagement, and academic performance

Student engagement reflects how much time and energy students invest in educationally purposeful activities (Kuh et al., 2007) such as interacting with their peers and instructors and engaging in active and collaborative learning activities (Kuh, 2001). Many practitioners and scholars embrace the use of social media in an educational setting because it is purported to enhance student engagement. Through social media, students can share, discuss and collaborate with each other, which led to enhanced and meaningful learning experiences (Tur & Marin, 2015).

Because social media offers a communication platform, it can be used to enhance and increase the number of interactions between students and their teachers because such platform can overcome and address the barriers of time and location (Yourstone, Kraye, & Albaium, 2008). For instance, students can collaborate, discuss and share information at any time and at any place. Junco et al. (2011) highlighted the benefits of Twitter in their study. They argued that when students used Twitter in their study, they could discuss the course materials beyond the normal class time and they could even engage in conversations about the topics for hours and even days even after the materials were introduced. In addition to overcoming time and location barrier, use of social media also presents a good opportunity for students who may find classroom interactions intimidating (Chickering & Ehrmann, 1996).

In their frequently cited paper that outlines the principles for good practice in undergraduate education, Chickering and Gamson (1987) eloquently noted that:

> Learning is not a spectator sport. Students do not learn much just sitting in classes listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning, write reflectively about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves (p. 4).

In order for this principle to work effectively, social media can be used. This is because it promotes active learning amongst students; they are no longer passive consumers but active co-producers of content (Rutherford, 2010). By sharing and developing the content in the social media platform, students allows others to scrutinize

the way they think and understand the course materials. In this way, they learn from each other's multiple intelligences, which leads to a more nuanced perspective of about the course material.

Within SDT perspective, social media is an important cue in the social/educational environment that allows individuals to meet their needs for competence, connection, and autonomy. In other words, the use of social media provides an opportunity for growth because it fulfils the three needs. With social media, students are able to garner various academic skills through sharing and exchanging of ideas. It also connects students with their peers and their instructors in an educational setting. Finally, social media offers an important choice for students to control their own personal growth through collaborative and active learning.

Literatures suggest that social media use tends to enhance student engagement. For instance, Junco et al. (2011) analysed Twitter communications among students on course materials. Their analysis showed that Twitter enhanced the learning and teaching experiences that could not have been possible in traditional classroom setting. For instance, they found that the students had extended and rich conversations with their teachers on the course materials and were more comfortable in expressing their feelings and shortcomings. Olson (2011) also found a positive link between use of social media for academic purposes and student engagement among college community students in the USA. Student engagement was enhanced in the areas of active and collaborative learning, academic challenge, student-faculty interaction, and support for learners.

Birnholtz, Hancock, and Retelny (2013) used Twitter as a way for their students to co-construct lecture materials. They asked their students to post a tweet before each class

related to the topic to be taught. The students were requested to ask questions, give examples, and provide their own reflections on the topic, which were later incorporated into the teaching slides. Students reported that such method was engaging, interactive and relevant. A huge majority (i.e. 90%) recommended such use in the future. Batts Jr. (2013) also found that the amount time spent on social media such as Facebook and Twitter was able to foster engagement among African American students. In particular, the use of social media allowed the students to interact more and engaged with their peers. By engaging with their peers, the students were able to navigate better their studies.

In his experimental study on the use of LinkedIn as a teaching tool in equine higher education curriculum, Lofgren (2014) noticed that the treatment group (with LinkedIn component) provided positive feedback regarding interactions with LinkedIn during the class in comparison to the control group. In a different experimental study conducted earlier to examine the effect of Twitter on online class engagement among 116 students at an urban community college, Hirsh (2006) also found similar result in that the students in the treatment group (with Twitter integration) self-reported that the quality and quantity of tweets increased their level of engagement. Smith and Tirumala (2012) conducted a quasi-experimental study on 76 students where they either conversed with their classmates on class exercises on a mass communication course on Twitter or by individually writing essays. They observed that those who used Twitter had more positive perceptions of Twitter as a classroom tool and had greater social comfort with their classmates. In Spain, Tur and Marin (2015) demonstrated that majority of Spanish students felt that the use of Twitter was able to help them better understand the course activity and enjoyed and learned from the activity. Based on the findings, the authors recommended the integration of

Twitter in the curriculum because it can foster students' learning inside and outside the classroom.

Within the education realm, student engagement is an important educational outcome as it indicates students' positive learning and functioning (Reeve & Tseng, 2011). Whether or not students are engaged in their learning experience has bearing on their academic performance and progress (e.g., Ladd & Dinella, 2009). Because of its significance, it is not surprising to note that this construct has been researched heavily (Reeve & Tseng, 2011). Further, according to Reeve (2014), it is not difficult to conceptualize why and how students who are engaged tend to be more successful in their learning experience.

According to SDT, engagement is manifested in the quality of students' interactions with learning activities and academic tasks (Deci & Ryan, 2000b; Eccles, 2004; Skinner & Wellborn, 1994). When students are engaged, they are investing their time and effort in educational activities with the purpose achieving better academic performance inside and outside the classroom (Kuh, 2009). According to various scholars, engagement is optimized when the learning environment fulfils students' needs for competence, autonomy, and relatedness (Connell & Wellborn, 1991; Deci & Ryan, 2000b). Competence refers to the need to experience oneself as effective in one's interactions with the social environment (Elliot & Dweck, 2005), and a student's need for competence is fulfilled when they know how to effectively achieve desired outcomes (Skinner & Belmont, 1993). Autonomy refers to the extent to which an individual experiences oneself as the source of action. Autonomy is supported when a student perceives schoolwork as relevant to his or her interests and goals or when a student experiences choice in determining his or her own

behavior (Assor, Kaplan, & Roth, 2002). Finally, relatedness refers to the need to experience oneself as connected to other people (Connell & Wellborn, 1991). Fulfilment of the need for relatedness is likely to occur when teachers and peers create a caring and supportive environment.

Use of social media is postulated to enhance student engagement because it allows the students to develop competence, autonomy and relatedness. That is, when the students use the social media, they will be able to understand and comprehend better the course content (i.e. competence). Using the social media also suggests that they are free to decide and choose what materials to be used to enhance their understanding and competence (i.e. autonomy). Also, social media encourages the students to be in contact with their peers about the course content (i.e. relatedness). Taken together, when the students are able to achieve these capabilities, they are likely to perform academically well.

Previous studies have confirmed the positive effect of student engagement on academic performance (e.g., Klem & Connell, 2004; Kuh et al., 2008; Lee, 2014). On the basis of the above arguments, we hypothesized that:

H2: Use of social media will make students more engaged, which leads to better academic performance.

2.7 Conceptual Model

Based on the discussion above, the relationships between use of social media, student's engagement, and academic performance are illustrated in Figure 2.4. As shown, we predict that use of social media will be able to enhance academic performance of students because the tools allow them to be more engaged in their learning experience.

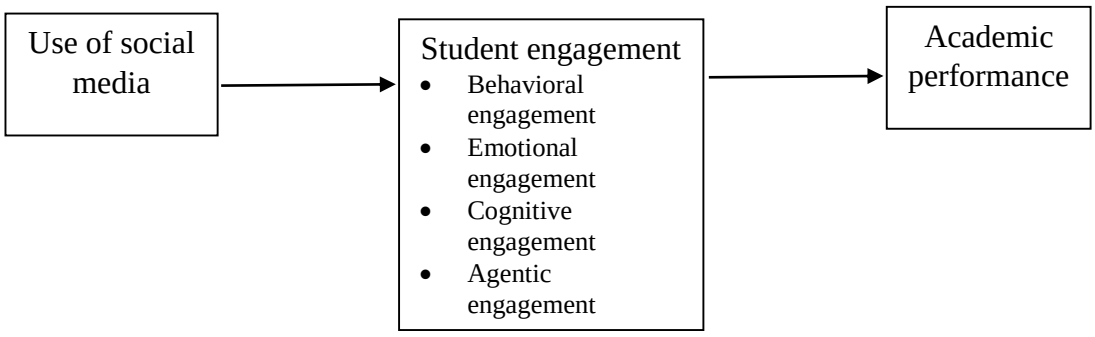

Figure 2.4
Conceptual model of the present study

2.8 Summary

This chapter presented the relevant literatures on the role of social media in enhancing academic outcomes and discussed that the link can be theoretically understood by considering student's engagement as a potential motivational mechanism. Using self-determination theory to underlie the relationships between the main constructs, we developed four hypotheses, which will be tested in the following chapter.

CHAPTER THREE

RESEARCH METHOD

3.1 Introduction

In the previous chapter, a review of the relevant literatures and an exposition of how the four research hypotheses were formulated were presented. In this chapter, a description of the research method employed for the study is offered. It explains in detail how the study was practically carried out in terms of sample selection, data collection, and instrumentation, toward addressing the research questions and meeting the research objectives outlined in the first chapter. This chapter is organized as follows: firstly, it begins with a discussion on the research design used. This is then followed by sample size, the method of data collection and the procedure, then the measurement of variable under the study, the questionnaire development, data analysis and finally the summary of the chapter. But first, an epistemological position of the current study is elaborated.

3.2 Research Design

A research design is a master plan specifying the methods and procedures for collecting and analysing the needed information (Blumberg, Cooper, & Schindler, 2008; Zikmund, Babin, Carr, & Griffin, 2009). It is a framework or blueprint that plans the action for the research project. According to Sekaran (2003), a research design details out how a study is to be carried out.

The main research design used in the present study was survey. This design was used because the main aim of this study was to get a cross-sectional background of the phenomenon under study which as use of social media and its effects on academic performance of students in College of Business (COB), Universiti Utara Malaysia. Because no other research design can describe the characteristics of a large population quantitatively (Zikmund et al., 2009), the survey design was chosen as the most appropriate approach to studying the topic. For the purpose of this study, a survey was conducted to find out the relationships between use of social media, student engagement, and academic performance using questionnaires.

Because the study was concerned about getting data from individual students, data were collected and analysed from the individual point of view. As survey questionnaires were personally distributed in classrooms, the researcher did not interfere substantially with the nature and flow of events. In other words, no treatment was administered while distributing the questionnaires to the students. As data were collected once, the study was cross-sectional in nature (for detailed explanation of these methodological issues, please refer to Sekaran, 2003).

Next, a discussion on population of the study and how the elements in the population were selected as sample of the study is presented.

3.3 Population and Sampling

Population is defined by Cooper and Schindler (2008) as those people, events or records that contain the desired information and can answer the measurement questions. In this study, the population was defined as all students who are currently registered at College of

Business (COB) Universiti Utara Malaysia. Currently, there are 9,465 COB students, both at the undergraduate and postgraduate levels (masters and PhD), according to the official student record. COB students were selected to participate in the present study because the college has the highest number of students undertaking business-related programs in comparison to other colleges at the university.

3.3.1 Sample and Sample Size

Sampling is the process whereby some elements from the population are selected to represent the whole population (Cooper & Schindler, 2008). According to Sekaran (2003), a sample is a subset of a population comprising of a selection of members of the particular population. When the population is too big and scattered, it is practical to sample so as to save money, time and effort. Furthermore, errors could be avoided especially when one has to deal with a huge population size.

One pertinent issue in sampling is how big a sample size should be considered so that researchers can have some degree of confidence in generalizing the findings to the population and hence interpreting the results. But according to Pallant (2007), there is little consensus amongst scholars about the appropriate sample size but they generally tend to agree that a bigger sample is better as a smaller sample tends to result in unreliable correlation coefficients and results in statistical insignificance (Zikmund et al., 2009). Roscoe (1975) maintained that, as a general rule of thumb, sample size between 30 and 500 could be considered effective depending on the type of sampling design and research question investigated; but in multivariate inquiries, the sample size should be several times

larger, preferably 10 times, than the variables of the study, so as to achieve statistical significance.

One of the contemporary methods for determining sample size is GPower (Prajapati, Dunne, & Armstrong, 2010). To determine the sample size required and to ensure Type II error is avoided when testing the hypotheses, the specified power, alpha level, and effect size should be considered. On this account, Cohen (1992) recommended setting the statistical power at 0.80, 0.05 for the alpha value, and the effect size of 0.1. In addition to these parameters, the number of predictors were set as 5 (1 social media use and 4 dimensions of student engagement). Based on these input parameters, the sample size calculated was 134.

3.3.2 Sampling Design and Technique

Generally speaking, there are two types of sampling design: probability sampling and nonprobability sampling. Probability sampling is based on the process of random selection, which means that each element in the population has an equal chance of being selected as a subject in the sample, while nonprobability sampling denotes the notion that the sample selection is based on a random process (Singleton & Straits, 2005). In this study, a probability sampling design was used so that the result can be generalized to the larger population with confidence and precision (Sekaran, 2003).

Simple random sampling, stratified random sampling, cluster sampling, and systematic sampling are techniques in probability sampling. Simple random sampling involves choosing a sample of individuals from a larger set of population where each individual has an equal chance of being selected. Systematic sampling involves selection

of a sample from an ordered sampling frame where each individual has an equal probability of getting selected. In this method, the selection of the individuals is made by progressing through the list of individuals in the sampling frame. The top of the list is again referred to once the list has ended. Stratified random sampling is a technique where members of the population are divided into homogenous subgroups based on certain categories under study. Lastly, cluster sampling involves a researcher dividing the total population into groups (clusters), which are then selected using a simple random technique (Sekaran, 2003; Singleton & Straits, 2005). According to Gay and Diehl (1992), regardless of the probability sampling technique chosen, the steps used in sampling are essentially the same: (1) identify the population; (2) determine the required sample size; and (3) select the sample.

In this study, attempts were made to select the sample as randomly as possible so that the validity of the findings was not suspect. To facilitate with the selection, instead of choosing randomly individual students, the researcher decided to choose the classes the students being attended to by making sure that the same students were not taking the same subject at the same time. For instance, students at the first year were not likely to take higher level subjects and students who were at the final year were most likely to complete their introductory level courses. So, in this case, these groups of students were highly likely to be chosen.

With regards to postgraduate students, the selection was not entirely random as these students were most likely not required to take pre-requisite courses. In this regard, assistance from the faculty members teaching the courses was solicited.

3.4 Data Collection Procedure

Data collection methods are an integral part of a research design. There are several data collection methods, each with its own advantages and disadvantages (Sekaran, 2003). Data can be collected in many ways, such as interviews, telephone and much more. In this study the data collection method used was personally administered questionnaire. This data collection method was the most appropriate because it helped establish rapport with the participants while introducing the survey, provide clarifications sought by the participants on the spot, and collect the questionnaires immediately after they were completed. In that sense, such method would ensure a 100% response rate (Sekaran, 2003).

In this study, the questionnaires were personally administrated to the students of COB at Universiti Utara Malaysia, who had been identified earlier (refer to the sampling procedure above). The researcher went to the classes and informed them about his study. After explaining the purpose and importance of the study, the questionnaires were distributed to each student in the class. They were then requested to fill in and return them immediately. They were given between 10-15 minutes to complete the survey. Prior approval was granted from the lecturer concerned before the questionnaires were distributed.

Even though the sample size computed was 134, 250 questionnaires were distributed in the anticipation of incomplete responses and the like.

3.5 Measurement of Variables

To measure the main constructs of social media use, student engagement, and academic performance, instruments developed by previous scholars were used. This is a common

practice amongst social researchers. However, in choosing the appropriate instrument to collect the relevant data to test the hypotheses, reliability and validity issues were not compromised. The following explains what instrument was employed to collect data of the main variables and why those instruments were chosen.

3.5.1 Use of social media

Use of social media was measured by frequency and type of use. Items on frequency of use were taken from Stagno (2010). The frequency of use was operationalized as how regular the participants use social media in a week and how long they spend on social media when they log in. For the first item, the options given ranged from '1' "Less than once per week" to '5' "Constantly". For the second item, the options ranged from '1' "Less than 5 minutes" to '5' "More than 60 minutes." On the other hand, type of use was operationalized as the use of social media for academic purposes. The items were adopted from Gomez, Roses, and Malaga (2012) and Lindberg and Tavakoli (2013). All items were measured on a five-point scale, ranging from '1' "Never" to '5' "All the time". The items for type of use are shown in Table 3.1.

Table 3.1
Items to Measure of Use of Social Media

How frequent do you use the social media for the following academic activities?
1. To resolve queries about content or exams with other students.
2. To find out what has been covered in class during non-attendance.
3. To do coursework.
4. To remain updated on what is happening in a subject (changes, unforeseen events).
5. To exchange useful documentation and resources for the subject.
6. To resolve doubts about my life at university.
7. To find out about activities organized by my university.
8. To organize extracurricular activities.
9. To consult recommendations on books or resources made by the teacher.

10. To contact experts on the topics of the study.
11. Tutorials, consultations with teachers.
12. To join in the project groups/group discussion.

Source: Gomez et al. (2012) and Lindberg and Tavakoli (2013).

3.5.2 Student Engagement

In the present study, the term engagement was generally defined as the amount of time and energy put forth in educationally effective practices inside the classroom (Kuh, 2001). Four dimensions were identified from the literature: cognitive, emotional, behavioural, and agentic. To measure these dimensions, twelve items were adopted from Reeve and Tseng (2011). In their study to validate the items, they found four factors emerged, based on eigenvalue >1, and these four factors accounted for 66.6% of the total variance. In this study, participants were asked indicate their level of engagement on a seven-point scale, ranging from '1' "Strongly disagree" to '7' "Strongly agree". Table 3.2 shows the items of engagement.

Table 3.2
Items to Measure Student Engagement

Agentic engagement

1. During class, I ask questions.
2. I tell my teacher what I like and what I don't like.
3. I let my teacher know what I'm interested in.
4. During class, I express my preferences and opinions.
5. I offer suggestions about how to make the class better.

Behavioural engagement

1. I listen carefully in class.
2. I try very hard in class.
3. The first time my teacher talks about a new topic, I listen very carefully
4. I work hard when we start something new in class
5. I pay attention in class

Emotional engagement

1. I enjoy learning new things in class
2. When we work on something in class, I feel interested
3. When I am in class, I feel curious about what we are learning

4. Class is fun

Cognitive engagement

1. When doing assignment/project, I try to relate what I'm learning to what I already know
2. When I study, I try to connect what I am learning with my own experiences
3. I try to make all the different ideas fit together and make sense when I study
4. I make up my own examples to help me understand the important concepts I study
5. Before I begin to study, I think about what I want to get done
6. When I'm working on my schoolwork, I stop once in a while and go over what I have been doing
7. As I study, I keep track of how much I understand, not just if I am getting the right answers
8. If what I am working on is difficult to understand, I change the way I learn the material

Source: Reeve and Tseng (20112).

3.5.3 Academic performance

Academic performance was operationalized by two items: self-reported cumulative grade point average (CGPA) and satisfaction with current CGPA. The use of the objective measure of CGPA was appropriate in the study because it is the most common measure of academic performance /ability used in many higher education institutions around the world (Junco, 2015). In UUM, CGPA ranges from 0.00 until 4.00. The higher the CGPA, the better the academic performance. The level of satisfaction with the current CGPA ranged from '1' "Strongly satisfied" to '7' "Strongly dissatisfied". The use of subjective assessment was to complement the objective measurement of CGPA because it was anticipated that many would not want to disclose such information.

3.5.4 Demographic Variables

In addition to the above items, several questions regarding the participant's personal information were also solicited such as age, gender, and academic program, year in study, residential context, and college of study.

All the above items were later assembled to develop the questionnaire for data collection purposes. The next section describes the questionnaire design.

3.7 Questionnaire Development and Design

Altogether, there were 48 items were asked. The items were neatly arranged in different sections of the questionnaire. Specifically, there were three main sections: Part one asked participants about the use of social media; Part Two about student engagement, and Part Three about academic performance and personal information. To ensure that only users of social media were included in this study, the first question in Part one was used as a filtering question. The participants were asked to complete the survey if they said "Yes" to the question of whether they had an account on social media like Facebook, Instagram, and the like.

In addition to the items, an introduction letter was also attached. Sobal (1984) stressed that the introduction letter is important for various reasons such as establishing the legitimacy of the researcher, eliciting cooperation of the potential participant, and enhancing rapport with the participants. In the present study, the introduction letter contained information such as the introduction of the researcher, purpose of the study, voluntary participation, confidentiality and ymity, survey length, and contact number of the researcher.

It was decided that the items would be asked in English because English is the second language in Malaysia. Furthermore, English is used quite extensively at UUM because it hosts a large number of foreign students. But before the final survey was distributed, it was first pretested for any misunderstanding and confusion to the items asked. Pre-testing was conducted among COB students, who were excluded from the final participants. The final survey incorporated any feedback given by the pre-test group. Appendix 1 shows the questionnaire used.

3.8 Data Analyses

This section details the statistical analyses used to analyse the data. To test the hypotheses, PLS path modelling was primarily used. This analysis was chosen because it can provide insights that are not possible or available through other analytical techniques used in organizational research such as regression analysis which can only analyse one layer of a relationship between independent and dependent variables at a time. Specifically, the PLS path modelling enables the estimation of multiple layers of the relationships between constructs (structural model) and relationships between indicators and their corresponding latent constructs (measurement model) simultaneously (Chin, Marcolin, & Newsted, 2003; Duarte & Raposo, 2010; Gerlach, Kowalski, & Wold, 1979; Lohmöller, 1989).

But before PLS path modelling was performed, initial data screening was run to ensure that only valid cases were used. At this stage, checking for missing values, outliers, normality and multicollinearity was conducted. Next, analyses of non-response bias and common method variance were performed. Frequency analyses were also run to develop

the profile of the participants and to examine the level of social media use to answer the first research question.

3.9 Summary

The chapter described in detail how the study was practically conducted to answer the research questions and meet the research objectives. In particular, discussions on related methodological issues such as population, research sample, data collection procedures, measurement of variables, and data analyses were presented. In the next chapter, findings of the study obtained from the data analyses are shown.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results of data analysed using PLS path modelling. The chapter begins by reporting the results the initial data screening and preliminary analysis. Next, the main results of the present study are presented in two main sections, including the measurement model and structural model.

4.2 Data Screening and Preliminary Analysis

The importance of good data screening in multivariate related analysis cannot be overemphasized because it would enable researchers to ensure that the key assumptions of multivariate models are not violated (Field, 2009; Hair, Black, Babin, & Anderson, 2010; Tabachnick & Fidell, 2007). Initially, before conducting the initial data screening, 227 returned and usable questionnaires were coded and entered into the SPSS. Of the 227 usable questionnaires, 2 were completely removed for further analysis because they were completed by students from College of Arts and Sciences, Universiti Utara Malaysia. After removing 2 cases, the remaining 225 were used for the actual data screening. Subsequent to data coding entry, and transformation, the following preliminary data analyses were conducted: (1) missing value analysis, (2) assessment of outliers, (3) normality test, and (4) multicollinearity test (Field, 2009; Hair et al., 2010; Tabachnick & Fidell, 2007).

4.2.1 Missing value analysis

Of the 225 raw SPSS dataset, 48 were randomly missed. To replace this 48 missing values, a nearby point substitution replacement of missing value approach was used as suggested by Tabachnick and Fidell (2007). Table 4.1 shows the total number of randomly missing values in the present study.

Table 4.1
Result of Missing Values Detected/Replaced

Result variable	No. of replaced missing values	Case number of non-missing values		No. of valid cases
		First	Last	
Q6	2	1	225	225
Gender	3	1	225	225
Race	5	1	225	225
Age	7	1	225	225
Marital Status	3	1	225	225
Stay	5	1	225	225
Programme	3	1	225	225
College	5	1	225	225
Year	5	1	225	225
CGPA	3	1	225	225
Satisfaction with GPA	7	1	225	225

Note.
Total number of missing values = 48

4.2.2 Assessment of outliers

Outliers refer to "observations or subsets of observations which appear to be inconsistent with the remainder of the data" (Barnett & Lewis, 1994, p. 7). To detect multivariate outliers in the present study, a Mahalanobis distance (D2) technique was used, as suggested by Hair 2010. Mahalanobis distance (D2) is defined as "the distance of a case from the

centroid of the remaining cases where the centroid is the point created at the intersection of the means of all the variables"(Tabachnick & Fidell, 2007, p. 74). Based on 39 observed variables of the study, the recommended threshold of chi-square is 70.71 (p = 0.001). In particular, Mahalanobis distance of samples follows a chi-square distribution with *d* degrees of freedom. The chi-square value of 70.71 was obtained from the table of chi-square statistics (degrees of freedom: 39-1 = 38; *p*-value = 0.001). Hence, Mahalanobis values greater than the chi-square value of 70.71 was detected and deleted. Thus, of the 225 dataset, 7 multivariate outliers were detected and subsequently deleted from the dataset and the remaining 218 dataset was used for the next preliminary analysis.

4.2.3 Normality test

The present study employed both graphical method statistical method to ascertain whether the data collected were normal or not (Field, 2009; Hair et al., 2010; Tabachnick & Fidell, 2007). For the graphical method, a histogram and normal probability plots were examined, as depicted in Figure 4.1 (Field, 2009). As shown in Figure 4.1, the data collected suggest a normal pattern as all the bars on the histogram were close to a normal curve.

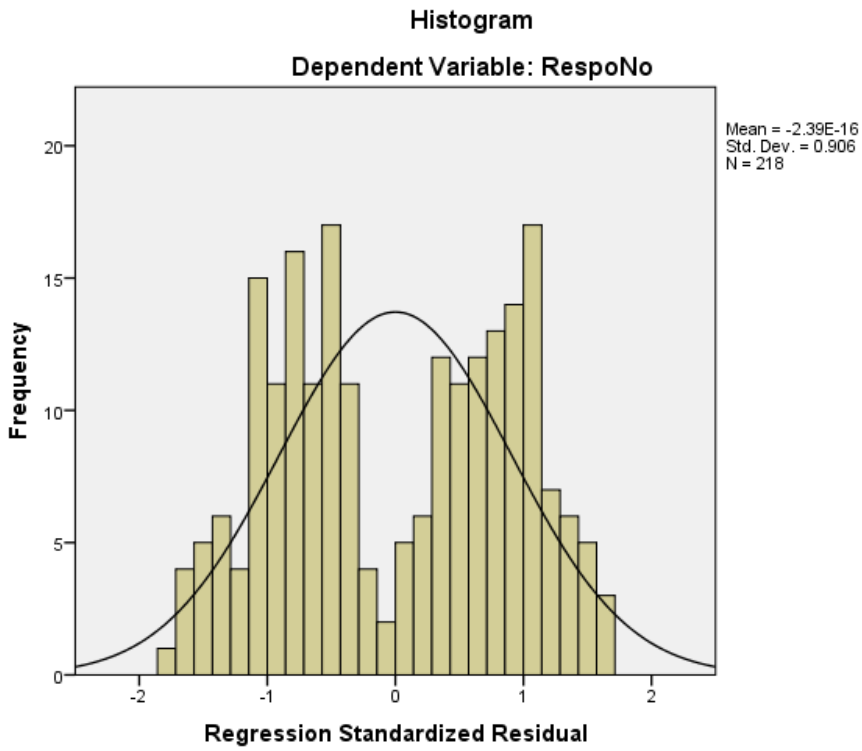

Figure 4.1
Histogram and normal probability plots

Regarding the statistical method, skewness and kurtosis statistics were examined. According to Curran, West, and Finch (1996), for normally distributed data, the skewness and kurtosis statistics should not be more than 2.0 and 7.0, respectively. As shown in Appendix 2, the skewness and kurtosis statistics all the observed variables were well below the thresholds of 2.0 and 7.0. Hence, taking into consideration of both graphical and statistical methods, it can be concluded that the assumption of multivariate analysis regarding normality was not violated.

4.2.4 Assessment of the multicollinearity

In the present study, VIF and tolerance values were checked to ensure that the independent or exogenous latent constructs are not highly correlated(O'Brien, 2007). Table 4.2 presents the collinearity descriptive statistics for the exogenous latent constructs. As presented in Table 4.2, no multicollinearity among the exogenous latent constructs was observed because all the VIF values were less than 5 and the tolerance values exceeded .20(Hair, Ringle, & Sarstedt, 2011b; Hair, Sarstedt, Ringle, & Mena, 2012b). Hence, multicollinearity was not a major concern in the present study.

Table 4.2
Tolerance and Variance Inflation Factors

Exogenous latent variable	**Collinearity statistics**	
	Tolerance	**VIF**
Social media usage	.787	1.271
Agentic engagement	.657	1.522
Behavioural engagement	.424	2.358
Emotional engagement	.407	2.457
Cognitive engagement	.441	2.267

4.3 Non-Response Bias

Non-response bias refers to "the differences in the answers between non-respondents and respondents"(Lambert & Harrington, 1990, p. 5). A time-trend extrapolation approach has been recommended by Armstrong and Overton (1977) to determine non- response bias. They contended that those who might have responded late in filling up the questionnaires administered to them are similar to those non-respondents. Based on Armstrong and Overton's (1977) approach, the participants were categorized into two groups: early respondents who returned their survey within first 30 days and late respondents, who

returned their survey after 30 days. Table 4.3 presents the results for the test of non-response bias with 164 participants as early respondents and the remaining 54 participants termed as late respondents. Based on the Levene's test for equality of variances, the results suggest no significant difference between the two groups. Hence, non-response bias was not an issue in the present study.

Table 4.3
Results of Independent-Samples T-test for Non-Response Bias

Variables	Group	Levene's test for equality of variances	
		F	Sig.
Social media usage	Early response Late response	1.413	.236
Agentic engagement	Early response Late response	1.028	.312
Behavioural engagement	Early response Late response	.007	.935
Emotional engagement	Early response Late response	1.629	.203
Cognitive engagement	Early response Late response	.130	.719
Academic performance	Early response Late response	.793	.374

4.4 Common Method Variance Test

Common method variance refers to "variance that is attributable to the measurement method rather than to the construct of interest" (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003, p. 879). Because self-reported measures were utilized in the present study, common method variance might likely be a major concern (Podsakoff et al., 2003; Podsakoff, Bommer, Podsakoff, & MacKenzie, 2006; Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Podsakoff, MacKenzie, & Podsakoff, 2012; Podsakoff & Organ, 1986). Specifically, Harman's single factor test for common method variance was used in this study. After

conducting Harman's single factor, the results of the analysis yielded suggest that the first factor explained only 30.46% of the total variance, which was less than 50% threshold (Podsakoff et al., 2003). Hence, this suggests that common method bias was not a major concern in this study (see Table 4.4).

Table 4.4
Results of the Common Method Variance Test

	Initial Eigenvalues			Extraction sums of squared loadings		
Component	**Total**	**% of variance**	**Cumulative %**	**Total**	**% of variance**	**Cumulative %**
1	11.878	30.456	30.456	11.878	30.456	30.456
2	3.963	10.162	40.618			
3	3.306	8.478	49.096			
4	1.943	4.981	54.078			
5	1.772	4.543	58.620			

4.5 Demographic Profile of the Participants

This section is concerned with the demographic profile of the participants. The demographic characteristics examined in this study include gender, age, marital status, race, programme, and year. Table 4.5 shows that the majority of the participants in the sample, that is 182, were males, while the remaining 83 with a mean age and standard deviation of 23.06 and 1.391, respectively. In terms of race, the participants came from diverse ethnic backgrounds. Approximately 47% of the participants were Malay; 39% were Chinese; 1.8% were Indian and the remaining 12.4% represents non-Malaysian, such as Arab, Chinese from China, Central Asian, and African. Table 4.5 shows that 89.9% of the participants stayed on-campus, while the remaining 10.1 resided off-campus. Regarding

program of study, 17.4% were postgraduate students and the majority (82.6%) were undergraduate students. Approximately 46% of the participants were in their third year, followed by 40.8% (second year) and 8.7% were first year students.

Table 4.5
Demographic Characteristics of the Respondents

Variables	Frequency	Percentage
Gender		
Male	46	21.1
Female	172	78.9
Marital status		
Single	206	94.5
Married	12	5.5
Race		
Malay	102	46.8
Chinese	85	39.0
Indian	4	1.8
Others	27	12.4
Stay		
On-campus	196	89.9
Off-campus	22	10.1
Program		
Postgraduate	38	17.4
Undergraduate	180	82.6
Year		
First year	19	8.7
Second year	89	40.8
Third year	100	45.8
Fourth year	10	4.6
Age	Mean = 23.06	SD = 1.391

4.6 Level of Social Media Use

The first research objective pertains to the level of social media use. To ascertain this, frequency analysis was run on 225 cases.

When asked which social media participants had an account with, majority indicated Facebook (99.1%). The second most popular social media platform among the participants was WhatsApp (88.1%), and this was followed by Google+ (62.2%), YouTube (59.1%), and Yahoo (52.0%). Table 4.6 shows the result in detail.

Table 4.6
Social Media Membership (n = 225)

Social media	**Percentage**
Facebook	99.1
Twitter	31.1
LinkedIn	8.0
MySpace	6.7
WhatsApp	88.1
Googl+	62.2
YouTube	59.1
Yahoo	52.0
Others	32.6

Not surprisingly then, Facebook was reported to have been visited the most by the participants (98.4%), that is more than once a day (see Table 4.7). Unexpectedly, despite being the second most popular, only a small percentage of the participants used WhatsApp more than once daily (21.8%). Perhaps the differences in the features between Facebook and WhatsApp could explain the result. Twitter was also not frequently used by the participants (6.2%). Because Twitter does not allow users to share pictures and post videos may discourage them from using it frequently.

In general, majority indicated using social media sites very frequently (i.e. constantly and more than once a day) (91.6%), as shown in Table 4.8, and when they logged in to the sites, close to half (43.1%) spent more than 60 minutes (see Table 4.9). Finally, when asked whether the use of social media changed or otherwise, Table 4.10 shows that close to half of the participants indicated that their use of social media had increased

compared to last year (49.8%), while 47.1% indicated no change. Unsurprisingly, only 3.1% indicated a decrease in their use. In sum, based on these result, it can be said that the level of use of social media sites was rather high, and overall the result mirrored previous studies and surveys (Digital, Social and Mobile, 2015; Duggan et al., 2015).

Table 4.7
Social Media Used Most Frequently (n = 225)*

Social media	**Percentage**
Facebook	98.4
Twitter	6.2
LinkedIn	0.0
WhatsApp	21.8
Googl+	1.8
YouTube	4.0
Yahoo	1.8
Others	0.9

Note.
Of the social media you have an account with, which one do you use the most frequently (i.e. more than once per day)?

Table 4.8
Frequency of Log In on Social Media (n = 225)

Frequency (in days)	**Percentage**
Constantly	49.8
More than once per day	41.8
Once per day	5.3
Once per week	3.1

Table 4.9
Frequency of Log In on Social Media (n = 225)

Frequency (in min)	**Percentage**
Less than 5 minutes	3.6
5 – 10 minutes	13.3
11 – 30 minutes	21.3
31 – 60 minutes	18.7
More than 60 minutes	43.1

Table 4.10

Comparison of Use of Social Media (n = 225)*

Change of use	Percentage
Decreased	3.1
About the same	47.1
Increased	49.8

Note.

*Participants were asked, "Generally speaking, when compared to last year, is your using social media now?"

4.7 Assessment of the Measurement Model

Following the recommendations of previous studies, the quality of the measurement model in this study was evaluated using the following criteria: (1) indicator reliability, (2) internal consistency reliability, (3) convergent validity, and (4) discriminant validity for reflective and formative constructs(Chin, 1998; Hair, Sarstedt, Pieper, & Ringle, 2012a; Henseler, Ringle, & Sinkovics, 2009). Figure 4.2 depicts the measurement model results for the reliability and validity of the construct for the entire research model, while Table 4.11 specifically presents the results of the reflective measurement model.

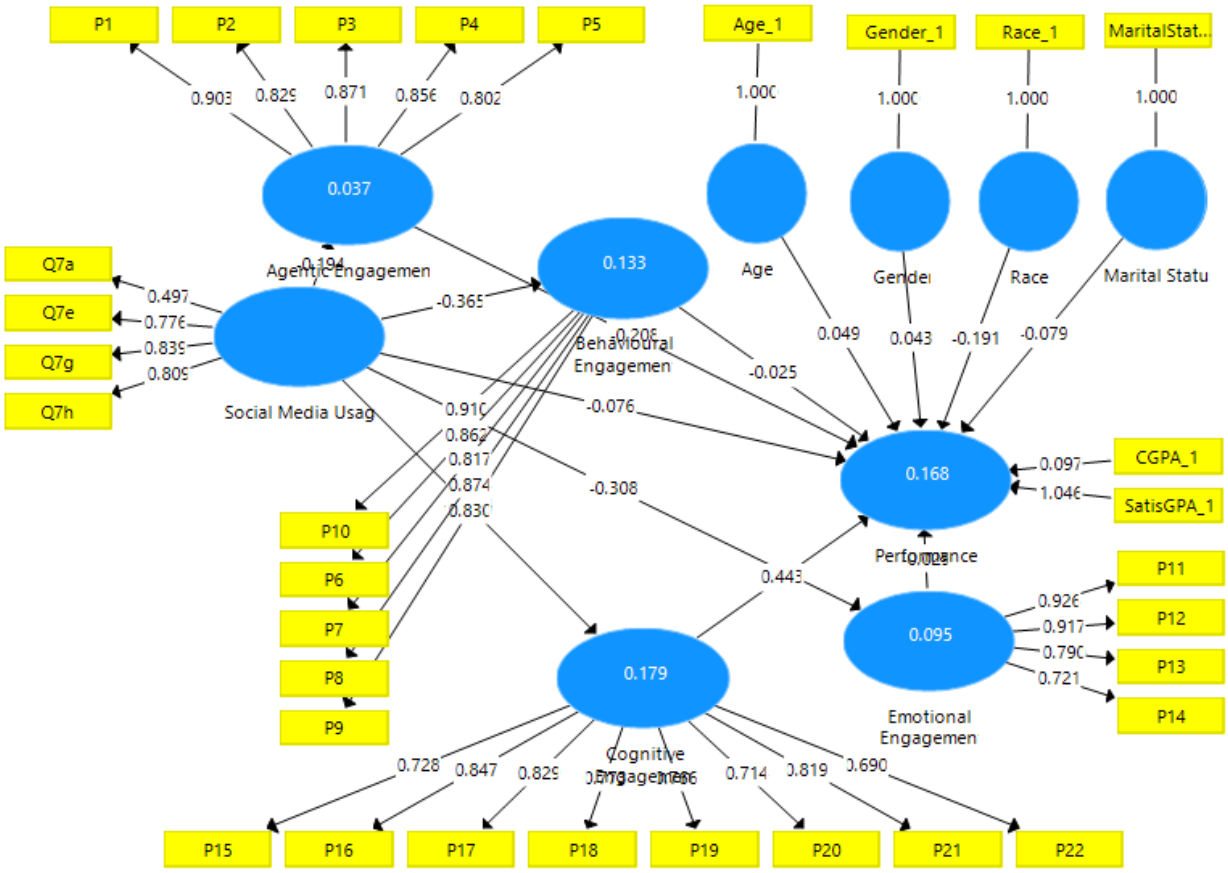

Figure 4.2
Measurement model

Table 4.11
Result of Reflective Measurement Model

Construct	Item	Standardized loadings	Average Variance extracted (AVE)	Composite reliability (α)
Agentic engagement	P1	.903	.727	.930
	P2	.829		
	P3	.871		
	P4	.856		
	P5	.802		
Behavioural engagement	P6	.862	.739	.934
	P7	.817		
	P8	.874		
	P9	.830		
	P10	.910		
Emotional engagement	P11	.926	.711	.907
	P12	.917		
	P13	.790		
	P14	.721		
Cognitive engagement	P15	.728	.597	.922
	P16	.847		
	P17	.829		
	P18	.773		
	P19	.766		
	P20	.714		
	P21	.819		
	P22	.690		
Social media usage	Q7a	.497	.552	.826
	Q7e	.776		
	Q7g	.839		
	Q7h	.809		

Firstly, as indicated in Table 4.11, all standardized loadings of the reflective constructs lie well above the suggested threshold value of .4 (Hair, Hult, Ringle, & Sarstedt, 2014a). Hence, the indicator reliability in the reflective measurement model was highly satisfactory with standardized loadings ranging from .497 to .926. Secondly, internal consistency reliability was established by checking the composite reliability coefficients

(Henseler et al., 2009). According to Bagozzi and Yi (1988), an internal consistency reliability is highly satisfactory with a composite reliability value of .70 and above. All the composite reliability coefficients of the reflective constructs were well above the recommended threshold value of .7, thereby suggesting acceptable internal consistency reliability. Thirdly, the average variance extracted values (AVE) of the reflective constructs ranged from .552 to .739. Bagozzi and Yi (1988) suggested that convergent validity is considered acceptable if the AVE value is .50 or more. Hence, satisfactory convergent validity was established for reflective measurement model.

Next, discriminant validity for reflective constructs was ascertained by examining the loadings and cross loadings. Specifically, Chin (1998), as well as Henseler et al. (2009)recommended that in order to achieve satisfactory discriminant validity, the loading of each indicator should be greater than all of its cross-loadings. Table 4.8 presents the cross loadings of the reflective measurement model.

As shown in Table 4.12, all standardized loadings lie well on their respective constructs without cross-loadings on the remaining latent variables. Hence, the reflective measurement model in this study achieved satisfactory discriminant validity.

Table 4.12
Cross Loadings

	Agentic engagement	Behavioural engagement	Emotional engagement	Cognitive engagement	Social media usage
P1	**.903**	.400	.505	.415	-.234
P2	**.829**	.315	.438	.340	-.080
P3	**.871**	.323	.465	.332	-.112
P4	**.856**	.311	.529	.461	-.191
P5	**.802**	.282	.405	.320	-.102
P6	.266	**.862**	.545	.516	-.329
P7	.317	**.817**	.519	.580	-.279
P8	.374	**.874**	.643	.596	-.344
P9	.418	**.830**	.635	.635	-.300
P10	.300	**.910**	.617	.628	-.313
P11	.525	.713	**.926**	.668	-.361
P12	.456	.568	**.917**	.540	-.247
P13	.476	.477	**.790**	.538	-.191
P14	.512	.572	**.721**	.425	-.074
P15	.379	.538	.548	**.728**	-.250
P16	.290	.626	.553	**.847**	-.391
P17	.310	.544	.522	**.829**	-.285
P18	.363	.567	.624	**.773**	-.261
P19	.350	.515	.450	**.766**	-.435
P20	.270	.509	.405	**.714**	-.312
P21	.435	.515	.520	**.819**	-.418
P22	.472	.443	.546	**.690**	-.142
Q7a	-.215	-.128	-.224	-.226	**.497**
Q7e	-.064	-.309	-.188	-.362	**.776**
Q7g	-.158	-.366	-.296	-.341	**.839**
Q7h	-.173	-.234	-.211	-.312	**.809**

Table 4.13
Results of Formative Measurement Model

Construct	Item	VIF	Weights
Academic performance	CGPA_1	1.342	0.097*
	SatisGPA_1	1.342	1.046

*Significant at 0.001 (2-tailed).

Regarding the assessment of formative measurement model, two criteria were used, namely: Variance Inflated Factor and items weights (Henseler et al., 2009). To achieve a satisfactory formative measurement model, the VIF values should be less than 5 (Hair et al., 2011b; Hair et al., 2012b) and the weight should be significant. Based on results presented in Table 4.14, the indicator weight for CGPA was significant at 0.001 and the VIF values were less than 6. Hence, it can be concluded that satisfactory formative measurement model was achieved.

4.8 Re-formulation of the Research Hypotheses

Following the results of the validity analyses above, we then re-formulated the earlier hypotheses to be tested, as follows:

H1: Use of social media is negatively linked with student's academic performance.

H2: Agentic engagement mediates the relationship between social media usage and academic performance.

H3: Behavioural engagement mediates the relationship between social media usage and academic performance.

H4: Emotional engagement mediates the relationship between social media usage and academic performance.

H5: Cognitive engagement mediates the relationship between social media usage and academic performance.

4.9 Assessment of the Measurement Model

Having evaluated the measurement model, the next stage was to test the structural model toward hypotheses testing. Drawing from the PLS path modelling literature (Hair, Ringle, & Sarstedt, 2011a; Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014b; Hair et al., 2012a; Henseler et al., 2009), four criteria were used to test the structural model, namely, R^2 of endogenous latent variables, effect size f^2, prediction relevance (Q^2), and estimates for path coefficients. Furthermore, consistent with Preacher and Hayes (2008), as well as Hayes (2009), a two-step process of testing mediating effect model was employed. Specifically, a base model, which did not include the mediating variables, was initially tested. Finally, an indirect effect model, which incorporated the mediating variables, was evaluated.

The present study applied the standard bootstrapping procedure with 5000 bootstrap samples to generate the beta values, standard errors, and t-values for both the direct and indirect effect models(Hair et al., 2014a; Hair et al., 2012a; Henseler et al., 2009). Figure 4.3 and Table 4.15 present the estimates for the direct effect structural model, which did not include the mediator variables.

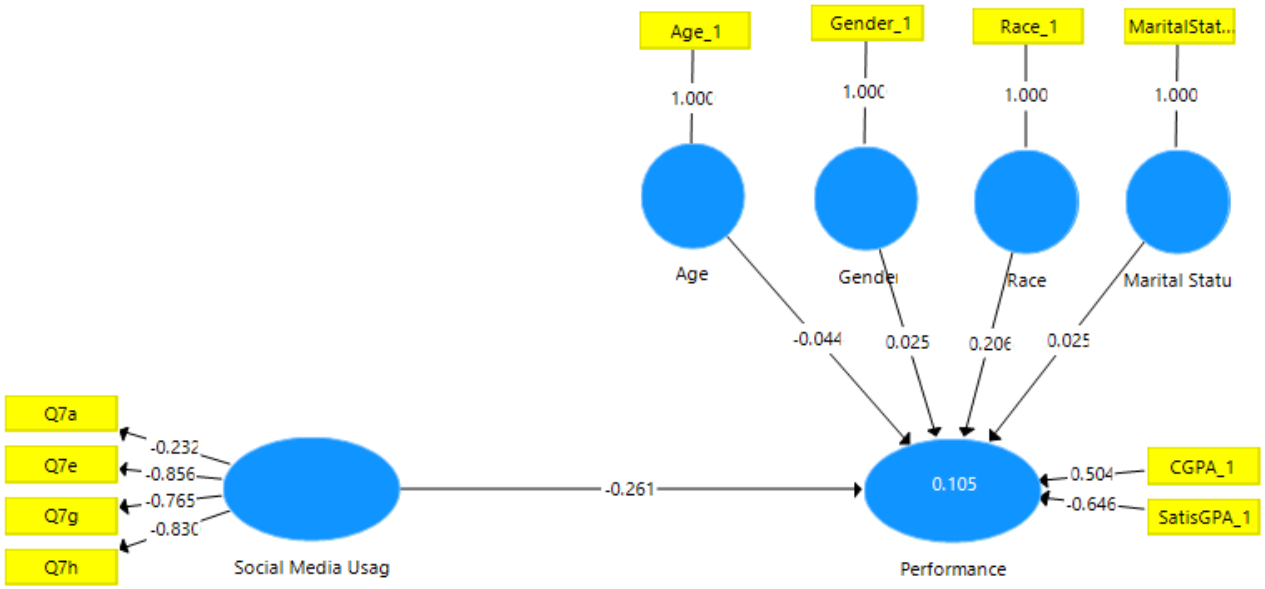

Figure 4.3
Direct effect model

Table 4.14
Direct Effect Model (Base Model without Mediator Variables)

Hypothesis	Relations	Beta	SE	t-value	p	Result
H1	Social media usage	-.261	.266	.978	.164	NS
Control variables	Age	-.044	.089	.487	.313	
	Gender	.025	.076	.329	.371	
	Marital status	.025	.094	.271	.393	
	Race	.206	.216	.955	.17	

Note.
Endogenous latent variable: Academic performance: R^2 = .11; Q^2 = .41; f^2 = .071
NS = Not supported

As shown in Table 4.14, the direct effect model had anR^2 value of .11. This suggests that the main variable (i.e., social media usage) together with age, gender, marital status, and race collectively explained 11% of the variance of academic performance. The R^2 value for the endogenous latent variable exceeded the minimum acceptable level of .10, thereby accounting for 11% of the variance of academic performance (Falk & Miller, 1992).Furthermore, Hair argued that the judgment of what R^2 level is high depends, however, on the specific research discipline (Hair et al., 2011a, p. 147).Regarding the effect size, Cohen (1988) describedf^2 values of 0.02, 0.15 and 0.35 as having weak, medium, and large effects, respectively. Table 4.15 shows that the effect size for social media usage on academic performance was .071. Hence, drawing from Cohen's (1988), we found that the effect size was considered small.

To ascertain the predictive relevance of the direct effect model, a cross-validated redundancy measure (Q^2) was applied (Hair et al., 2014a; Henseler et al., 2009). According to Chin (1998), Q^2 is a criterion to measure how well a model predicts the data of omitted cases. A research model with Q^2 statistic (s) greater than zero is considered to have

predictive relevance (Henseler et al., 2009). As shown in Table 4.14, the Q^2 value for the direct effect model was.41, suggesting satisfactory predictive relevance.

Hypothesis 1 predicted that social media usage is negatively related to academic performance. Contrary to Hypothesis 1, the result in Table 4.14 revealed no significant relationship between social media usage and academic performance, even after controlling for age, gender, marital status, and race (β = -.261, t = .978, p> 0.1). Hence, Hypothesis 1 was not supported.

Having tested the direct effect model, the mediated effect model was then evaluated to confirm whether each of the four dimensions of student engagement mediates the relationship between social media usage and academic performance, regardless of age, gender, marital status, and race. Again, four main criteria were used to test the structural model, namely,R^2 of endogenous latent variables, effect size f^2, prediction relevance (Q^2), and estimates for path coefficients. Table 4.15 presents the results of the indirect effect structural model, which incorporated the multiple mediator variables, namely, agentic engagement, behavioural engagement, emotional engagement, and cognitive engagement.

Table 4.15
Indirect Effect Model, Incorporating Mediator Variables

Hypotheses	Path a	Path b	Indirect effect	SE	t-value	p	Results
H2	-.076	.443	-.034	.024	-1.396*	.082	Supported
H3	-.194	-.208	.040	.025	1.618**	.054	Supported
H4	-.365	-.025	.009	.087	.105	.458	NS
H5	.308	-.029	-.009	.061	-.146	.442	NS

Note.
** p< 0.05, * p< 0.1 (1-tailed)
Endogenous latent variable: Academic performance: R^2 = .168; Q^2 = .057; f^2 = .01
NS = Not supported

As presented in Table 4.15, the mediation effect model showed anR^2 value of .168. This implies that the main variable (i.e., social media usage) together with age, gender, marital status, and race collectively explained about 17% of the variance of academic performance. Accordingly, the R^2 value for the endogenous latent variable exceeded the minimum acceptable level of .10 recommended by (Falk & Miller, 1992). Table 4.15 also indicates that the effect size for social media usage on academic performance was .01. Based on Cohen's (1988) criteria, this effect size can be considered small. The Q^2 value for the mediation effect model was .057, which suggests adequate predictive relevance.

Hypothesis 2 predicted that agentic engagement mediates the relationship between social media usage and academic performance. The result in Table 4.15 indicated that agentic engagement mediated the relationship between social media usage and academic performance, after controlling for age, gender, marital status, and race (β = -.034, t = -1.396, p < .010). Accordingly, Hypothesis 2 was supported.

Hypothesis 3 postulated that behavioural engagement mediates the relationship between social media usage and academic performance. The result in Table 4.15 indicated that behavioural engagement mediated the relationship between social media usage and academic performance, regardless of age, gender, marital status, and race (β = .040, t = 1.618, p < .05). Hence, Hypothesis 3 was supported.

Hypothesis 4 posited that emotional engagement mediates the relationship between social media usage and academic performance. On the contrary, the results shown in Table 4.15 did not support Hypothesis 4, even after controlling for age, gender, marital status, and race (β = .009, t = .105, p > .10). Finally, Hypothesis 5, which predicted that cognitive engagement mediates the relationship between social media usage and academic

performance, was also not supported, regardless of age, gender, marital status, and race (β = -.009, t = -.146, p > .10).

4.10 Summary of Findings

After presenting all the results (i.e. direct and mediation effect), Table 4.16 presents the summary of the results of the hypotheses testing.

Table 4.16
Summary of Hypotheses Testing

Hypotheses	Statement	Result
H1:	Use of social media is negatively linked with academic performance.	Not supported
H2:	Agentic engagement mediates the relationship between social media usage and academic performance.	Supported
H3:	Behavioural engagement mediates the relationship between social media usage and academic performance.	Supported
H4:	Emotional engagement mediates the relationship between social media usage and academic performance.	Not supported
H5:	Cognitive engagement mediates the relationship between social media usage and academic performance.	Not supported

4.11 Summary

In this chapter, after evaluating the structural models, the key findings of the study were presented. Specifically, social media usage was not found to be directly related to academic performance. However, both behavioural and agentic engagements mediated the relationship between social media usage and academic performance. The hypothesis that

emotional engagement mediates the relationship between social media usage and academic performance was not supported. In the same vein, the final hypothesis, which suggested that cognitive engagement mediates the relationship between social media usage and academic performance, was not confirmed. In the next chapter, the findings will be discussed.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 Introduction

In the last chapter, findings of the present study have been presented based on the data collected amongst students at the College of Business of Universiti Utara Malaysia. Specifically, the previous chapter has described the background of the participants. It has also presented the descriptive results of the main variables, the intercorrelations between the variables, and most importantly the results of the hypotheses testing. In this chapter, the findings are discussed in detail by relating them to theory of self-determination theory and previous works.

This chapter is organized as follows: First, it starts by recapitulating what the present study aims to achieve. Then, it discusses the findings of each research hypothesis that was subject to statistical testing. Next, this chapter proceeds by highlighting the implications of the findings revealed to practice and future research. In addition, limitations of study are outlined. Finally, this chapter ends with some concluding remarks about the present study.

5.2 Recapitulation of Research Objectives

Literature indicates that some theoretical gaps still exist with regards to understanding students' academic achievement. In particular, to what extent factors such as social media may be able to influence the student's academic achievement is yet to be confirmed due to

the mixed findings in the literature. Also, the present study proposes the role of student engagement in mediating the link between social media use and students' academic performance.

To recap, the present study's first research objective was to determine the level of use of social media among students of higher academic institutions. It also aimed to examine the role of social media in influencing students' academic and to investigate the mediation of student's engagement. To assist us in understanding how the theoretical linkages are proposed between use of social media, student's engagement, and academic performance, self-determination theory was invoked. In this context, the present study also aimed to validate the use of this theory in explaining the psychological behaviours of students in achieving higher levels of academic performance.

To achieve the research objectives, the present study employed a survey design to collect data from students of College of Business of from Universiti Utara Malaysia. The participants were selected randomly. Questionnaires were used as the main data collection technique. Starting from early March 2015 until end of April 2015, the data were personally administrated and collected.

To test the research hypotheses, analyses using PLS path modelling were run. In addition, descriptive statistics and frequency analysis were performed to profile the participants and to describe the "character" of the main variables.

Results indicated that out of five research hypotheses, two (i.e. H2 and H3) received empirical support, while the remaining three failed to receive any (i.e. H1, H4, and H5). Specifically, the present study found that only agentic engagement and behavioural

engagement mediated the relationship between social media usage and academic performance.

The next section discusses the results in greater detail by answering the research questions and addressing the research objectives set earlier.

5.3 Discussion of Research Findings

5.3.1 Level of use of social media

The first research question the present study seeks to address is "What is the level of use of social media among students of higher academic institutions?" To answer this question, frequency analysis on social media usage was run. The finding suggests that use of social media was quite popular among the sampled students, with the majority having a Facebook account. In this regard, the finding is consistent with a survey on Digital, Social and Mobile (2015), which reported that Facebook continues to dominate the global social media landscape, claiming 1.366 billion active users in January 2015. The finding also corroborates the survey conducted by the Pew Research Centre on American adults. The survey found that overall Facebook remains the most popular social media site (Duggan et al., 2015). Other studies that found similar result on the popular use of Facebook include Salaway and Caruso (2008).

The result of this study is also in parallel with other studies on students' frequency of using social media. Stollack et al. (2011) found the time spent on social media sites was mostly on Facebook (78.3%) where majority of students (77.2%) spent more than 30 minutes a day.

5.3.2 Use of social media and academic performance

The second research question the study attempts to answer is whether use of social media is related to academic performance of students, measured by their self-reported CGPA. After controlling the demographic variables such as race, gender, marital status, and age, it was found that use of social media did not have any significant effect on academic performance. In other words, the first hypothesis failed to receive empirical support. In this regards, this study contributes to the third group of the literature that points out the insignificant role use of social media plays in influencing students' academic progress (e.g., Alwagait, Shahzad, & Alim, 2014; Ahmed & Qazi, 2011; Camilia et al., 2013; Lubis et al., 2012).

One plausible explanation for the insignificant finding is perhaps the students in our sample were able to manage their use of social media well and as such were able to fulfil the study requirements, as suggested by Ahmed and Qazi (2011) in their study in Pakistan. Secondly, perhaps the students in the sample did not use much social media for academic purposes but rather used it more for non-academic purposes. Although no data were collected on non-academic use of social media, such explanation is possible given that the majority of the students in the present study were residential. Staying on-campus allowed them to interact face-to-face to discuss their assignments and anything related to their course content rather than online. And thirdly, as suggested by our findings, the effect of social media use on CGPA is not as direct as originally anticipated, to which our discussion turns next.

5.3.3 The mediation of student engagement

The third research question pertains to whether student engagement plays a mediating role in the link between use of social media and students' academic performance. In particular, whether the four dimensions of student engagement namely agentic engagement, behavioural engagement, emotional engagement, and cognitive engagement, as revealed by the findings, mediate the relationship. However, contrary to expectation, only agentic engagement and behavioural engagement were found to mediate this relationship.

Although previous research has not considered the role of specific type of student engagement in mediating the link between use of social media and student engagement, generally speaking, the finding of the present study has generally contributed to the expanding literature on the mediating role of student engagement. In this regard, our finding is consistent with previous works (e.g., Batts Jr., 2013; Junco et al., 2011; Olson, 2011). In general also, the findings on the effect of social media on academic performance through the mediation of agentic and behavioural engagement appear to validate self-determination theory that postulates that individuals are motivated to achieve personal goal to meet developmental needs of autonomy, competence, and relatedness. To do this, social cues in the environment are used. In this case, the social cue was social media use which helps students to achieve their academic performance because such use allows them to gain autonomy, competence, and relatedness, which reflect their engagement in class.

According to our findings, use of social media is able to enhance academic performance because it allows students to be agentically and behaviourally engaged with their studies. Agentic engagement reflects the degree to which students are active and constructive players in the classroom where they contribute to the classroom activities by

asking questions, providing suggestions and ideas, seeking clarifications etc. The use of social media enhances agentic engagement because it allows students to share and develop the content in the social media platform, scrutinize the way they think and understand the course materials. Because students are not passive learners, i.e. they do not only receive information in class, they share the information obtained from the social media with their friends and peers in class or outside the class. In this way, their perspective of the course material is more nuanced, which leads them to get better grades. Previous studies have shown an overwhelming support for the role of student engagement in enhancing academic performance of students (Klem & Connell, 2004; Kuh et al., 2008; Ladd & Dinella, 2009; Lee, 2014).

Behavioural engagement, on the other hand, is more about complying with rules and norms set inside and outside the classroom. Use of social media was found to enhance such engagement because it can act as a behavioural modification agent where social networks put pressures on individuals to conform to the existing norms. Indeed, peer pressure is an important behavioural determinant of an individual behavior because, generally speaking, individuals seek social approval to be accepted (Burns & Darling, 2002; Ryan, 2000). When individuals are accepted socially for conforming to the academic norms, they will be able to improve their grades because now they can seek assistance from their friends or social networks when they have problems in their studies.

On other hand, we did not find any empirical support for the role of emotional and cognitive engagement in mediating the use of social media-academic performance link. On possible reason for lack of emotional engagement brought about by social media use may be because the students in the present study did not identify with the school in the first

place. With regards to cognitive engagement, use of social media did not enhance students' comprehension and mastery of the difficult skills because such use may be limited in its capacity in doing so. When it comes to complex skills and contents, face-to-face instruction is more effective in enhancing students' learning experiences (Mentzer et al., 2007). Such finding is consistent with Dyson et al.'s (2015) study that found no evidence that Facebook intervention enhanced course engagement or understanding of the course. He explained that the students may have perceived the Facebook materials as extra work to be done in the course for no extra credit.

5.4 Implications to Theory and Practice

The findings of the present study has important implications to both theory and practice, as discussed below.

5.4.1 Theoretical implications

Theoretically speaking, the present study has managed to contribute to the growing literature on the use of social media, student engagement, and academic performance amongst business students in Universiti Utara Malaysia, where studies on such phenomenon is very limited. More importantly, the present study has been able to shed some light into the attitudinal mechanism of student engagement in facilitating our understanding how social media can explain academic performance through the application of self-determination theory. In other words, the findings are able to validate the applicability of self-determination theory in explaining how use of social media affects academic performance through student engagement. Even though self-determination

theory is essentially a motivation theory, the incorporation of engagement in our research model connotes such idea in that motivation is built within the engagement process.

5.4.2 Practical implications

From the practical point of view, this study would help higher learning institutions and educators think of ways of integrating the use of social media in learning activities, as an important learning tool to help students achieve better academic performance. As shown by the findings, such use can encourage more engagement in class in which the students can be more proactive rather than passive learners. However, despite the benefits of social media integration into the curriculum, ways have to ensure that its use is effective and remains effective.

5.5 Limitations of Study

The findings of the present study should be interpreted with caution by considering the following limitations:

a. Because this study was correlational in nature, implying causality is problematic. That is, we cannot be sure fully that use of social media causes engagement to increase and hence student's academic performance because no treatment and control groups were present. Nonetheless, despite this limitation, we have framed our understanding based on the relevant literatures and theory and as such the findings may not be entirely invalid.
b. Generalizability of the finding to a much larger population of students may be limited as the sampled students were recruited from the College of Business of Universiti Utara

Malaysia only. Perhaps students in different colleges at the same university or different universities may have a different pattern of using the social media. For instance, Kanagavel and Velayutham (2010) found that Indian students spent more time in social media sites than Dutch students but they were mostly passive. Dutch students, on the other hand, participate more actively than Indian students by posting to these sites. Judging from this evidence, more studies should be conducted on diverse population groups for generalizability purposes.

5.6 Suggestions for Future Research

Based on the limitations spelled out above, we recommend the following:

a. That more studies be conducted to include students in private higher institutions as well and of varying academic programs. By doing so, generalizability of the findings can be expanded.

b. That future studies consider different types of social media use and not focusing on academic purposes only. This is important for comparative purposes and to validate whether different types of use have any bearing on student engagement and hence academic performance.

c. That future studies should consider other mechanisms that can further explain why use of social media is not linked with academic performance. In this context, investigating different mediators and incorporate a moderator into the existing model may be useful in enhancing our understanding of such dynamics. For example, level of computer and Internet experience may explain further whether social media use is effective as a

learning tool. Access to computers and mobile devices is another potential moderator that could be examined in the future.

5.7 Concluding Remarks

Social media is an interesting social phenomenon that has changed greatly how we interact and communicate with others. Within the academic environment, to what extent its use is able to enhance students' learning experiences has received scholarly interest. As indicated by our research, using social media as a learning tool has a great potential in improving students' academic achievement and performance because it allows students to be more engaged agentically and behaviourally. Such finding suggests that social media can be effectively integrated in classroom activities for students' benefits. However, as noted by Dyson et al. (2015), integrating social media in the course delivery is complex as the successfulness of such integration depends on a variety of factors such as students' own perspective of the use of such tool. Hence, in this regard, educators and policymakers may want to embark on a careful study on the effectiveness of integrating social media as part of the students' learning activities.

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