

### PREDICTORS OF ACADEMIC ACHIEVEMENTS IN ONLINE PEER LEARNING AMONG UNDERGRADUATE STUDENTS IN A MALAYSIAN PUBLIC UNIVERSITY

## **IBRAHIM MOHAMMED HAMAD AMIN**

FPP 2016 11



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By

**IBRAHIM MOHAMMED HAMAD AMIN** 

Thesis Submitted To the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirement for the Degree of Master of Science

April 2016

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### DEDICATION

This thesis is dedicated to my beloved family, parents, friends, and best wishers



Abstract of the thesis presented to the senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

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#### April 2016

# Chairman: Norlizah Che. Hassan PhDFaculty: Educational Studies

An online peer learning through social media tools such as Facebook, Twitter, YouTube and Instagram has been networking interrelated undergraduates as social groups in higher learning institutions. In that respect, it has become an emerging phenomenon in the academia. Yet, not much is known about the effect of social media on the undergraduates' academic achievement. Therefore, the main purpose of this study is to identify factors influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities. Specifically, the study is focused on investigating: i) students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration, ii) relationship of students' peer engagement, academic self-efficacy online peer learning via social media and iii) to predict factors that influencing students' academic achievement among undergraduate students in Universiti Putra Malaysia (UPM).

The study was based on the quantitative method in nature with a correlational design using a set of the questionnaire as instrument adapted from previous studies and validated by a panel of experts. A pilot study was conducted on 30 undergraduate students at UPM to check the reliability of the measurements. The value of Cronbach's Alpha is greater than 0.70. The target population of this study is undergraduate students of the UPM. The sampling technique is stratified. A total of 376responseswere collected. The data was analyzed using Statistical Package for the Social Sciences (SPSS) version 22.0.

The finding of regression analysis indicated that five of the variables have a significant effect while the only peer feedback has an insignificant effect. The most important factor is social influence ( $\beta = .210$ , p <.05) followed by collaboration (( $\beta = .169$ , p <.05), performance expectancy ( $\beta = .140$ , p <.05), peer engagement ( $\beta = .121$ ,

p <. 05), and academic self-efficacy ( $\beta$  =.120, p <.05). The model explained 38.9% of the variation in the academic achievement of undergraduate students at UPM.

This study is useful for the decision makers at the university. More effort has to be made to encourage the students to involve effectively on the peer learning via social media. As lecturers and point, rewards can enhance students' collaboration which will lead to better academic achievement. The study confirms that UTAUT is able to explain the variation in the usage of online peer learning via social media to improve academic achievement. It also confirms the validity of the Sociocultural Theory. The collaboration can take place in an online environment and lead to similar results of peer teaching and collaborate with each other. As a result, this study confirms that collaboration between peer in an online environment is valid and able to predict the academic achievement. Social Cognitive Theory was validated by the findings of this study.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Master Sains

#### PERAMAL BERPENGARUH DALAM PENCAPAIAN AKADEMIK DALAM TALIAN FEER PEMBELAJARAN DI KALANGAN PELAJAR PRASISWAZAH

Oleh

#### **IBRAHIM MOHAMMED HAMAD AMIN**

April 2016

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Pembelajaran bersama rakan secara atas talian melalui media sosial seperti *Facebook, Twitter, You tube* dan *instagram* telah menghubungkan rangkaian mahasiswa untuk saling berkait sebagai kumpulan sosial di institusi pengajian tinggi. Sehubungan dengan itu, ia telah menjadi satu fenomena baru dalam kalangan akademia. Namun, tidak banyak yang diketahui tentang kesan media sosial terhadap pencapaian akademik mahasiswa.Oleh itu, tujuan utama kajian ini adalah untuk mengenal pasti faktor-faktor yang mempengaruhi pencapaian akademik dalam pembelajaran rakan sebaya atas talian dalam kalangan pelajar ijazah di salah sebuah universiti awam dan penyelidikan. Khususnya, kajian ini memberi tumpuan untuk mengkaji: i) penglibatan pelajar, efikasi swadin, jangkaan prestasi, pengaruh sosial, maklum balas rakan sebaya dan kolaborasi semasa mengamalkan penbelajaran rakan sebaya atas talian melalui media sosial; ii) hubungan penglibatan pelajar, efikasi kendiri, pengaruh sosial, maklum balas rakan sebaya dan kolaborasi dengan akademik dan; iii) peramal faktor-faktor yang mempengaruhi pencapaian akademik dan; iii) peramal faktor-faktor yang mempengaruhi pencapaian akademik dan; iii) peramal faktor-faktor yang mempengaruhi pencapaian akademik dan penyelidikan.

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Kajian ini berdasarkan kaedah kuantitatif semula jadi dengan reka bentuk korelasi menggunakan satu set soal selidik sebagai instrumen yang diadaptasi daripada kajian lepas dan disahkan oleh beberapa panel pakar. Kajian rintis telah dijalankan ke atas 30 pelajar ijazah pertama di UPM untuk memeriksa kebolehpercayaan alat ukur ini.Nilai *Cronbach Alpha* adalah lebih besar daripada 0.70.Sasaran populasi kajian ini adalah pelajar ijazah daripada UPM.Teknik persampelan adalah berstrata.Sejumlah 369 maklum balas telah dikumpul.Data dianalisis menggunakan Pakej Statistik Untuk Sains Sosial (SPSS) versi 22.0.

Dapatan analisis regresi menunjukkan bahawa lima daripada pemboleh ubah mempunyai kesan yang signifikan manakala hanya maklum balas rakan sebaya mempunyai kesan yang tidak signifikan. Faktor yang paling penting ialah pengaruh sosial ( $\beta = 0.210$ , p <.05) diikuti dengan kerjasama ( $\beta = 0.169$ , p <.05), prestasi jangka ( $\beta = 0.140$ , p <.05), penglibatan ( $\beta = 0.121$ , p <.05), dan efikasi kendiri ( $\beta = 0.120$ , p <.05). Model ini menjelaskan 38.9% daripada variasi dalam pencapaian akademik pelajar ijazah pertama di UPM.

Kajian ini adalah berguna untuk pembuat dasar dan polisi di universiti. Lebih banyak usaha perlu dibuat untuk menggalakkan pelajar untuk terlibat secara efektif dalam pembelajaran rakan sebaya melalui media sosial seperti pensyarah dan mata ganjaran boleh meningkatkan kolaborasi pelajar yang akan membawa kepada pencapaian akademik yang lebih baik. Kajian ini mengesahkan bahawa UTAUT mampu menjelaskan variasi dalam penggunaan pembelajaran rakan sebaya atas talian melalui media sosial untuk meningkatkan pencapaian akademik.Ia juga mengesahkan kesahihanTeori Sosiobudaya. Kaedah kolaborasi ini boleh berlaku dalam persekitaran atas talian dan membawa kepada keputusan yang sama kepada pengajaran rakan sebaya dan kolaborasi antara satu sama lain. Hasilnya, kajian ini mengesahkan bahawa kerjasama antara rakan sebaya dalam persekitaran atas talian adalah sah dan dapat meramalkan pencapaian akademik.

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V

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It is Allah who bestows success, and guides in the Straight Path

Pease be upon you

The thesis is submitted to the senate of the Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Master of Science. The members of the supervisory committee were as follows:

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Date:

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g	
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Name of	
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Supervisory	
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### **TABLE OF CONTENTS**

ABSTRACT

ABSTRAK

Page

i

iii

ACKN	<b>IOWL</b>	EDGEMENTS	v
APPR	OVAL		vi
DECL	ARAT	ION	viii
LIST	OF TA	BLES	XV
LIST	OF FIC	GURES	xvi
СНАР	TFR		
UIAI	ILK		
1	INTR	ODUTION	1
	1.1	Background of Study	1
	1.2	Problem Statement	4
	1.3	Main Research Objectives	6
	1.4	Specific Research Objectives	6
	1.5	Research Questions	6
	1.6	Hypotheses of the study	7
	1.7	Significance of the Study	7
	1.8	Scope and Limitation of the Study	8
	1.9	Conceptual and Operational Definitions	9
	1.10	Summary	11
2	LITE	RATURE REVIEW	12
	2.1	Introduction	12
	2.2	Social Media	12
		2.2.1 Prevalence of Social Media	13
		2.2.2 The Use of Social Media among University Students	15
		2.2.3 Survey of Malaysian Literature	20
		2.2.4 The Relationship between Social Media Use and	
		Academic Achievement	23
	2.3	Conceptions of Peer Learning	26
		2.3.1 Online Peer Learning	27
		2.3.2 Online Peer Learning dimensions	29
		2.3.3 Online Peer Learning in Higher Education	30
		2.3.4 Online Peer Learning and Academic Achievement	32
	2.4	Factors Influencing Online Peer Learning and Academic	
		Achievement	34
	2.5	Theories related to the Present Study	40
		2.5.1 Cognitive Theory of Learning	40
		2.5.2 Social Cognitive Theory (SCT)	42
		2.5.3 Sociocultural Theory, Vygotsky (1978)	44
		2.5.4 Unified Theory of Acceptance and Use of Technology	
		(UTAUT)	45
	2.6	Conceptual Framework	49

Conceptual Framework 2.6

		2.6.1 Academic Self-Efficacy	49
		2.6.2 Peer Engagement	51
		2.6.3 Performance Expectancy	52
		2.6.4 Social influence	53
		2.6.5 Peer feedback	54
		2.6.6 Collaboration	55
	2.7	Summary	56
3	RESE	EARCH METHODOLOGY	58
·	3.1	Introduction	58
	3.2	Research Design	58
	3.3	Location of the Study	58
	3.4	Research Population	59
	3.5	Sample Technique	59
	3.6	Sample Size	60
	3.7	The Instrumentation	62
		3.7.1 Section A: Background Information	62
		3.7.2 Section B: Factor Influence academic achievement in	
		Online Peer Learning	63
	3.8	Validity and Reliability	66
		3.8.1 Validity	66
		3.8.2 Reliability	68
	3.9	Pilot Study	68
	3.10	Data Collection	68
	3.11	Exploratory Data Analysis	69
	3.12	Data Analysis	74
		3.12.1 Descriptive statistics	74
		3.12.2 Inferential Statistics	74
	3.13	Research Data Analysis	76
	3.14	Summary	76
1	DECI	ILTS AND EINDINGS	77
4	KESU 4 1	JLIS AND FINDINGS	ו ו דד
	4.1	1 1 Demographic Variables of the Respondents	ו ו דד
		4.1.2 Conder	70
		4.1.2 Ochdel	79
		4.1.3 Age Oloup	79
		4.1.5 Social media Application	70
		4.1.6 Eaculty	80
		4.1.7 Social Media Usage for Academic Purpose	80
		4.1.8 Social Media Usage for Non-Academic Purpose	81
	42	Analysis of Levels of Dependent and Independent Variables	82
	<i>т.2</i>	4.2.1 Academic Self -Efficacy	82
		4.2.1 Predefine Sen -Efficacy	83
		4.2.3 Peer Feedback	84
		4.2.4 Collaboration	86
		425 Social Influence	88
		4.2.6 Performance Expectancy	80
	43	Relationship between Independent Variables and Academic	0)
		Achievement	90
			20

	4.4	Predic	ctor Factors of Academic Achievement	92	
	4.5	Summary			
5 SUMMARY, DISCUSSION, IMPLICATIONS,			, DISCUSSION, IMPLICATIONS,		
	RECO	OMME	ENDATION, AND CONCLUSION	96	
5.1 Introduction			luction	96	
	5.2	Summ	Summary of the Study		
	5.3	Summ	Summary of Research Findings		
	5.4	Discu	scussion of the Research Findings		
		5.4.1	.1 Levels of students' peer engagement, academic self-		
			efficacy, performance expectancy, social influence, peer		
			feedback and collaboration (Independent variables) and		
			Academic Achievement (Dependent Variable)	98	
		5.4.2	Relationship between of students' peer engagement,		
		academic self-efficacy, performance expectancy, s			
			influence, peer feedback and collaboration (Independent		
			Variables) and Academic Achievement (Dependent		
			Variable)	102	
			5.4.2.1 Students' Academic Self-Efficacy and	100	
			Academic Achievement	102	
			5.4.2.2 Students' Peer Engagement and Academic	100	
			Achievement	103	
			5.4.2.3 Students performance expectancy and	102	
			Academic Achievement	105	
			Academic Academic	104	
			5.4.2.5 Students' neer feedback and Academic	104	
			Achievement	105	
			5426 Students' Collaboration and Academic	105	
			Achievement	106	
		5.4.3	Factors Influencing Academic Achievement in Online		
			Peer Learning	106	
			5.4.3.1 Academic Self-Efficacy	106	
			5.4.3.2 Peer Engagement	107	
			5.4.3.3 Performance Expectancy	107	
			5.4.3.4 Social Influence	108	
			5.4.3.5 Peer Feedback	108	
			5.4.3.6 Collaboration	109	
	5.5	Implic	cations	110	
		5.5.1	Practical Implication	110	
			5.5.1.1 Academic Self-Efficacy	110	
			5.5.1.2 Peer Engagement	110	
			5.5.1.6 Performance Expectancy	110	
			5.5.1.5 Collaboration	111	
		552	Theoretical Implications	111	
	56	Becor	mmendations for Future Study	112	
	5.0 5.7	Concl	lusion	112	

REFERENCES	115
APPENDICES	145
BIODATA OF STUDENT	167
LIST OF PUBLICATIONS	168



### LIST OF TABLES

Tabl	e	Page
3.1	Dispersion of UPM Undergraduates According to Faculties	59
3.2	Sample Size for UPM Undergraduates According to Faculties	61
3.3	The Components of the Questionnaire	
3.4	Distribution of the Samples According to their Current CGPA	62
3.5	Subsection items for Part B in the questionnaire	63
3.6	Panel Experts Comments on the Instrument	64
3.7	Reliability test of Pilot Study and Actual Study	67
3.8	Pearson's r Value, Tolerance, VIF	68
3.9	Descriptive Statistics of Normality	73
3.10	Value and Interpretation of Correlation Coefficient	73
3.11	Mapping Research Questions with Instruments and Methods	75
4.1	Demographic Variables of the respondents $(n = 328)$	78
4.2	Social Media Usage for Academic Purposes	80
4.3	Social Media for Non-Academic Purpose	81
4.4	Academic Self Efficacy (n = 328)	82
4.5	Peer Engagement (n = 328)	83
4.6	Peer Feedback (n= 328)	85
4.7	Collaboration (n=328)	87
4.8	Social Influence (n=328)	88
4.9	Performance Expectancy (n=328)	89
4.10	Pearson Correlation Matrix of Independent Variables	91
4.11	Multiple Linear Regressions on Academic Achievement	94
4.12	ANOVA	94
4.13	Model Summary	94

## LIST OF FIGURES

Figu	re	Page
2.1	Social Cognitive Theory (Bandura, 1986)	43
2.2	UTAUT Model adopted from Venkatesh et al. (2003)	46
2.3	Theoretical Framework	49
2.4	Conceptual Framework	56
3.1	Boxplots of the Variables of the Study	70
3.2	Histogram of the Variables of the Study	71
3.3	Normal Q-Q Plot of the Variables	72

C

#### **CHAPTER 1**

#### **INTRODUTION**

#### **1.1 Background of Study**

The increasing use of social media among university students is one of the highly growing phenomena in the academia (Cheung, Chiu& Lee, 2011). Various studies show students' high involvement in using social network websites to interact with their lecturers and discussing learning materials (Zakaria, Watson & Edwards, 2010; Tham & Ahmed, 2011; Manjunatha, 2013). Other common uses include promotion of collaboration and information sharing (Junco, Heiberger & Loken 2011). As such, social media helps students to communicate and create networks with each other (Correa, Hinsley & De Zuniga, 2010) through comments, posts, and information sharing (Kushin & Yamamoto, 2010). From that observation, it is almost not surprising that a large number of students as a society of learners relying on different social media tools and websites in order to increase their academic achievement. This has been done through knowledge sharing activities (Majid & Yuan, 2006), learning management in electronic learning (E-learning) and improvement of students' learning (Sohail & Daud, 2009).

Researchers acknowledge the expanding use of different social media tools all around the world. Different individuals across the globe and through various disciplines are engaged with social media tools (Hashim, Abdullah, Isa & Janor, 2015). Specifically, the Infographic Social media Stats (Infographic, 2014), testified that there is more than seven hundred million users access Facebook from seven thousand different devices, more than five hundred million users access Twitter, and more than one hundred thirty million uses Instagram in 2013. Elsewhere, researches have been emerging acknowledging YouTube, Twitter and Facebook in teaching and learning processes (Ham & Schnabel, 2011; Veletsianos, 2011; Koya, Bhatia, Hsu& Bhatia, 2012; Zakarian, 2013; Buzzetto-More, 2014; V ézina, 2014). In this case, researchers have raised concerns that students must develop the ability to interact, work, communicate, find, and share knowledge consistent to present ever-changing E-learning environment (Eisenstadt & Vincent, 2012). This is the question of collaboration and networking skills, student's area require to team up and learn from each other as they do through traditional learning methods (Tervakari, Silius, Tebest, Marttila, Kailanto& Huhtamaki, 2012). Therefore, it can be debated that proper usage of social media tools such as Facebook among peers to some extent can contribute to their academic achievement (Boud, Cohen & Sampson, 2014).

There is continuing unique growing of networked world and technologies in which students as peers can share learning and related activities, with educators and respective administrative staffs (Janicki & Liegle, 2001; Parker & Gemino, 2001). In this respect, online peer learning is conceptualized as students' shared learning from each other without restricting any students' background (Ab Jalil, 2011). Online peer learning is related to this study because it addresses social interactions amongst peers

which are vital to improving conceptual understanding and engagement, in turn increasing course performance and completion rates(Dourish & Bell, 2007; Konstan, Walker, Brooks, Brown& Ekstrand, 2014).

In addition to that, it gives social interaction especially in the context where, Information technology emerges as a major component in peer learning, operating in a variety of ways, forms, in curriculum areas and in contexts of application beyond school (Topping, 2005). Moreover, it involves undergraduate as learners of similar social groupings eager to learn and help each other to learn and learning themselves by so doing (Topping, 2005). Therefore, online peer learning is important for this study as through social media tools undergraduates could get engaged and interacted, on discussing lectures, assignments, projects and exams in casual social settings (Keppell Au, Ma & Chan, 2006).

Nevertheless, social media usage, in academic institutions and its effects on academic achievement have derived conflicting results. First, students are objectively using social media and has resulted in a negative influence on academic achievement (Kolek & Saunders, 2008; Kord, 2008; Pasek, More & Hargittai, 2009; Tervakari et al., 2012; Balakrishnan & Shamim, 2013; Zaremohzzabieh, Samah, Omar, Bolong & Kamarudin, 2014). Second, social media is seen to enhance knowledge sharing and e-learning activities between peers (Majid & Yuan, 2006; Sohail & Daud, 2009; Junco et al., 2011). Third, researchers have found no correlations between social media usage and academic achievement (Kolek & Saunders, 2008; Pasek et al. 2009).

In Malaysia, as elsewhere, there has been a growing concern among researchers and academicians on students' use of social media and learning (Almadhoun, Lai& Dominic, 2012; Din & Haron, 2012; Hosny & Fatima, 2012; Alhazmi& Rahman, 2013; Alias, Siraj, Daud& Hussin, 2013; Said, Ahmad, Yassin, Mansor, Hassan & Alrubaay, 2014). Generally, Facebook, YouTube and Instagram appear as the most influential social media among Malaysian undergraduate students (Zakaria et al., 2010; Alhazmi & Rahman, 2013; Abdul Hamid, Ishak & Yazam, 2015). Most of the Malaysian students are reported to use social media for communication and socialization activities (Danyaro, Jaafar, De Lara & Downe, 2010; Wok, Idid & Misman, 2012; Isa, Rozaimee, Hassan& Tahir, 2012; Yusop & Sumari, 2013). This observation suggests that Malaysian undergraduates are sensibly well exposed to multiple social media tools and are gratified to use them for education purposes.

Yet, there has been an inadequate discussion about the relationship of social media tools and improvement of university students' academic achievement in Malaysian context (Razak& See, 2010; Zakaria et al., 2010). Studies conducted in Malaysia related to the said technological tools seemed silent on major success factors, benefits, and obstacles limiting their applications in learning institutions, despite their opportunities to facilitate meaningful knowledge in higher education (Lim, Agostinho, Harper & Chicharo, 2014), providing a rich context in which to observe this developing phenomenon. This research is trying to contribute in the modeling of the factors that are influencing academic achievement via online peer learning. The

dimensions of online peer learning are incorporated based on the previous studies. Cognitive Theory of Learning pointed out that collaboration between peers is necessary to exchange ideas (Piaget, 1980) and it can develop the peer capabilities (Vygotsky, 1986). Collaborative learning has been found to be a driver for student's satisfaction and achievement in social media (Barnard, Paton & Lan, 2008; Al-Rahmi & Othman, 2013; Al-Rahmi, Othman & Yusuf., 2015).

Another theory, such as Social Cognitive Theory (SCT) relates academic achievement to the academic self-efficacy of the peers. Academic self-efficacy is the main typical that modifications human behavior. It is the strength or the degree of someone's belief in his/her ability and readiness to accomplish tasks and obtain designed goals (Bandura, 1986) and it has a direct and significant influence on academic achievement (Joo, Lim & Kim, 2013). The students' academic self-efficacy in using social media tools can affect their academic achievement (Hanushek, Kain, Markman & Rivkin, 2003; Lai, Wang & Lei, 2012). Many researchers have incorporated and tested empirically the effects of academic self-efficacy over academic achievement and have found a positive relationship between the two variables (Ho, Kuo & Lin, 2010; Diseth, 2011; Din, Yahya & Haron, 2012).

Recent theories that interested in the new technolgy usage such as the Unified Theory of Acceptance and Use of Technolgy (UTAUT) (Venkatesh, Morris, Davis & Davis, 2003) has related the acceptance and use of a new technology to four factors among them social influence and performance expectancy have been important predictors of the use of a new technology. This theory indicates that the performance of the system leads to its acceptance by users. One meaning is that, the effect of family, friends, and management can influence the technology usage (Venkatesh et al., 2003). Remarkably, UTAUT is built depend on eight renowned models that include the Technology Acceptance Model (TAM). The variable performance expectancy in UTAUT is similar to usefulness in TAM (Venkatesh et al., 2003). Many researchers have tested UTAUT in their studies such as acceptance of an online instrument (Ajjan & Hartshorne, 2008; Liu, Chen, Sun, Wible & Kuo, 2010).

Given that most of the undergraduate students in Malaysian universities experience larger interaction with other undergraduates and their lecturers when they used social media tools. (Hamid, Kurnia, Waycott & Chang, 2015), the following aspects of UTAUT theory seem important for this research: First, the performance expectancy is mentioned as one factor influencing individual's decisions on using technology. According to Sedek (2014), performance expectancy becomes the greatest noticeable factor influencing the technology usage when individuals perceive the usefulness of the system as it can satisfy their job (Abdul Rahman, Jamaludin & Mahmud, 2011).

This observation fits the students' usage of social media for educational purposes, since the main driver for using related technological instruments (Leng, Lada, Muhammad, Ibrahim & Amboala, 2011; Suki, Ramayah & Ly, 2012; Al-Rahmi et al., 2015) is tied to their usefulness and ability to improve job performance and achievement (Ekawati & Hidayanto, 2011). Second, UTAUT is important because of its consideration of the effects of social influence to individuals' use of technology. It

is said that, the social influence of others might affect individuals' decision making to promote the use of innovation (Venkatesh et al., 2003; Wang, Wu & Wang, 2009; Mustaffa, Ibrahim, Mahmud, Ahmad, Kee & Mahbob, 2011; Yu, 2012). This observation offers plentiful opportunities to study undergraduate students who like other students, are expected to use new technology based on the influence of the people around (Jaradat, 2012; Zhang, Liu, Tang, Chen & Li, 2013). Therefore, the two aspects of UTAUT fit the present discussion on social media.

Moreover, researchers also addressed the level of peer engagement in online discussion and academic activities among peers (Tervakari et al., 2012). Many types of engagement are seen to be key indicators of academic achievement of peers (Krause & Coates, 2008; Wise, Skues & Williams, 2011). Engagement of peer in an online collaborative learning has led to better academic achievement (Al-Rahmi & Othman, 2013).

Peer feedback has a significant role in maximizing the interest of students to participate in online peer learning activities (Chen, Wei, Wu & Uden, 2009). Brief feedback could expand peer review transparency and students self-reliance (Smith, Cooper & Lancaster 2002). Assisted performance from online exchanges presents visions into the learning process that may happen in online discussion and presents a way of recognizing evocative online communication (Ab Jalil & McFarlane, 2010). It is believed that different types of feedback could have different impacts on students' academic achievement (Topping, 1998).

Based on the above discussion, this study responds to the call that has been made by Lim et al. (2014). Therefore, the main purpose of this research is to identify the predictors factors influencing the undergraduate's academic achievement in online peer learning.

#### **1.2 Problem Statement**

To date, there has been little agreement on the social media usage, and it is impacting on academic achievement. Some researchers found the use of social media have a negative influence on academic achievement (Almadhoun et al., 2012; Zaremohzzabieh et al., 2014). Other studies have found no correlations between the use of social media and academic achievement (Kolek & Saunders, 2008; Pasek et al., 2009). The reported conflicting results are in the midst of narrow scope of one or two variables, e.g. (Li, 2012; Komarraju & Nadler, 2013) and limited focuses on technical than social or behavioral aspects of online peer learning (Ho et al., 2010; Ab Jalil & de Laat, 2014). In the Malaysian context, however, a full understanding of the social media and how it is being utilized in education is still lacking (Teclehaimanot & Hickman, 2011). For instance, it has not been established as to what could be the levels of peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration among undergraduate students in an institution of higher education when practicing online peer learning via social media. Based on the aforesaid observation, this study is needed to fill the knowledge gap.

Most of the earlier studies on online peer learning have been conducted in Western and developed countries (Shafique, Anwar & Bushra, 2010; Rouis, Limayem & Salehi-Sangari, 2011). Studies conducted in Malaysia have tended to emphasis on the social media usage in general (Salman, Salleh, Abdullah, Mustaffa, Ahmad, Chang & Saad, 2014), rather than their related positive and negative outcomes (Balakrishnan & Shamim, 2013). It is normally presented in these studies that Malaysian undergraduate's social media usage such as Facebook for such related motives as interaction and socialization with their peers as shown in other studies done worldwide.

Research by Omar, Manaf, Mohd, Kassim and Aziz (2012) just reported low levels of Malaysian undergraduates' technology competency. Yet, academic activities in Malaysian universities are progressively carried out through the social networks, such as Facebook, Twitter and LinkedIn (Al-Rahmi, Othman& Musa, 2014). Here, the question was raised on students' performance expectancy in the setting of online peer learning. It was also difficult to highlight about peer engagement, while such activities as dialogues, peer assessments, and group projects, according to Chen, Gonyea and Kuh (2008) give students the feeling of being part of a community and become engaged with the course. In relation to academic self-efficacy, a study by Raoofi, Tan and Chan (2012) seem to focus on mere language learning particularly English among Malaysian students.

It was quite unknown, however, on how Malaysian undergraduates' beliefs about their abilities amidst growing use of social media tools in online peer learning context influence their academic achievement. Specially, the problem was related to unknown students' persistence and level of efforts they invested in using social media tools while practising online peer learning. Elsewhere, a study by Talib, Luan, Azhar,and Abdullah (2009) found that the majority of the Malaysian students accepts peers to be helpful and being a source of information. Yet, it was relatively not known about students' social influence, collaboration and peer feedback when using social media tools for practicing online peer learning. That happened amidst the rising concerns related to how Malaysian undergraduate students deal, with their studies and accomplish assigned different tasks (Loo & Choy, 2013) during the pressure of socializing than learning, related academic matters (Abd Jalil, Abd Jalil& Abdul Latiff, 2010; Muniandy & Muniandy, 2013). Therefore, the study was needed to focus on the said aspects among undergraduate students in one of the Research University in Malaysia as one of the non-Western countries.

In addition to that, several previous research findings seem to identify the different factors influencing online peer learning in general. Such factors include students' academic self-efficacy (Bandura, 1982; Mew & Money, 2010), students' peer engagement (Tervakari et al., 2012), and students' performance expectancy (Cho, Cheng & Lai, 2009). Other researchers also consider factors such as social influence (Wang et al., 2009), peer feedback (Topping, 1998; Smith et al., 2006) and

collaboration (Kahiigi, Vesisenaho, Hansson, Danielson & Tusubira, 2012). Nevertheless, little is known about exact factors influencing students' use of social media to promote their academic achievement. The said knowledge gap needs to be addressed with the focus to predict factors influencing undergraduate students' academic achievement while practicing online peer learning via social media in the Malaysian context. This is important in the Malaysian efforts to match with it is ideal towards digitalization (Ministry of Higher Education, 2014).

#### **1.3** Main Research Objectives

The main research objective of the study is to examine factors influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities.

#### 1.4 Specific Research Objectives

The specific objectives of the proposed study are as follows:

- 1. To investigate students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration, while practicing online peer learning via social media among undergraduate students in UPM.
- 2. To determine the relationship of students' peer engagement, academic self-efficacy, social influence, peer feedback and collaboration with students' academic achievement while practicing online peer learning via social media among undergraduate students in UPM.
- **3.** To predict factors that influencing students' academic achievement while practicing online peer learning via social media among undergraduate students in UPM.

#### 1.5 Research Questions

#### The Research Questions based on Objective 1

- 1. What is the level of student's peer engagement with having online peer learning via social media among undergraduate students in UPM?
- 2. What is student's academic self-efficacy with having online peer learning via social media among undergraduate students in UPM?
- 3. What is student's performance expectancy with having online peer learning via social media among undergraduate students in UPM?
- 4. What is student's social influence with having online peer learning via social media among undergraduate students in UPM?
- 5. What is student's peer feedback with having online peer learning via social media among undergraduate students in UPM?

6. What is student's collaboration with having online peer learning via social media among undergraduate students in UPM?

#### 1.6 Hypotheses of the study

Hypotheses according to the objective 2 which related to the correlation between the independent variables and the dependent variable are as follows:

- H<sub>1</sub> Is there any significant relationship between students' peer engagement with students' academic achievement in having online peer learning via social media among undergraduate students in UPM.
- Is there any significant relationship between student's academic self- $H_2$ efficacy with students' academic achievement in having online peer learning via social media among undergraduate students in UPM.
- Is there any significant relationship between students' performance  $H_3$ expectancy with students' academic achievement in having online peer learning via social media among undergraduate students in UPM.
- Is there any significant relationship between students' social influence  $H_4$ with students' academic achievement in having online peer learning via social media among undergraduate students in UPM.
- Is there any significant relationship between students' peer feedback with H<sub>5</sub> students' academic achievement in having online peer learning via social media among undergraduate students in UPM.
- Is there any significant relationship between students' collaboration with  $H_6$ students' academic achievement in having online peer learning via social media among undergraduate students in UPM.
- Is there any significant factors that influence students' academic  $H_7$ achievement in having online peer learning via social media among undergraduate students in UPM.

#### 1.7 Significance of the Study

There are relatively not many researches about the use of social media and its impacts on academic achievement in developing countries (Rouis et al., 2011; Zanamwe, Rupere & Kufandirimbwa, 2013). This study enriches the database of students' online peer learning, social media use, and academic achievement in Malaysia and other developing countries. The findings of this study will benefit students in the attempts of incorporating soft skills, as emphasised by the Ministry of Higher Education Malaysia (Shakir, 2009). Besides, it will enrich discussions about the undergraduate student's usage of social media and learn with the focus to improve academic achievement. The said significance could be achieved by attempting to identify factors influencing on undergraduate students' academic achievement in online peer learning. Therefore, the finding can help decision makers to focus more on factors and promote undergraduate students' academic achievement.

To date, the Universiti Putra Malaysia (UPM) as one of the research universities in the country, continue to attract the majority of undergraduates within the country and across the global (Fernandez & Tan, 2010). The findings of this study can help UPM administration, academic and non-academic staffs to develop research based awareness on undergraduate students' online peer learning issues. Given its status, for instance, the findings will help UPM academic staffs to capitalize on students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration while practicing online peer learning via social media. This is vital for sustaining its status as it will improve undergraduate students' academic achievement.

Furthermore, the result of this study will as well enrich the theoretical knowledge of using social media tools in Malaysian context of higher learning institutions. For that reason, the study can help educational policy makers on improving judgments meant for the successful use of multiple social media tools in Malaysia. Another significance of the study can be cited from understanding that the success of students is inclusive towards contributing to a more educated and productive nation. In this case, it is hoped that through the findings on factors influencing the academic achievement, the study will benefit the Malaysian education system and planning consistent with the vision of 2020. Here, the country as a whole is expected to enjoy the essence of what Ong (2013) calls as a progressive society through technology. The findings will be opportune government to realize its goal towards a knowledge economy by having knowledge citizens on utilizing information systems.

#### **1.8 Scope and Limitation of the Study**

Consistent with research objectives, questions and hypotheses, this study was conducted at the University Putra Malaysia (UPM) as one of the Malaysian public university. This research focused on the factors affecting students' academic achievement in online peer learning. This study was limited in the extent to generalize the findings considering the fact that the data were collected from just one public university. Besides, questionnaires were used as the main data collection method. Yet, to what extent and how accurate the undergraduate students filled the questionnaires were based on their own perceptions and overall understandings. In this respect, the researcher could not be in a position to ascertain the responses accordingly. It was only hoped that the respondents would be honest. This was a limitation in the attempts of generalizing the findings of this study.

In addition to that, this research focused on the dimensions of online peer learning and their influence on academic achievement. Dimensions of online peer learning include academic self-efficacy, performance expectancy, social influence, collaboration, peer engagement, and feedback. The target population of this study is the completing undergraduate students at the University Putra Malaysia (UPM). Yet, the findings are limited because the researcher was unable to capitalize on a UPM Putra LMS to argue the case related to online peer learning via social media among undergraduates. Had such online platform been addressed, perhaps the respondents could easily reflect on the correctness of the responses. Failure to maximize that opportunity has limited this study.

#### **1.9** Conceptual and Operational Definitions

The following definitions are listed to clarify the terms that are used in this research:

#### a. Social Media

Social media are websites that are representing various forms of consumer-generated content such as, social networks, wikis, virtual communities, blogs which are developing on the ideological and technological fundamentals of the internet and that authorize the formation and interchange of interoperability and usability (Kaplan & Haenlein, 2010). It is also referred to the online tools that are intended to facilitate the distribution of content through social communication among people, groups and organizations using the online and Web-based technologies to allow the transformation of broadcast monologues (one to many) into social discussions (many to many) (Botha & Mills, 2012, p. 85). In this study, social media refers to the social network that facilitates the gathering and exchange of information in an online environment.

#### b. Online Peer Learning

Peer learning is an arrangement of supportive learning that increases the value of learner-learner interaction and results in several valuable learning consequences. By opening opportunities for students or peers to view blogs formed by others and encouraging explanations and suggestions after examining their perspectives, exemplars are displayed for observations and modeling, which, in the light of social modeling by Bandura (1986), should improve observer's knowledge levels in a duty. According to Ab Jalil (2011), the term online peer learning is defined as students' shared learning from each other. In this study, online peer learning refers to the technology that enables students to meet virtually, exchange idea and information, which are related to their academic studies in any social media platform.

#### c. Academic Achievement



Academic achievement is the one of foremost factors reflected by the organizations in employing workforces, particularly the new graduates. It is well-defined as a student's academic performance in school (Chen, 2007, p. 23). It is determined through different ways, including cumulative grade point average (CGPA), grade point average (GPA), tests and others. In Malaysia, academics evaluate the undergraduate's academic achievement based on CGPA (Agus & Makhbul, 2002; Alfan & Othman, 2005; Naderi, Abdullah, Aizan, Sharir& Kumar, 2009). In this study, academic achievement mostly belongs to the respondents' actual cumulative grade point average (CGPA).

#### d. Academic Self-Efficacy

Academic self-efficacy is the degree of someone's belief of what he/she can do (Bandura, 1982). It also refers to an individual's belief (conviction) that they can successfully achieve at a designated level of an academic task or attain a specific academic goal (Institute for Applied Psychometrics, 2008). In this study, academic self-efficacy is more defined as respondents' academic self-efficacy in dealing with academic studies.

#### e. Peer Engagement

The term peer engagement refers to the measure of mental and physical energy that an undergraduate is dedicated to the academic experience (Astin, 1984). Student peer engagement is used by Krause and Coates (2008) which is defined by Kuh (2009), is the time and effort students devote to activities that are empirically linked to desired outcomes of college and what institutions do to induce students to participate in these activities (Kuh, 2009, p. 683). In this study, peer engagement shows the time and effort undergraduates dedicate to activities that are empirically related to desired outcomes of university and what organizations do to encourage students to contribute in those activities.

#### f. Performance Expectancy

Performance expectancy refers to the extent to which a student believes that using an information system will help him or her to attain benefits in academic achievement (Venkatesh et al., 2003). According to Chen and Chang (2013) performance expectancy is defined as the grade individuals believe that using a system will help them conquer their aims. In this study, performance expectancy refers to the progress in academic achievement that students perceive by using online peer learning.

#### g. Social Influence

Social influence as the change in an person's feelings, thoughts, communication or behaviour resulting from the thoughts, feelings, communication, or behavior one more other people. Social influence comes in many forms. It can be intentional, as in the case of persuasion, which concerns how individuals exercise influence on others via messages (Dillard & Pfau, 2002). Social influence is also defined as the degree to which an individual remarks the importance others believe that should be used as a new information system (Venkatesh et al., 2003). In this study, social influence refers to the influence of students on each other. It is expected if a group of students uses online peer learning, they might convince others to join.

#### h. Peer feedback

Heng (2014) refers to feedbacks that students receive from each other. In this study, the term peer feedback is defined as a technique in giving of suggestion, comments, and error correction derived from one-to-one consultation between student and student. The students themselves take roles which are normally done by teachers in commenting or criticizing their own writings in the teaching and learning writing.

#### i. Collaboration

The term collaboration can be defined as an active creation of knowledge where students share information and ideas via a group or pair communication. (Vygotsky, 1986). In collaborative learning, the main emphasis is on learners' interaction and sharing skills and knowledge so as to reach a particular learning goal (So & Brush, 2008). In this study, collaboration refers to the cooperation between peers in an online environment in order to achieve a common set of goals. In this respect, learners must take responsibility for their own efforts to benefit themselves and the peers.

#### 1.10 Summary

Chapter one presented the context and background of this study in relation to factors influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities. The chapter has highlighted the increasing practice of social media tools among university students and its academic achievements in general. It concisely stressed on the conflicting results that some studies acknowledge the students' objective use of social media while others consider social media to enhance knowledge sharing between peers. Yet, it showed that other researchers found no correlation between social media use and academic achievement. This chapter also included a brief note on the positive attitude towards the social media usage in Malaysian universities.

From the reviewed literature and researched problem, it was established that there was a need to focus on undergraduate students' peer engagement, academic selfefficacy, performance expectancy, social influence, peer feedback and collaboration and academic achievement from non-Western experiences. Besides, it appeared that it was vital to focus on factors influencing students' academic achievement while practicing online peer learning via social media.

Building from that understanding, three main objectives were formulated. About six questions were formed for the first objective. The second and third objectives were followed by the total of twelve hypotheses, six for each one. Finally, the significance and scope of the study were addressed before documenting conceptual and operational definitions of the key terms used in this study. The presentation and discussion of the related literature of this study are presented in the next chapter.



#### **CHAPTER 2**

#### LITERATURE REVIEW

#### 2.1 Introduction

This chapter reviews literatures connected to the social media utilization in higher education. The objective of this research is to find out the factors influencing students' academic achievements in online peer learning. The literature review discusses the widespread usage of social media among students of university. Moreover, it also presents students' perceptions toward social media usage in higher education organizations. The first section discusses online peer learning, related learning theories and student's academic achievement in institutions of higher education. The second section presents the connection between social media use and academic achievement. It also, discusses the relationship between online peer learning and academic achievement. Besides, factors that affect academic achievement in online peer learning via social media are also discussed. Lastly, the conceptual framework of this study and its related hypotheses are presented.

#### 2.2 Social Media

The internet has provided a number of interactive technologies that are currently used by individuals and organizations (Kane, Fichman, Gallaugher& Glaser, 2009; Treem & Leonardi, 2013). These interactive technologies are often referred to as social media tools. As stated by Kaplan and Haenlein (2010), social media have conceptualized as internet-based applications that build on the ideological and technological foundations of web 2.0, and that allow the creation and exchange of user-generated content. In another definition by Kietzmann, Hermkens, McCarthy and Silvestre (2011), it is stated that social media employs mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and modify user-generated content. The practice of social media is associated with such tools as social networking sites, wikis, blogs, and social tagging, (Treem & Leonardi, 2012).

So far, it is exposed that there is moderate procedure of social media tools for knowledge collaboration within organizations (Majchrzak, Cherbakov& Ives, 2009), across organizational boundaries (Fuchs & Schreier, 2011), or in open collectives (Faraj, Jarvenpaa& Majchrzak, 2011; Gulati, Puranam& Tushman, 2012). Elsewhere, McAfee (2009) depicts a number of case studies that illustrate the application of social media for knowledge collaboration at organizations.

The above definition has dedicated on the capabilities of social media in enabling sharing and interaction between individuals. The definition of Kaplan and Haenlein (2010) is adopted in this study because it is clearly referring to the role of social

media in creating and exchanging users-generated content. This approach is similar to the role of online peer learning.

#### 2.2.1 Prevalence of Social Media

Increasingly, students are consuming social media for educational purposes (Abramson, 2011; Tartari, 2015). There are many social media tools and applications such as Tweeter, Facebook, YouTube and MySpace. Findings exist that the uses for non-academic purposes are higher than the academic one. For instance, Junco et al. (2011) did a study on the connection between the frequency of Facebook use, student peer engagement and participation in Facebook activities. The aims were to measure the frequency of engaging in various types of Facebook activities, the frequency of Facebook use and to measure peer engagement expending an instrument developed specifically to evaluate the concept of student peer engagement.

The researcher also evaluated the association between Facebook usage and two variables related to student peer engagement: time spent in co-curricular activities (co-curricular peer engagement) and time spent preparing for class (academic peer engagement). The findings show that the use of Facebook was significantly positively predictive of time spent in co-curricular activities and negatively predictive of peer engagement scale score. The findings also revealed that some Facebook activities were negatively predictive of the dependent variables, while others were positively predictive. Such findings highlight the popularity of Facebook use as just one tool of social media tools.

Elsewhere, Hargittai (2007) did a study to find out if there are regular differences between individuals who are using social media tools and those who stay away, in spite of a familiarity with them? The researcher employed questionnaire to collect data from a various group of young people. In that study, the predictors of social network sites focused on MySpace, Facebook, Friendster, and Xanga. The results recommend that the use of such websites is not randomly dispersed across a group of highly supported users. A person's race, ethnicity, and gender and parental educational background are all related with use. Nevertheless, it is presented that in most circumstances only when the combined concept of social network websites is disaggregated by facility. Moreover, that researcher found that people with more autonomy and experience of use are more expected to be users of such websites.

Certainly, the reported findings, though addressing young adults in general, are informative. So far, however, there has been little connection to undergraduates. Another study was conducted by Ellison, Steinfield, and Lampe (2007). The study was guided by three questions. First, how does Facebook usage among a university students change over time? Second, what is the direction of the relationship between Facebook utilization and growth of connecting social capital? Third, how does a person's psychological happiness, influence the connection between social capital and social network website usage? It was found that respondents spent significantly more time per day enthusiastically consuming the Internet in 2007 than in 2006.

Accordingly, that was an increasing of using Facebook by over an hour per day, to the extent that it approximately doubled, increasing by roughly twenty first minutes per day on average.

Besides, it was also found that Facebook application leads to the greater linking social capital after controlling for general Internet usage and measures of psychological well-being. In addition to that, it was found almost 94 percent of the students in their particular university were using Facebook for 10 to 30 minutes and most of them have at least 150 to 200 friends. Taken together, it can be reasoned that Facebook had become a progressively vital part of learners' lives by all measures.

A recent social media are widely covered different types of online social media networks (Donath &Boyd, 2004; Harris & Rae, 2009; Ulusu, 2010; Lin &Lu, 2011). Such social media tools as Facebook, Twitter, You Tubes and Instagram are mentioned to influence users, and have become the most widely used internet services (Gil de Zúñiga, Jung& Valenzuela, 2012). Active users of social media tools are said to increase largely across countries and age groups. There is no doubt that such increase of using online networks helps people to communicate, sharing their opinions and ideas, cooperating and commenting on different issues, organizing a meeting (Thevenot, 2007). In the context of the study, the increasing use of social media tools among college and university students is conceived as a form of interaction that has sociological elements of peer relationship that can be employed for both academic and social goals especially among the youth.

Amidst the said development of using social media tools, using mobile has emerged to be the most rapid changes in the use of communication technology so far (Horst &Miller, 2006; Comer &Wikle, 2008). Because of such rapid change, social media tools like Twitter, Instagram, Facebook and YouTube are employed for numerous purposes such advertisements for businesses, interaction and for sharing information. Information sharing and interaction are where the usefulness of social networking counts in several ways than one in education and learning among students (Joo et al., 2013). Due to the increase of smartphone, the practice of the said social media tools and other mobile applications such as What Sapp for educational purposes are expected to increase by large in the next few years (Calvo, Arbiol & Iglesias, 2014). For the sake of this study, all social media tools have been considered as they are expected that majority of undergraduates at the university use them for information sharing and sustain social bonds in favour of the aspired academic achievements. The researcher considered the social element of social media tools has something to add to peer learning and academic achievement among undergraduates.



#### 2.2.2 The Use of Social Media among University Students

Rueben (2008) provided a comprehensive report analyzes the influences of social media in higher education. The author selected 148 institutions of higher education from New Zealand, Canada, Australia and the USA and studied different kinds of social media used mostly by students than other sectors of society. The findings show that university students from selected institutions use various types of social media networks with such negative impacts as loss of time commitment, privacy issues, loss of control, and loads of information. A possible explanation for those research findings might be that time spent on social media tools were negatively related to time spent in studying and doing related academic assignments among university students. In a study by Kirschner and Karpinski (2010), it was shown that over-involvement or passion with using social networks websites by undergraduates can have negative effects on academic achievement. One meaning is Kirschner and Karpinski (2010) support Rueben (2008) that Facebook users spend fewer hours for studying is described having lower GPAs and a related measure of academic achievement than nonusers.

Another study by Barnes and Lescault (2011) highlighted recent waves of social media expansion in four institutions in the U.S. The authors conducted an interview with managers for social media websites in those institutions. The findings show some positive influences, including recruiting new employees, attracting more students and helping them in their research. It was also discovered that schools are transforming from one form to another in the usage of social media as the technology unfold itself. However, these findings do not directly relate to the question of students' academic achievements. This inconsistency may be due to the nature of the questions and respondents sampled to take part in the study were totally not university students.

Elsewhere, it is shown that social media networks have created conflict and tensions between students and administrators. According to Martinez- Alem and Wartman, (2008) misuse of social networks sometimes creates confusion when administrators interact with students. This happens amidst considerable opportunities that attract interactions of administrators and teachers with their students, through social media use as modern technology and communication that has brought new identity and reality to academic life (Martinez- Alemán & Wartman, 2008). The authors also reported that online interactions produce positive outcomes, and that makes administrators to join their communities online. However, they still need to protect the privacy of their jobs and do not expose as it may contribute to negative impacts on students' academic achievements and institutional performance (Martinez-Alem án & Wartman, 2008). An implication of this is the possibility that teachers and administrators can create a dialogue with the respective students through Facebook because of its easy accessibility and share with everyone. As Paul, Baker and Cochran (2012) maintain that Facebook has become central to academic institutions and faculty to join with existing and potential learners and to deliver instructional content.

One important thing to note is linked to the question of the growth of technology and communications tools in the forms of Mobile phone, or Smartphone expected to surpass the use of laptop by 2015 (Khalifa, Burgan, Bregaj& Al mallak, 2014).

Certainly, there has been a daily basis, increasing use tablets, cell phones and Ereaders, which actively involve today's university students in content sharing, blogging, text messaging, social networking, and plentiful more (Cassidy, Griffin, Manolovitz, Shen & Turney, 2011). One way to appreciate that observation is that there as well many applications developed which can be used for educational purposes on a daily basis to include Facebook, Twitter, LinkedIn, and YouTube. That makes the procedure of social media indispensable for individuals as well as educational and non-educational organizations (Skaržauskaitė, 2012).

These combinations of observations provide support for universities to focus on the benefits of the developed social media tools and applications to educate students through connecting with their peers and lecturers. That is important in the bid to promote students' academic achievements and institutions performance (Martinez-Alem án & Wartman, 2008; Irwin, Ball, Desbrow& Leveritt, 2012). This study aimed to examine factors influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities.

A considerable number of literatures have been published on the practice of social media among university students worldwide. Central to the said literatures, it is said that most of the universities today rely on social media to promote students related activities and improve performance (Martinez- Alemán & Wartman, 2008). For instance, the City University of New York (CUNY) is reported to create a closed social network for its staff, graduates student and faculties with restricted access just to its members only (Kaya, 2010). Elsewhere, Arizona State University is reported to use social media as part of the online emergency alert system, utilizing applications that include the use of Twitter and Facebook, to alert students and staff of emergencies (Mendoza, 2010). Another example is linked to the London School of Business and Finance. According to Kaya (2010), this school has constructively acknowledged the increasing procedure of social media tools by internalizing and offering a Master in Business Administration materials on Facebook.

Another example is cited to include Aalborg University in Denmark. According to Ryberg, Glud, Buus& Georgsen (2010), this university uses Ekademia software as the social media network to supplement an online course and increase collaboration between students during classroom sessions. One meaning can be reasoned that the said university administration has succumbed to the reality of this era of social networking services which, among other things give, what Sharma, Joshi and Sharma (2016) call as substantial importance to the collaborative nature of learning. This observation supports Anderson (2009) who pointed out the importance of using social media software to support distance learning and enhancing the connection between student and practitioner. In this respect, the point is made that university students and teachers or respective lecturers have common and related academic interests to exchange and share as a community of practices.

Furthermore, there are also specific studies on students' perspectives on this matter. For instance, Minocha (2009) revealed university students in the UK make use of social media in the form of social software and virtual world websites. This can be due to the reason that, use of such social media as Facebook increases social capital (Ellison et al., 2007), support expression of their identities and motivate them to observe, disseminate information, and engage in social activities (Pempek, Yermolayeva & Calvert, 2009). Interestingly, the 2010 report of the Community College Survey of Student Peer Engagement (CCCSE) supports the cited studies. In surveyed study of more than 400,000 learners from 660 institutions, it was found that 95% of students at the age between 18 -24 used social networking, along with 68% of students over 24 years old. In that respect, it was found that students who used social networking for academic purposes reported higher levels of peer engagement than those who had never used it.

Another specific study was conducted on the use of social media tools to encourage students' motivation and performances. For instance, Mazer, Murphy, and Simonds (2007) conducted an experimental study to observe effects of teacher self-disclosure through Facebook on learner motivation, effective learning, and classroom environment. The findings show a positive impact on all studied three areas as students were reported to use social media in order to identify areas of connection with teachers, enhance communication and get engaged with other students. This means proper practice of social media can have a positive impact in university life, and beyond as they can help alumni to share access to potential employers and practitioners at the right time (Durkee et al., 2009). In essence, that said advantages could not be easily realized in a context of closed online learning systems and limited access to the website.

Taken together, however, most of the above cited studies reflect a small sample of academic programmes from the contexts of Western universities. In this respect, Western cultural experiences of institutions of higher education from New Zealand, Canada, Australia and the USA (Rueben, 2008; Barnes & Lescault, 2011) and university in Denmark (Mendoza, 2010) become predominant against non-Western perspectives of knowing (Merriam & Kim, 2008). This observation implies something important when researching university students in Malaysia which have a non-Western culture. In fact, if care cannot be taken the reported findings and experiences might not be transferable to produce similar results. In addition to that, most studies seem to emphasis on the procedure of social media by universities more than students per se. This suggests underestimation of undergraduate students' perceptions, despite recent progress on using social media in higher learning institutions and need for considering the students' views (Ellison et al., 2007).

Specific to Malaysian context, there are literatures that have explored the influence of social media on undergraduates' academic achievement too. Those include studies by such researchers as (Hosny & Fatima, 2012; Almadhoun et al., 2012; Alhazmi & Rahman, 2013; Alias et al., 2013; Hong & Aziz, 2014; Said et al., 2014). For instance, Alhazmi and Rahman (2013) conducted an exploratory study with the distribution of survey questionnaires to 105 international and local students at
University Technology Malaysia (UTM). The researchers aimed to comprehend the social aspects of Facebook practice among undergraduates and how their perceptions about using it for educational purposes. The findings revealed that 97.2% are Facebook users, but only 38.5% of respondents do it for academic purposes. Besides, the results indicated that the undergraduates' perception of consuming Facebook for educational purposes is not significantly correlated to students' background or students' gender; while it is significantly related to students' experience and study level.

There is another study conducted by Almadhoun et al. (2012) in Malaysian universities. The study surveyed 265 students from four private and public universities respectively in Malaysia. The study investigated the factors for, the manner in which and purposes of students using Social Networking Sites (SNSs). It also examined the most popular SNSs currently visited among students. The findings indicate that 97% of undergraduates have SNSs accounts as Facebook reported as the most common site in circulation. In addition, most respondents reported having been on SNSs for at least one year, logging into their accounts several times a day and having one hundred to three hundred friends on SNSs. The research also has found that socializing and information searching topped the purposes of SNSs usage compared to that of for an educational reason. Remarkably, lack of time was reported as a reason for students who did not have accounts and use of SNSs.

Furthermore, Hong and Aziz (2014) studied digital learning and technology use characteristics among Malaysian university students. It was the cross sectional survey involved the random sample of 1059 undergraduates at a Malaysian public university. The purposes of the study included determining the university students' digital technologies usage for university and social activities. Besides, it determined digital technology tools used by undergraduates for university and social activities. Another objective was to determine frequencies of digital technology tools they used in everyday life. Moreover, the study determined the worth of digital technologies used in personal life and social for learning, and digital learning preferences of these students. The findings showed that the students made use of digital technologies for their social activities and academic work. It was also reported that most students regularly made use different digital tools for instance the laptop computer, mobile phone, Internet websites, Google, and MySpace/Facebook both for learning purposes and social activities. Taken together, the findings suggest the centrality of digital technologies such as Facebook in the life of the present cohort of university students.

The above cited study produced findings, which corroborate the results of a great deal of the previous studies by Alias et al. (2013) and Noh, Razak, Alias, Siraj, Jamil, and Hussin (2013). For example, Alias, et al. (2013) examined the capability of Facebook based learning to increase creativity among Islamic Studies pupils in the Malaysian secondary educational setting. This was a quantitative study employed the Isman Instructional Design Model and it was carried out via the background survey and experimental method. The findings suggest that the Isman Instructional Design Model, which pays attention to instruction from the learner perspective than from a content perspective is appropriate in designing and developing Facebook based

learning to increase inventiveness among Islamic Studies pupils in the secondary educational setting in Malaysia. One meaning is that Facebook is an effective tool that can foster creativity among students. These findings also support the findings by Noh et al. (2013) that the usage of Facebook is seen as a medium and an effective tool for curriculum and students' learning in the future. Similar findings can be derived from other researchers (Danyaro et al., 2010; Wok et al., 2012; Isa et al., 2012; Omar, Embi & Yunus, 2012).

However, the said advantages of using social media tools have also been challenged by other researchers. For example, Lubis et al. (2012) showed a cross sectional study. The purpose was to find out the relationship between spending time on Facebook and the Cumulative Grade Point Average (CGPA) of the third year Biomedical Science learners in the Faculty Health Sciences, Universiti Kebangsaan Malaysia (UKM).

The findings showed that there is no significant relationship between time spent and academic achievement, There was no difference in using Facebook between female and male and the time spent on Facebook did not influence Students' CGPA achievement of Biomedical undergraduates at FSK, UKM. These findings are also supported by Ismail and Arshah (2016) that it is not automatic that the use of Facebook can lead to academic collaboration as some of its rich information is unrelated to students' academic needs. From this observation, it can be reasoned that despite its potential benefits for learning and teaching, the use of Facebook as other social media tools need consideration of several issues to make it helpful.

In sum, the discussed research findings above suggest that caution must be applied when using social media on attempting to students' academic achievements. This means the research in this field might not be conclusive, especially, when the component of social connection between peers in peer learning is incorporated as its manifest itself. For that reason, it would be interesting if the focus of the studies gives specific attention to undergraduates and appreciate among other things, their perspectives in relation to social media use and academic achievement. Similarly, from the cited findings, it can be reasoned that the ground for using Facebook as one of potential social media tools is well established in the studied Malaysian universities (Lubis et al., 2012; Hosny & Fatima, 2012; Almadhoun et al., 2012; Alias et al., 2013; Noh et al., 2013;Alhazmi & Rahman, 2013; Hong & Aziz, 2014). This understanding is important for the present study which attempted to examine factors influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities.

6

Interestingly, studies on mature students' relationships with teachers have revealed findings in favour of improved students' academic and social achievements from positive teacher-student relationships (Dika & Singh, 2002; Wentzel, 2003; Cataldi, Laird& Kewalramani, 2009). Nevertheless, much of this research does not match with the ongoing fluctuating nature of the present generation of students at university levels and the increasingly diverse online learning materials. Building from this understanding, it is reasonable to talk about a need for a more current study to research factors influencing academic achievement in online peer learning among

undergraduate students from the non-Western context of higher education. It is imperative to research more about online peer learning in the context of using social media tools amidst need to sustain peer interactions to improve academic achievement amidst solid social-emotional development. This study, then, was designed in order to inform future mediations possibly to help undergraduate students as peer learners to perform better both academically and socially.

#### 2.2.3 Survey of Malaysian Literature

From the reviewed literature, it seems that students in Malaysia are relatively well exposed to communication technology. Previous studies have reported on the use and applications of different social media tools clouding Facebook, YouTube, Twitter, WhatsApp messenger by Malaysian students (Zakaria et al., 2010; Salman & Hasim, 2011; Abdullah, Azhan, Saman, Mohamad Noor & Wan Mohd Amin, 2012; Hamat et al., 2012; Hosny & Fatima, 2012; Khalid, 2013; Said et al., 2014; Lim et al., 2014; Abdul Hamid et al., 2015; Hashim et al., 2015). For instance, from a wider viewpoint, Zakaria et al. (2010) researched 250 undergraduates in one of the Malaysian universities. The study was part of the survey of students' perspectives on the social technologies usage to support connections in courses that have been taught face-to-face in Australian and Malaysian universities. The findings showed that students in Malaysia were well unprotected to these social technologies and were contented in using them for learning purposes. The study further shows that the Malaysian undergraduates established better peer engagement and communication with the course and their peers, but insignificant interactions with their lecturers (Zakaria et al., 2010).

Malaysian learners are also found to be passive rather than active contributors to the creation of knowledge. Such generalization is, however, unsatisfactory because it is silent on examining factors influencing academic achievement consistent to online peer learning among Malaysian undergraduate students. In another dimension, Hamat et al. (2012) did a national survey of tertiary level of Malaysian students. The study involved 6358 Undergraduates and postgraduates at University Kebangsaan Malaysia (UKM). The results appearance that social media penetration is not at full 100% as initially presumed. The respondents spend the most of their time online for learning and social networking. The findings also indicate that while the respondents are using social media for the purpose of informal learning activities, only half of them (50.3%) use the social media tools to communicate with their lecturers in informal learning contexts. The respondents also reported spending more time on social media usage for socializing rather than learning, and they do not trust the use of social media tools are affecting their academic achievement. Despite being informative, there is still no reliable evidence on Malaysian undergraduate students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration while practicing online peer learning via social media.

Several studies investigating Facebook and Malaysian students have been carried too. For instance, Khalid (2013) did a study on 22 second-year students from UKM.

The main focus was on the integration of Facebook and other Web 2.0 technologies in enhancing the learning process among undergraduate students through online collaborative sharing activities. The findings show that Facebook with the integration of other Web 2.0 applications does have the potential to be used for online collaborative sharing activities and to spur active learning for students, either as a core platform for learning or as an alternative platform. Interestingly, these findings support Mustafa et al. (2011)'s study which sampled 200 students from the same university. Their results indicated that sampled students were influenced by peer pressure to use Facebook, and they seemed to spend time on this social media tool as part of the daily routine. Technically, if the time spent is for learning, then the said potential makes sense.

Another study was conducted by combining more than one tool. For example, Abdul Hamid et al. (2015) researched on YouTube, Facebook and Instagram; examine their impacts on undergraduates' personality traits. The researchers examined the effects of the use social media on Norman's (1963) five-factor personality traits. The validated model provides evidence of the effects of Instagram, YouTube and Facebook usage on agreeableness, neuroticism, extraversion, conscientiousness, and openness to experience.

Specifically, the authors found that frequent of Instagram, Facebook and YouTube usage would affect users to become more extroverts, meaning that a person would become more approachable, sociable, friendly, lively, optimistic and energetic proved to be affected by the usage of those social media. These researchers also found that actual usage of YouTube and Instagram have direct positive effects on Neuroticism, meaning that frequent usage those tools would affect students' emotional stability. According to Abdul Hamid et al. (2015), this might be true since people are free to give comments and feedback which would make them more concerned and upset, unable to control anger and lower their self-esteem.

From the same study, it was also found that actual usage of Instagram has direct positive effects on Agreeableness and Conscientiousness. Agreeableness indicates a person with most trustworthy, honest, tolerant, good-natured, forgiving and softhearted (Abdul Hamid et al., 2015). Consistent with the use and application of social media, the said friendliness may entail people who get affected when often using Instagram. From a practical perspective, a friendly person can simply get along with their essential friends and formulate new friendships with others. In opposite, individuals who are low in agreeableness or friendliness mostly are selfish, uncooperative, and not afraid to be self-centered (Abdul Hamid et al., 2015). Taken together, the findings by these researchers show that the studied students are active users of Facebook, YouTube and Instagram. That accounts the reason for inferential analysis to prove those social media have direct effects towards their personality traits (Abdul Hamid et al., 2015).

There is another study on the overall use of the internet. For example, Salman and Hasim (2011) researched on internet Usage in Sub-Urban Community in Malaysia: A Study of Diffusion of ICT Innovation. The researchers aimed to determine the factors

that affect the sustainability of Malaysian students' internet usage and show how an ICT innovation diffused in a sub-urban community, in a country where the government plays a main role in supporting the practice of the internet through numerous initiatives. The researchers collected data through a survey, including 357 internet users, covering private and public sector workers, university and college students.

The researchers found that the centrality of the internet in the respondents' lifestyle, second afterward the newspaper as a main source of information (Salman & Hasim, 2011). The findings also reveal that the respondents pay their bills, do lots of information searching, and conduct other online transactions via the internet, a significant point that the people in a sub-urban community largely accepts the innovation (Salman & Hasim, 2011). Being involved as respondents, the above results have significant links to undergraduate students too, since they may perceive the utilization of social media tools in general as an added advantage of their academic and non-academic lives.

In sum, the above reviewed literatures are relevant to this study because of being keen to Malaysian context and general use of social media tools. Based on this review, the usage of social media tools amongst students has developed and become quite pervasive. In looking at the essence of the objectives of this study, there is no doubt that the cited research findings affirm the centrality of social media tools and students' learning.

Certainly, the cited findings on Facebook, YouTube and Twitter can enrich discussions on social media use, online peer-learning, and students' academic achievements (Kraut, Patterson, Lundmark, Kiesler, Mukophadhyay, & Scherlis, 1998; Rouis et al., 2011). Yet, it seems that most of the previous studies were explore with a limited focus on such issues as positive social relations along time spent on social media. That makes generalizability of much of published research to appear inconclusive and challenging at least in the scope of this study.

In fact, factors influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities are relatively not broadly investigated. The missing point here is that social connection through online settings seems to communicate an untold sense of caring peer relationships as learners, they feel they are both cared for and expected to succeed (Muller, 2001). For that missing point, this study is needed. Moreover, studies investigated the impact of online peer learning on academic achievement sound considerably few. Relatively, modeling the factors with the social concern of peer learners in mind has not been seen in Malaysian literature. Therefore, the present study is humble attempts to identify factors influencing academic achievement via online peer learning among Malaysian undergraduates.

22

#### 2.2.4 The Relationship between Social Media Use and Academic Achievement

Academic achievement is one debated concept in educational policies and literature discourses. Central to the discussion is social media websites which impact students' academic achievements (Kraut et al., 1998; Rouis et al., 2011). One thinkable explanation is that social media use to relate to students' academic achievement. For instance, Rouis et al. (2011) conducted a research on the impacts of the use of Facebook on undergraduates' academic achievement: the role of self-regulation and trust. The purpose was to analyze the effects of Facebook usage by undergraduate students at the Lulea University of Technology in Sweden. The findings show that widespread usage of Facebook by learners with extraverted personalities leads to poor academic achievement. It was noted that students' cognitive absorption with Facebook is regulated only by their personality traits and self-control which determine how much time they spend on Facebook. It was also revealed that students' life satisfaction does not play a role in students' academic achievement. Interestingly, it was also shown that critical effect of students' presence on the Facebook platform is limited by students' performance goal orientation. This means university students who are clear in their goals of academic achievement cannot be prevented by Facebook platforms.

Another study was showed by Kraut et al. (1998). The study examined the social and psychological effect of the internet on 169 people in 73 households during their first to second years on-line. The researchers attempted to bring together social media, students' social relations and academic achievements. The results showed that greater usage of the internet, in general, was related with declines in participants' interaction with family members in the household, declines in the size of their social circle, and increases in their depression and loneliness. Based on the findings in relation to other cited studies, it could be reasoned that the students' positive use of social media could have positive academic achievements irrespective of spent time. In this respect, the interacted parts are expected to encourage one another to the academic performance. In contrary, negative use of social media could lead to students' negative academic achievements. In this respect, students' social interaction is not reliable.

There are other notable studies by (Junco et al., 2011; Junco, 2012a; 2012b) on the relationship between the usage of social media tools and academic achievement. For instance, Junco (2012b) focused on too much face and not enough books: The correlation between multiple indices of Facebook usage and academic achievement. This study sampled 1839 university students to study the relationship among multiple measures of frequency of Facebook usage, participation in Facebook activities, and time spent preparing for class and real overall GPA. The findings show that time spent on Facebook had been strongly and significantly negatively related to overall GPA. It was also revealed that, while only weakly related to time spent preparing for class. Furthermore, it was revealed that the practice of Facebook for sharing and collecting information was positively predictive of the outcome variables while using Facebook for socializing was negatively predictive.

These findings support previous research into the related area. Junco et al. (2011) studied the effect of Twitter on college student peer engagement and grades. The study aimed to determine if using Twitter for educationally relevant purposes can impact college student peer engagement and grades. Analyses of findings on Twitter communications showed that students and faculty were both highly engaged in the learning process in ways that exceeded traditional classroom activities. One meaning is that Twitter as one social media device can be used as an educational tool to help engage students and to mobilize faculty into a more active and sharing role.

In addition, other studies indicate a significant positive relationship between Facebook and twitter on one hand and students' integration to improve learning skills on the other hands (Heiberger & Harper, 2008; Al-Rahmi & Othman, 2013b). In another study by Englander, Terregrossa, and Wang (2010), it was observed that students spend more time using social media for other purposes than educational use. For that reason, their academic performance is affected. In the similar tone, Nalwa and Anand (2003) reveal students use the internet for their own purposes, and this affects their academic performance, to the extent that they score lower grade rankings than students who never engaged in social interactions (Karpinski, 2009). There are, however, other possible explanations of that experience. As Roblyer, McDaniel, Webb, Herman, and Witty (2010) observe that there are as well general benefits, social media are used as sources of communication among students and lecturers in their respective faculties.

Furthermore, Kolek and Saunders (2008) revealed that the uses of social media among students do not affect their academic performance. This observation ties with Kirschner and Karpinski (2010) study on the relationship between Facebook and academic performance. In that study, it was shown that there is a significant negative relationship between Facebook use and academic performance. Respondents reported spending fewer hours in a week studying on average compared to non-users. Most respondents claimed to use Facebook accounts at least once a day. This is in line with findings of Canales, Wilbanks, & Yeoman, (2009), and Junco et al. (2011). Elsewhere, it is shown that social networking websites, such as Facebook, Myspace, and Twitter, have become an essential part of U.S. college students' lives (Junco & Mastrodicasa 2007). In fact, data from a survey by Mastrodicasa and Kepic (2005) showed that 85% of students at a large research university had accounts on Facebook, the most popular social networking site.

Building from that understanding, it is logic that uses social media tools, in this case, Facebook, for example, relate to students' academic achievement. However, the findings of these studies are having a serious problem of Western oriented in theory and practice, with little focus to Non-Western cultures. That happens alongside incorrect assumptions that all non-Western students come to the universities to emulate special placed standard and ways of doing things in Western tone.

According to Li (2004) and Lee (1999), that kind of generalization is a dangerous to stereotype because it encourages haziness and covers social realities of many students from other social, cultural contexts. This means it is not plausible to

generalize the issues across diverse cultural realities. That is because different cultural background, age, gender and personality traits have diverse shaping orientations of peoples' social media use and internet activities (Hofstede & Hofstede, 2005) and academic achievement (Rouis et al., 2011). From practical experience, Malaysian public universities have a majority of undergraduates groomed within rich Eastern cultural orientations. Yet, far too little attention has been paid to address factors influencing academic achievement in online peer learning among the said undergraduate students.

Recent evidence suggests the general use of social media among students in Malaysian universities in general (Hamat et al., 2012; Isa et al., 2012). For example, a study was conducted on the use of social networking sites among Malaysian university students (Hamat et al., 2012). The study aimed to describe patterns of use of social networking sites as the nationwide survey of tertiary level students in Malaysia. The results show that SNSs penetration is not at full 100% as initially assumed. Yet, the respondents spend the most time online for social networking and learning. The results also indicate that while the respondents are using SNS for the purpose of informal learning activities, only half (50.3%) uses it to get in touch with their lecturers in informal learning rather than learning, and they do not believe the use of SNS is affecting their academic performance.

Another study was conducted by Isa et al. (2012) on patterns of social network sites (SNS) usage among business students. The objective of the research was to examine the patterns of Social Network Sites (SNS) usage among business students from the Faculty of Business Management and Accountancy in one of the Malaysian public universities. The findings indicated that the majority of the respondents owns a notebook and use them to access the internet. Besides, it is shown that the majority of the respondents rated Facebook as their favorite SNSs account. This means most respondents were likely tending to spend time on socializing online as time spent in academic and learning purposes is not so different. Captivatingly, Malaysian government encourages students to spend some of their time on social media towards digitalization (Zin et al., 2013).

Taken together, the reviewed studies seem to suggest that the influence of using social media on academic achievement has a conflicting result. One way to enrich the present discussion is to study social media use, peer learning and academic achievement. This is important in efforts to match the Malaysia's idea towards digitalization (Kathryn, et al., 2012).

However, there is a serious lack of research in such respect regarding factors influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities. This happens while lecturers and students in those universities need to connect the incredible approval of social media use in this case Facebook and channel it into the effective medium for teaching and learning. For that reason, it was important to focus on UPM as one of the Malaysian public and research universities, known for comprehensive

and quality undergraduate education of worldwide recognition (Ministry of Higher Education (MOHE), 2014).

That was central in order to understand how best the curriculum and campus experiences could be enriched in the bids to improve students' academic achievement. In line with the scope of this study, there is still a genuine need to study factors influencing academic achievement in online peer learning among undergraduate students in one of the Malaysian universities.

Although the above reviewed studies on the prevalence of social media and use of social media among university students inside and outside Malaysia have documented notable academic effects of online peer learning, there is a notable inevitable social component as well along aspired academic achievement. Sociologically, when peers form positive online bonds with other peers, the used social media to connect them become what Hamre and Pianta (2001) call as supportive spaces to engage in academically and socially productive ways. In this case, connected and encouraged online peer relations by lecturers can contribute to positive academic achievement without losing the essence of social closeness. That is because such helpful peer and lecturers' relationship, may support closeness, warmth, and positivity when taking on academic challenges and related works to fit in social-emotional development (Hamre & Pianta, 2001).

In essence, lecturers here stand according to Muller (2001) as a central source of social capital, for students' learning outcomes in Malaysian higher education institutions (Awang, Ahmad, Ghani, Yunus, Ibrahim, Ramalu& Rahman, (2013). Therefore, this study is needed to appreciate factors influencing students while practising online peer learning via social media in Malaysian cultural context, focusing socially appropriate behaviors towards expected academic achievement (Hamre & Pianta, 2001).

# 2.3 Conceptions of Peer Learning

Peer learning is defined by Topping (2005) as the acquisition of knowledge and skills through active help and support of stated equals or matched companions. Thurston and Topping (2007) reasoned that peer learning as a "technique is widely used to promote attainment in students." Students are motivated to learn, comprehend, and review material when they are put into a teaching. In another definition, Boud et al. (2014) define peer learning in relation to students learning from and with each other in both formal and informal ways. Researchers consider peer learning as all about the ability to communicate and work together for improved results. In a very explicit and informative manner, Ab Jalil and Noordin (2010) consider peer learning as "students' shared learning from each other." It entails students' collaborative and networking skills on learning to succeed in education (Tervakari et al., 2012). Therefore, students as peer should learn to find, share and discuss useful knowledge in active and interactive manner, against simply absorbing what is being taught (Ab Jalil & Noordin, 2010).

There is no doubt that the above definitions have shown the task of peer learning. Yet, these definitions fail to state clearly the means through which the knowledge is being shared among peers. This means that, though, looks informative the reviewed conceptions of peer learning seem silent on how is the said knowledge shared. Response to this type of question is important in order to accommodate present students, natives of the net generation which are keen to use of Social Network Sites for social intentions and educational purposes (Oblinger & Oblinger, 2005). This study considered undergraduates' use of different social media tools like Facebook, Twitter, YouTube and Instagram for learning and sharing knowledge. One reason is that most of the said social media tools have been emerging popular in the world and are now commonly used by majority of university students globally (Sclater, 2008; Pempek, Yermolayeva & Calvert, 2009; Mott, 2010;Mazman & Usluel, 2010; DiVall & Kirwin, 2012; Aghili, Palaniappan, Kamali, Aghabozorgi & Sardareh, 2014).

Besides, there is solid research evidence in the use of the said social media tools in the Malaysian context. For instance, Malaysia is ranked at the fifth position in Asia for using Facebook with an approximate 46.95 % of the total population of the country (Hui, 2012). In a survey conducted on the 707 Malaysian students, aged between 17 and 30 years old indicated that almost 54% of students visited Facebook between 2 and 5 times every day (Hui, 2012; Balakrishnan & Shamim, 2013).

In this respect, it is reported that around 36% of them reported spending more than 60 min on Facebook per day. The study explained that one possible reason is due to the substantial average number of 612 Facebook friends in their profiles (Aghili et al., 2014). In the scope of the objectives of this study, it was appropriate to employ Facebook in order to appreciate its opportunities for undergraduates as members in creating own groups or join other groups based on their shared social and academic (Aghili et al., 204). Elsewhere, Abdullah, Azhan, Saman, Mohamad Noor & Wan Mohd Amin (2012) report a study on the use of web 2.0 in e-learning with the focus in a public university in Malaysia and found that Facebook, Twitter, Chat and YouTube emerged as the top four Web 2.0 tools that actively used by students.

Taken together, the findings of the said studies above link with the central theme of the definition given by Ab Jalil and Noordin (2010) that peer learning is about sharing knowledge among students. This definition is imperative at least for the scope of study because it underpins theoretical appeal consistent with the purpose of this study. Therefore, the conception of Ab Jalil and Noordin (2010) on peer learning is adopted.

# 2.3.1 Online Peer Learning

Peer learning focuses on what students want to learn and what other students can give in and what kind of knowledge they can offer in a peaceful and volunteer way (Boud et al., 2014). The focus of students' centric knowledge influences better peer learning compared to teacher centric knowledge that helps various types of learning and interactions happen. In that respect, Van der Meer and Scott (2008) ask for

shifting the balance from an instruction focus of learning support staff to facilitating or supporting peer learning. In the reviewed literature, peer learning appears to have different dimensions.

For instance, Tervakari et al. (2012) consider that peer learning can occur on a oneto –one basis or in a group of which students can exercise knowledge sharing, student peer engagement and communication. In that light, knowledge sharing as one dimension entails a process of exchanging knowledge between individuals and or groups (Davenport & Prusak, 1998). Hence, students as peer learners are encouraged to capitalize on opportunities that can facilitate sharing and learn from each other.

To date, there are considerable efforts to incorporate learning management systems (LMSs) into university teaching and learning. Researchers agree that the LMSs relatively provide online interaction and collaboration spaces such as chat function and discussion forums, these features are rarely utilized by instructors and student (DiVall & Kirwin, 2012). Difficulties arise, however, when an attempt is made to consider LMSs as influencing academic achievement in online peer learning among undergraduate students in Malaysian university context. One reason is that LMSs are teacher-centric in favour of the one-way transformation of information through sharing lecture notes and slide presentations (Sclater, 2008; Mott, 2010). Another notable disadvantage of LMSs is that students, in these case undergraduates, are restricted to interact merely with their classmates who have officially enrolled in that course (DiVall & Kirwin, 2012; Aghili et al., 2014). This means the use of LMSs it is not open to get input from other potential individuals in their learning, including professionals, alumni, and students from other courses within or across universities.

Unlike LMSs, Facebook, Twitter and YouTube as some of the social media tools can be used for online peer learning, through processing views and shared materials within a reasonable time. This experience sounds quite difficult through existing LMSs since it is time-consuming as it requires students on submitting assignments or downloading course materials to insert password to log in and go through numerous pages to find the new postings (Sclater, 2008; Mott, 2010; DiVall & Kirwin, 2012; Aghili et al., 2014).

In addition, the researcher can ensure that respondents use Facebook for peer learning since it is a social media tool it calls for students as users to manage information, create content, and connect with open social networks all over the world (Aghili et al., 2014). Furthermore, through comments and chat functions as well as content sharing elements on the Facebook page and Twitter can be used to confirm that respondents communicate with each other (Mott, 2010). This means the extent of interactions is one aspect that can be used to ensure the respondent exercise peer learning through Facebook as a social media tool.

Based on the literature, student peer engagement is another dimension to note. According to Kuh (2009), student peer engagement is all about students' invested time and effort in educational activities, academic experiences, co-curricular involvement, and interaction with peers. In this respect, potential correlations exist between students' use of Facebook and their peer engagement (Heiberger & Harper, 2008). By implication, if this correlation is constructively set, it can facilitate peer learning (Kuh, 2009).

There is another dimension related to peer communication which is presented by peer decision-making experiences. According to Maxwell (2002), peer communication covers comfortable talking among friends or colleagues on diverse topics based on their existing relationship. Thus, the positively related peer can communicate easily and influence their decisions than those who do not relate closely. In the following sections, the definitions of peer learning along with the usage of the term in a higher education context and the related theories and factors are discussed.

## 2.3.2 Online Peer Learning dimensions

Topping (2005) defined peer learning as the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions. The author maintained that peer learning involves people from similar social groupings who are not professional teachers helping each other to learn and learning themselves by so doing. However, Ab Jalil (2011) referred to online peer learning as students' shared learning from each other without restricting any students' background.

In a study conducted by Tervakari et al. (2012) to investigate the peer learning with social media, found that communication, collaboration, feedback, and peer engagement are some of the issues that hinder the utilization of online peer learning. Nevertheless, the authors referred to the importance of online peer learning as a tool that students use to encourage and motivate each other. It is also can be used as a channel for students to ask questions, explain their opinions, construct arguments, elaborate and reflect on their knowledge and thereby improve their learning.



Another dimension of online peer learning was identified by Bandura (2003) who described the academic self-efficacy as a strong influence on student's achievement in peer learning. Bandura (2003) pointed out that students' beliefs about their

29

abilities are more predictive of their success than their actual skill levels. One meaning is that academic self-efficacy can be a significant factor to enhance the performance of students in academic areas (Caprara et al., 2006: Diseth, 2011; Joo et al., 2013; Zuffianò et al., 2013). Taken together, it can be reasoned that online peer-learning dimensions influence higher education students learning and academic achievement.

## 2.3.3 Online Peer Learning in Higher Education

Recent developments in social media have highlighted the need for considering the use of its different tools in higher education contexts. It is noted that peer learning takes place when "students discuss lectures, assignments, projects and exams in casual social settings" (Keppell Au, Ma & Chan, 2006). This discussion of online peer learning with the use of social media tools is needed as it cuts across all objectives of this study. That is because undergraduate students have both formal and informal discussions and knowledge sharing sessions to adopt principles; construct lecture notes and tasks, infer rules for solving the problem, and repair imperfect mental models (Webb & Mastergeorge, 2003).

Now, since the use of such social media tool goes with creating online personal accounts, commenting and sharing information and pictures, then it is expected that many of undergraduate students have already developed know-how on its related tools like Facebook, Twitter and YouTube. Currently, Infographic (2014) reports that more than 23% of Facebook users check their account five times a day; there are one thousand comments per second on the Twitter, and over five million pictures and videos being shared in twenty four hours on Instagram. Citing Mauritius experiences, for example, Khedo, Elaheebocus, Suntoo and Mocktoolah (2012a) maintain that students are embracing ICT, Facebook and MySpace at an extraordinary pace. For that reason, online peer learning discourse fits the scope of this study.

Consistent with this study, the said rate of social media use suggests that students are full of activity, and have reformed the ways of communication and sustaining relationships (Boyd, 2007; Boyd & Ellison, 2010; Nicholson, 2011). For that reason, discussion about online peer learning in higher education becomes vital because social media networking empowers individuals' connection, to form online communities (Khedo et al., 2012a). For that reason, undergraduates in this study were also expected to have their own online peer communities and active personal accounts to own their learning space, share their notes and improve learner-centred approaches (DiVall & Kirwin, 2012; Aghili et al., 2014).

This is the question of interactions, online peer-learning, peer engagement, collaboration and academic achievement which appears central to the objectives of this study. According to Khedo, Elaheebocus, Suntoo and Mocktoolah (2012b) university students regularly interact on the social networks with or without their lecturers' consent. From the said observation, it is vital to address online peer learning because the use of social media tools is central among undergraduates as

peers in higher education. In this respect, the lecturers are expected to plan and have basic knowledge about peer learning, social media and academic achievement in order to improve education related peer-learning activities in the classroom settings and beyond (Benson, 2014). In reverse, if ineffectively addressed and incorporated, the ongoing online peer support group and networking among undergraduates could add to what Benson (2014) term as the lecturers' workload as opposed to reducing it.

Back to the last 20 years, it is shown that interaction of students to learn from each other has become the most significant transformation in higher education. Specifically, it is suggested that peer learning could be collaborative learning (Bruffee, 1999), group learning (Collier, 1983), peer tutoring (Falchikov, 2001), and cooperative learning (Mills & Cottell, 1997) which covers that student interaction can bring several advantages to an undergraduate student to cooperate. Besides, teacher to teacher interactions can also create, positive environment to learn from each other. However, that can imply that initiatives of driving peer-learning may not help undergraduates to promote their arming skills if it's requested by the third party.

Researchers maintain that peer learning is a good learning strategy in the active context students. However, Tervakari et al. (2012) caution that if students practice procrastination, the benefits of learning as peers through social media cannot be realized because it leads to late submission of assignments and function as stumbling blocks to meaningful conversation. Besides, uncontrolled peer use of social media may result in a lack of focus and concentration, feeling hurried, pressured and sense of superficial learning which can affect academic achievement (Rouis et al., 2011; Tervakari et al., 2012). This observation suggests that benefits of using social media among learners are not automatic. Students must be supported in order to achieve productive interactions in online learning environments (Ab Jalil & Noordin, 2010) through effective strategies to facilitate meaningful learning in considerable time (Christiansen, & Bell, 2010).

For many years, different types of peer leaning and approaches that engage students' learning capacity and promote an education system have been identified. Such initiatives also have a long rooted in the schools. It is shown by some authors that, peer learning was first emerged during Roman Empire (Topping, 2005). Therefore, the term later widely used during 1970s, particularly in the U.S. universities and colleges to promote the degree of academic achievements among ethnic and social groups (Congos & Schoeps, 1993).

Some of the peer learning structures formed in universities recognize their origin from an approach known as 'Supplemental Instruction' (SI), developed by Deanna Martin in the 1970s at the University of Missouri, Kansas City in the USA (Arendale, 1994). In the last two decades, schemes of UK universities had also developed such learning strategies as part of the new higher education policy by the government. These changes have been recognized by different names such as supported learning groups (SLG), peer-assisted study sessions (PASS), and peerassisted learning (PAL). A more pastoral approach is taken by schemes denoted to as student ambassadors, student friend projects and peer mentoring (Hampton & Potter, 2009).

From the review of the literature, the western world has started applying these methodologies since 1970s. This means in those countries; there is a sense of well-developed ground for useful peer learning. However, that cannot be necessarily the case with developing countries from which the commencement of the social learning strategies took place after the beginning of the second millennium. More specifically, the application of social learning strategies in Malaysia was on the agenda of the government and the vision of 2020. This experience has important implications for researching issues related to online peer learning in higher education in the Malaysian context. One of the most significant implications to consider from this observation is that further studies are needed in this regard to appreciating the realities of peer learning through social media tool non-Western developing countries.

#### 2.3.4 Online Peer Learning and Academic Achievement

There is a considerable amount of literature on online peer learning and academic achievement. According to Harasim (2000), attachment or adjunct mode used for a connected or online mode for connecting members of a given program in total make online or wired education very unique and distinctive in nature. This means that online learning mode facilitates peer interaction faster as it captures their attention across time and generations, amidst constant positive or negative outcome (Volery & Lord, 2000; McGorry, 2002). This is possible through the continuing unique growing of networked world and technologies in which students as peers can share learning and related activities, with educators and respective administrative staffs (Janicki & Liegle, 2001; Parker & Gemino, 2001).

For this reason, online peer-learning, electronic learning, distance learning, and asynchronous learning seem to provide convenient discussion forums for teachers to interact with learners' more than conventional teaching. That is when both teachers and learners stay connected and have something to share about learning and consequent results.

Building from the above it is logic that online learning can attract peers to learn in order to attain suggested results. That is because online discussions appear as naturally social and interactive in the form of self-disclosure and agreement between participants and central to interpersonal question (Rafaeli & Sudweeks, 1997). A study was conducted by Yang and Tang (2003) on the effects of social networks on students' performance in online education. Their focus was on uses networking as an adjunct mode for enhancing traditional face-to-face education or distance education. Using data from a 40-student course on Advanced Management Information Systems (AMIS), these researchers tested how social networks (friendly, advising, and adversarial) related to students' performance. The findings showed that

friendship centrality and advice centrality were positively related to student performance both in the classroom and on the Web-based forum.

Moreover, it was found that adversarial network centrality was negatively related to students' academic performance indicators, although some were insignificant. Consistent with this study, the said findings seem to suggest that interaction, flexibility; innovative ideas and facilitative learning favour online learning, and can strengthen potential achievements for prospective online networked learners (Parker & Gemino, 2001).

Elsewhere, Yang and Tang (2003) maintain that the question of student performance in a networked learning is inconclusive. One reason is that different people can have different understanding and emphasis in relation to student performance. Perhaps, this is the reason that accounts for including course content, students' quality, successful course completion or course withdrawals, grades, added knowledge, and skill building on judging online academic performance. Specifically, Yang and Tang (2003) show that friendship; advice and adversarial centrality also form academic performance indicators.

Certainly, the said criteria can be related and connected only to determine learners and teachers in a given networked series of a given education level. That said connection is important for them to enjoy more benefits of online learning than traditional settings. This view is because computer-mediated communication and online discussions are more enjoyable (Dietz-Uhler & Biship-Clark, 2001) and have educational values to be documented (Hammond, 2000). Despite the said benefits, however, the said experiences sound more Western oriented.

Razak and See (2010) did a study on improving academic achievement and motivation through online peer learning. The purpose was to examine the effectiveness of online peer learning in enhancing students' academic achievement and promoting their motivation through a quasi-nonequivalent (pre-test and post test) control group design to investigate the effectiveness of online peer learning. The findings of t-tests indicated that the experimental group reported a significant difference in motivation meaning a significant difference in academic achievement. In line with this research, the said findings seem to suggest that online peer learning can enhance students' academic achievement and facilitate their motivation.

Equally, the said results seem to support other researchers that the online environment sustain learning (Girasoli & Hannafin, 2008) through active and engaging activities and constructive learning opportunities rather than just be exposed to the transmission of knowledge (Hong, Lai & Holton, 2003). Despite being a non-Western study with informative findings, the choice of respondents by Razak and See (2010) seem to be limited to matriculation students who received online peer learning against peer received face to face instruction. This study drew from that limitation and focused the use of social media tools for online peer learning

consistent to academic achievement from non-Western cultural orientated undergraduate students.

Based on practical observation and reviewed literature, the researcher in this study confirmed the pervasive use of social media tools for online peer leaning amongst undergraduates. By observing, the researcher was dedicated to the full range of undergraduate students' use of social media tools including Facebook, Twitter and YouTube. Such experience afforded the researcher an opportunity to see that technology use amongst many students is increasing speedily, to the extent of taking up to new learning possibilities and practices (Watts, Malliris & Billingham, 2015). In fact, it was the great use of such tools as Facebook and Instagram among students at the university campus with no intervention from lecturers, which motivated the researcher's interest in social media within educational settings(Dalsgaard, 2014).

Besides, the reviewed literature showed the online peer learning through the use of social media has among other things, facilitated near peers collaborative learning situations a thing that can improve attendees' learning outcomes and increase retention (Power, 2010). Similarly, it has also been shown that networked working groups can produce better solutions (Watts et al., 2015) to case studies but were less satisfied with the interaction process (Benbunan-Fich & Hiltz, 1999).

These said observations suggest that researching the use of social media tools; students' learning consistent with academic performance is another potential area needing research attention. Therefore, this study is humble attempts in the bid to fill the knowledge gap with the focus to university students in Malaysia. The study also attempts to find the impact of online peer learning on the students' academic achievement of the university.

#### 2.4 Factors Influencing Online Peer Learning and Academic Achievement

The evidence from the reviewed literatures confirmed many factors behind the academic achievement of peers in online peer learning. The findings and discussions among such researchers as (Barnard, 2008;Krause & Coates, 2008; Ho et al., 2010;Cheng & Chen, 2011; Joo, Lim & Kim, 2012; Li, 2012; Carroll, Lipartito, Post, & Werhane, 2012; Joo, Lim & Kim, 2013;Komarraju & Nadler, 2013; Bukhari, Khan, Shahzadi & Khalid, 2014) in general fit this section as follows:Joo et al. (2012) did a study on a model for predicting learning flow and achievement in corporate e-learning.

The researchers intended to study the determinants of learning flow and achievement incorporate online training. In this case, academic self-efficacy, intrinsic value, and test anxiety were selected as learners' motivational factors, whereas, perceived usefulness and ease of use were also selected as learning environmental factors and learning flow was measured as a mediator of predictors and achievement.The findings show that academic self-efficacy, intrinsic value, and perceived usefulness and ease of use had statistically significant direct effects on learning flow. Intrinsic value, test anxiety, and perceived usefulness and ease of use had statistically significant direct effects on academic achievement. Certainly, these findings seem to add informative understanding on issues related to online learning and students' academic achievement.

In another study, Joo et al. (2013) researched locus of control, academic self-efficacy and task value as predictors of learning outcome in an online university context in South Korea. Primarily, the researchers investigated the predictors of learner satisfaction, achievement and persistence. The specific predictors were learners' locus of control, academic self-efficacy, and task value and the mediating effects of learner satisfaction and achievement were also tested. The Findings showed that locus of control, academic self-efficacy, and task value were significant predictors of learner satisfaction, while academic self-efficacy and task value predicted achievement. In addition to that, task value, satisfaction, and achievement were significant predictors of persistence. Finally, learner satisfaction significantly mediated the predictors and persistence. It is interesting to note that these findings seem to emphasis the role of an individual learner's cognition in their observed behaviors when learning.

Elsewhere, Barnard et al. (2008) studied online self-regulatory learning behaviors as a mediator in the relationship between online course perceptions with achievement. Specifically, the researchers surveyed whether self-regulatory learning behaviors may be reflected as intervening the association between student insights of online course communication and collaboration with academic achievement as measured by grade point average (GPA). The findings show that online self-regulatory learning behaviors though not strongly associated with academic achievement in and of themselves, does intercede the positive relationship between student perceptions of online course communication and collaboration with academic achievement (Barnard et al., 2008).Perhaps, that could be one of the factors accounting for growing interests of social media tools for educational purposes within these years.

Although the above said factors are inspired by developments within information and communication technology in recent years, there is no doubt that, undergraduate students today attend universities with considerable experience of using social media tools accounting to their competency. Cheng and Chen (2011)examined how attitude interacts with factors affecting intention in course blogs. Based on technology acceptance and knowledge sharing, the researchers developed a model with nine constructs and eight research hypotheses, with attitude as a mediating construct to survey340 primary school students in Taiwan. The results show that, in order of importance, reciprocity, perceived ease of use, reputation, and expected association are the major factors contributing to the attitude, whereas perceived usefulness, altruism, and trust have no significant influence on attitude.

There is no doubt that the said findings can be useful in considering attitude as the axis of the factors prompting intention. One question that needs to be asked, however, is whether these findings can be employed to undergraduate students or

not. This is because the rapid development of using social media tools and another related Internet and computer technology has what Ho et al. (2010) observed that influenced the way people live and learn. Given the nature of undergraduate studies and complexities as compared to primary schools, there might be differences in social influences (Wang et al., 2009; Mustaffa et al., 2011; Bukhari et al., 2014)feedback of others (Bates & Khasawneh, 2007; Chen et al., 2009) to university students that call for another research to university level.

Another research has heightened the need for academic achievement and institutional integration and traditional predictor variables like GPA. For instance, a study was conducted by Robinson (2006) to examine the usefulness of a modified integration model in understanding the relationship between the academic achievement, institutional integration, peer learning, help seeking, and GPA and SAT scores as traditional predictor variables. The findings from correlational analyses showed a significant relationship between peer learning, help seeking and institutional integration.

Robinson (2006) further founds that only peer learning was a significant predictor of academic success and rendition as compared to other analysed three variables. Furthermore, results from multiple regression analyses showed that students' prior preparation and peer learning were predictive of academic success and retention at the university. In another dimension, Komarraju and Nadler (2013) surveyed academic achievement and academic self-Efficacy. Specifically, the researchers examined motivational orientations, cognitive-metacognitive strategies, and resource management in predicting academic achievement of 407 undergraduates.

The findings from that study revealed that low academic self-efficacy students tended to believe intelligence is inborn and consistent. That understanding was opposite to high academic self-efficacy students who appeared to pursue mastery goals involving challenge and gaining new knowledge as well as performance goals involving good grades and outperforming other (Komarraju & Nadler, 2013). Furthermore, it was revealed through hierarchical multiple regression analysis that academic self-efficacy, effort regulation, and help-seeking predicted 18% of the variance in GPA. Remarkably, that happened when effort regulation partially mediated the relationship between academic self-efficacy and GPA. From the above findings, it can reasoned that self-efficacious students are able to achieve academically because they monitor and self-regulate their impulses and persist in the face of difficulties than low self-efficacious students.

Certainly, the said findings sound interesting and seem to add our understanding on the discussed topic. One major criticism against much of the cited work and related studies, however, is that they seem to emphasize standardization and neglect local perspectives. According to Kincheloe (2008), useful knowledge needs to be culturally produced in order to appreciate the world in a true sense. Therefore, a need arises to appreciate research on factors influencing online peer learning and academic achievement from Malaysian context, knowing that Malaysian undergraduates have a different cultural orientation as compared to other parts of the world. The following studies are in order:

Al-Rahmi, Othman and Mussa(2014) conducted a study on the improvement of students' academic performance by using social media through collaborative learning in Malaysian higher education. The researchers sampled and studied both undergraduate and postgraduate students at Universiti Teknologi Malaysia (UTM) to understand the impact of social media on academic performance and the possibility of using them as a useful pedagogical tool to improvement academic performance. The findings show that social media affects positively and significantly collaborative learning with interaction with peers, interaction with a supervisor, peer engagement, perceived ease of use, and perceived usefulness.

For that reason, given the pervasive nature of social media amongst university students, the said findings seemed encouraging provided that the university administration and academic teams will opt to connect students and deliver them instructional content in an effective manner (Al-Rahmi et al., 2014). Reading between the lines, the point of Al-Rahmi and colleagues suggest that there is a lack of evidence in Malaysian Higher Education context on the use of social media to improve the performance of students towards what Al-Rahmi et al. (2015) call as desirable outcomes.

Perhaps, following that observation, Al-Rahmi et al. (2015) studied the role of social media for collaborative learning to improve the academic performance of students and researchers in Malaysian Higher Education. The researchers reviewed the empirical literature focusing on collaborative learning and peer engagement to understand the interactive factors affecting academic performance. Besides, the researchers explored factors contributing to the enhancement of collaborative learning and peer engagement through social media. The authors selected randomly postgraduate students in Malaysia universities, namely University Malaya, University Kebangsaan Malaysia, University Science Malaysia, University Technology Mara and University Putra Malaysia. Logically, the researchers' focus suggests that they wanted to emphasize effective use of social media for collaborative learning, peer engagement, and intention to use social media. The findings showed that collaborative learning, peer engagement, and intention to use social media positively and significantly relate to the interactivity of research group members with peers and research students with supervisors to improve their academic performance. Although the findings sound interesting to the addition of knowledge, the researchers seem to rely heavily on postgraduate students than undergraduates. To appreciate the undergraduates' perceptions and experiences have to mean too.

Attempts have been made to acknowledge undergraduate students' views on the use of social media tools and academic performance in Malaysian context (Al-Rahmi &Othman, 2013; Lim et al., 2014; Ainin, Naqshbandi, Moghavvemi, & Jaafar, 2015;Lim, 2015).

Understandably, most of the undergraduates in present Malaysian universities' setting, as in Western societies, consistently visit the Internet and email, text messaging and social media tools, which allow them to get engaged in online communities and share information in educational contexts (Lim, 2015). For instance,Al-Rahmi and Othman, (2013) studied the impact of social media use in academic performance among university students: A pilot study. The objective of the study was to focus the potentials of social media in the academic setting by collaborative learning and improve the students' academic performance. The researchers randomly selected students of the Universiti Teknologi Malaysia. The findings show that collaborative learning positively and significantly with interact with peers, interact with teachers and peer engagement which impact the students' academic performance. These findings suggest that students can function in online peer-learning, yet, appears limited in scope.

Lim (2015) has recently researched about the use and perceived effectiveness of social media for informatics programs in the Malaysian Higher Education Context.In general, the researcher sought to investigate used learning settings in Malaysia to teach the Millennium generation, what is the digital status of these learners and how this generation responds to the learning settings both being offered and being generated by them.

In specific, the study investigated the use of social media technologies by institutions to engage with their students and facilitate effective technology supported learning environments. The findings reveal that the use of social media technologies is heavily rooted in the students' own learning processes, and individual academics are leveraging from these practices to engage and motivate students in their learning. In addition, it was found that, the institutions themselves are poorly prepared for these changes to pedagogical processes and are not, as a matter of strategy or policy, taking advantage of the opportunities offered by social media technologies. Interestingly, the findings fit the present discussion on online peer learning in the Malaysian context. The key limitation, however, is that the study is limited to only diploma and degree students who study Informatics related programs in Malaysia.

Prior to that study, Lim et al. (2014) studied the peer engagement of social media technologies by undergraduate informatics students for academic purpose in Malaysia. In this study, the researchers investigated undergraduate students' and academics' perceptions, acceptance, usage and access to social media in higher education in informatics programs in Malaysia.

Besides, the researchers employed a mixed-method research methodology with a significant survey research component to collect multiple forms of data from diverse audiences including educators, administrators and students. The findings show there is close matched, ownership; a number of hours spent online, types of social media technologies (SMTs) used and pattern of usage between informatics and non-informatics students. It is also shown that many Informatics students and instructors have started to explore and accept the use of SMTs as a tool for engaging with their institution and their peers as well as for teaching and learning purposes. Certainly,

these findings are useful as they suggest the need to understand, the critical success factors and the barriers that restrict the implementation of SMTs within the HEI (Lim et al., 2014). The serious weakness of this study, however, is that by limiting it to Informatics students and educators with relatively less consideration of the factors such as academic self-efficacy, peer engagement and coloration.

Another study worth mentioning is related to use of social media tools and academic performance. For instance, Ainin et al. (2015) studied Facebook usage, socialization and academic performance. The objectives of the study were to examine the relationship between Socialization with Facebook usage intensity and between Facebook usage intensity with Academic Performance. Besides, the researchers analysed whether Facebook usage mediates the relationship between Socialization and Academic Performance. In that respect, the researchers administered survey questionnaire to 1165 students in five public universities in Malaysia. The findings show that the construct Socially Accepted influences Facebook usage while Acculturation does not have any significant relationship with usage. The results also illustrated that there is a positive relationship between students' Academic Performance and Facebook usage, i.e. the higher the usage, the better they perceived they perform.

It is evident from the reviewed literature that academic self-efficacy, a collaboration between peers, peer engagement and the feedback of others are vital in the discussion of factors influencing students' academic achievement. Undergraduate students, in this case, who have positively exposed to those factors and guided properly may experience positive relationship consistent with their academic achievement.

The reverse is true. It is also evident from the reviewed studies that there is supposed acceptance among students as other users of using social media tools including Facebook, Twitter, YouTube and Instagram. This is probably due to value each tool provides to the users (Ainin et al., 2015). It was also found that most researchers seemed to consider the above said factors (Barnard et al., 2008; Wang et al., 2009; Joo et al., 2013; Al-Rahmi & Othman, 2013; Al-Rahmi et al., 2014; Bukhari et al., 2014) individually. Yet, there are relatively little researchers' attempts to combine six factors and hypothesize their relationship with students' academic achievement in Malaysian higher education context. Based on the literature review, therefore, this study attempted to survey factors influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities.

From the reviewed literature, there is no doubt that online peer learning via social media has potentials to undergraduate students' academic achievements. Remarkably, it is recorded that students are keen to choosing of the peers with whom they will live and learn for the duration of their life lived interaction(Zimmerman, 2003; Schmidt,GeithH & e & Thierstein, 2009).

Consistent to the sociology of education one can reason that online peer learning through social media tools can offer opportunities to change the composition of one's peers and appear as more or less racially, socially, geographically, or intellectually diverse (Zimmerman, 2003). Once this happens, the insights and benefits of online peer learning through social media need to be connected with a life lived and shared social realities rooted in the real experiences and practices of connected and related peers (Young, 2002). This observation is important in understanding the influence of online peer learning and what Zimmerman (2003) names as students' attitudes, values, or academic performance in the context of the sociology of education. Given the focus of this study, online peer learning appears to process social change of learning structures and students' interactions, beyond many aspects of the traditional education landscape (Schmidt et al., 2009).

#### 2.5 Theories related to the Present Study

Johnson and Christensen (2000) pointed out that in order for research to have a systematic and logical conclusion, the researchers should consider establishing frameworks, theories, and concepts that are related to the phenomenon of the research that he or she wishes to conduct. Based on the reviewed literature, the reputation of online peer learning has been greatly established amongst students, in both public and private educational institutions (Wallace, 2003).

As earlier stated, this study underscores the conception of peer learning that centralizes knowledge sharing among students (Ab Jalil & Noordin, 2010). The purpose is to link this study with learning theories which highlight the essence of collaboration, peer feedback, social influence and peer engagement (Topping, 2009), as factors or issues affecting students' learning practices in trying to achieve academic grades or learning outcomes, through social media enhanced online communities (Tervakari et al., 2012) and online peer learning (Sakulwichitsintu, Colbeck, Ellis, &Turner, 2014). Based on the reviewed literature, therefore, the following theories are considered:

## 2.5.1 Cognitive Theory of Learning

The first serious discussion about cognitive theory is referred to Jean Piaget (1896-1980). From a Piagetian perspective, peers can learn from one another and can develop new knowledge or conceptual structures through the processes of disequilibration and re-equilibration (O'Donnell & O'Kelly, 1994). During learning the process, peers may experience cognitive conflict in terms of understanding with other peers, which exposes them into own and others' knowledge discrepancies resulting in dis-equilibration (Garton, 2008). In that context, a higher level of understanding emerges between peers, through dialogue and discussion, so that equilibration is restored and, simultaneously, a cognitive change occurred. This is regarded as an internal process, which then manifests itself in 'inside–out' theory; (Garton, 2008).

Piagetian perspective suggests three conditions for cognitive peer learning to occur (Tudge & Rogoff, 1999). First, peers must have a common scale of intellectual understandings in order to allow them to attribute same meanings to the same terms. Second, peers should be able to conserve own ideas in order to prevent contradiction in the processing of new information. Third, a condition of mutuality must be present between peers (Damon & Phelps, 1989) to appreciate the essence of learning from each other (O'Donnell & O'Kelly, 1994; Razak & See, 2010). Researchers agree (Golbeck & Sinagra, 2000; Druyan, 2001) that learning with peers is more productive to cognitive excellence than individual learning. Therefore, peer learning is something internal and encouraged throughout formal learning setting.

The cognitive theory of learning theory is employed because it fits the scope of this study. According to Rogoff (1998), the essence of the cognitive model is its favours of the collaborative process, as peers can learn from each other and can develop new knowledge or conceptual structure (O'Donnell & O'Kelly, 1994). Consistent with the scope of this study, the said understanding is vital since peer learning occurs when the peer has a certain degree of reasoning and academic self-efficacy (Tudge & Rogoff, 1999; Bandura, 1977-1986). In this respect, a collaboration between peers is vital for cognitive change to occur (Garton, 2008). This view fits the idea of collaboration as described in this study because the potential of undergraduate students as peer learners to practice online learning through experience and reflect on what and how they learn about is acknowledged, in order to strengthen the reasoned and constructed new knowledge (Piaget, 1978; Rahman, Ab Jalil & Hassan, 2008). Besides, through collaborative practices undergraduates are expected to assimilate online related information from peers to learn, by fitting it into the pre-existing schematic knowledge frame (Piaget, 1978).

Furthermore, this theory supports the idea that social media can be a better place where a peer can meet, collaborate and learn from each other. Given the present development of discussion about peer learning, this theory establishes itself as a centerpiece in supporting, its forms of peer tutoring, cooperative learning, and peer assessment (Topping, 2005).

In this way, it relates to collaboration by providing ground which supports online peer learning sessions. The suggested relation may happen when peer learners attempt to collaborate and add to or amend the schematic structures, through assimilation, equilibrium and accommodation (Piaget, 1978; Rahman et al., 2008). Perhaps, it is from such understanding that knowledge construction theorists as Nonaka, Krogh, and Voelpel (2006) emphasise the importance for peers to have a meeting place in order to learn in a collaborative manner. Given that cognitive theory favours mutual understanding and collaboration of peers, this theory is employed because it may connect the gist of cooperation through such social media tools as Facebook, Twitter, YouTube and or Instagram in addressing online peer learning consistent to the scope of this study.



# 2.5.2 Social Cognitive Theory (SCT)

Social Cognitive Theory (SCT) developed by Albert Bandura (1977; 1986) states that people learn by observing and imitating others with positive reinforcement. SCT also posits that behavioral change is affected not only by personal factors and internal dispositions but also by environmental influences. In this respect, behavioral change is not a uniform exercise, but rather a complex process influenced by internal and external factors (Bandura, 1989). Central to this theory is the question of academic self-efficacy.

According to Bandura (1989; 1986), academic self-efficacy is the degree or strength of individual belief in their own capability and willingness to accomplish tasks and goals. Individuals with high academic self-efficacy have a high expectation that outcomes or consequences of the tasks they perform must be effective, valuable, and beneficial to them and the reverse is true. In practice, academic self-efficacy is influenced by both individual's capability and surrounded people who may have a positive or negative attitude towards specific behavior.

To date, researchers are widely used SCT to address different aspects of human functions as organizational behavior, mental as well as physical health, career choice, and athletics (Wood & Bandura, 1989; Bandura, 1993; Locke & Latham, 2002; Banks & Mhunpiew, 2012). There are possible explanations for this experience, at least in line with this study. First, it implies that researchers acknowledge the fact that human development is a continuous process subject to reshape individuals from one tradition to another and from one group to another (DeAndrea, Ellison, LaRose, Steinfield & Fiore, 2012). Second, diversity in social practices is inclined to produce significant individual transformations in the abilities that are refined and those that remain unused (Bandura, 1989).

For that reason, no wonder SCT is extensively used by researchers interested in studying classroom motivation, classroom learning and achievements (Schunk, 1985;Schunk & Gunn, 1986;Schunk, 1986; Schunk & Zimmerman, 1994; Pajares, 1996). With respect to the question of academic self-efficacy, a significant sum of research highlights the centrality of self-perceptions for students' learning adjustment to college (e.g., Chemers, Hu, & Garcia, 2001). One reasonable response to this observation is to appreciate the attempts by undergraduates at the university to capitalize on the available on campus active networked social media to improve their academic achievement. The following figure 2.2 shows the model of the theory in practice:





Figure 2.1: Social Cognitive Theory (Bandura, 1986)

The theory of social cognitive has at least two important implications for grounding this study on influential predictors of academic achievement in online peer learning among Malaysian undergraduates. First, this theory is employed because of the theoretical appeal of the concept academic self-efficacy. Certainly, newer forms of social media have the potential to reshape peer to peer communication patterns, interaction and amplifying of their feelings, perspectives and sense of connectedness (DeAndrea et al., 2012).

For that reason, employing the concept academic self-efficacy as developed in this theory is consistent with the ongoing research discussions which acknowledge, the increasing peer perceptions of preparedness for effective peer learning-driven forum in the context of technological advancement, information sharing and intervention (Junco et al., 2011; DeAndrea et al., 2012). Second, this theory is employed because academic self-efficacy is one of its independent variables. The main idea is that having high academic self-efficacy undergraduate students is one of the key contributing factors to help them perform better in online peer learning. Taken together, the social cognitive theory is employed because it details how internal cognitions and environmental factors work in the bids to realize objectives of this study.

There is no doubt that sustaining human ethics requires significant consideration, even in the peer learning context. Peers through online learning, need moral standards to become ethical otherwise, they may end up with the problem of lacking direction in their daily lives (Bandura, 2013), as online sites also support complex discourses and multiple relationships (Anderson & Simpson, 2007). Interestingly, the theory of social cognitive theory fits in this study because, among other things, it pays attention on role modeling, learner's self-system and the dynamics of self-regulation (Braungart & Braungart, 2011).

Besides, this theory along its central theme of academic self-efficacy also adopts what Bandura (2014) calls as cognitive interactionist standpoints which acknowledge the individual moral thought, affective self-restrictions, ethical conduct and environmental factors. Consistent with the scope of this study, this theory is included as it relates behavior to a set of environmental, cognitive, and behavioral factors.

In essence, this theory presumes that people can, through self-reflection, self-regulatory processes, and consideration, exercise significant influence over their own outcomes as well as the environment. That is a required theoretic ground that may help learners, to sort out the changing effects of the social learning experiences (Braungart & Braungart, 2011) and abide by respective ethical conducts (Bandura, 2013). In this way, the social cognitive theory may ethically link peer learning of undergraduate students in line with the scope of this study.

# 2.5.3 Sociocultural Theory, Vygotsky (1978)

The sociocultural theory of social-cultural development is still applied especially in university classrooms (Eggen & Kauchak, 2001). His theory advocates social interaction developmental learning process which leads to knowledge construction and internalized individuality (Eggen & Kauchak, 2001). According to Kozulin, Gindis, Ageyev, and Miller (2003) this theory makes educators aware of their vision of students, for example, children defined by their age and IQ versus culturally and socially stimulated learners.

Besides, this theory highlights the centrality of collaboration to encourage meaningful learning in today's university classrooms (Eggen & Kauchak, 2001). An implication of the present development through computer supported networks is that social media tools can make social interaction easier than ever before and provides significant opportunities for undergraduates' collaborative learning. For that reason, when undergraduates opt to collaborate, then learning within and between one another will occur. Another implication is that technological development and skills that students possess on using such means of interactions guarantee their knowledge even more engaging.

Peer learning is deeply rooted in Sociocultural theory by Vygotsky (1978), a key concept of the "zone of proximal development"; that is, the distance between the actual developmental as shown by individual problem solving and the degree of impending growth as emphasized through problem solving under adult supervision or in partnership with more conscious peers. From a practical perspective, this concept seems to give an account of and the reasons for conceptualize the ideal educators or teachers that they need, to talk and live as the role model versus a source of knowledge versus mediator and the like (Kozulin et al., 2003). Intrinsically, some of the emerging issues from this observation relate specifically to the peer learning in a simulated environment as active one. In this respect, the concept Zone of Proximal Development can be considered to encourage mediated interaction through social

dimensions of active learning to support the intellectual development in students' negotiation of meaning in the online environment (Freeman, 2010).

The theory of Sociocultural is employed because of its connection to the objectives of this study. As Freeman (2010) observes, this theory has adequate ability to address the impact of a changing socio-cultural learning environment. This study is about online peer learning through the use of social media tools, a sign of changing learning setting (Anderson & Simpson, 2007). This theory is employed as it seems to support online platform for undergraduates to practice useful online peer learning interactions.

Indeed, this support is central to more productive work in students' attempts to improve their academic achievements. Furthermore, this theory is employed here because it appears to encourage educators and lecturers alike to understand their task in curriculum and instruction development within the greater social context. That is important in the present attempts of educating university students to appreciate the essence of fullest cultural development through practicing meaningful relationships with others (Kaptelinin, 1999; Freeman, 2010) in online learning environments (Anderson & Simpson, 2007).

In fact, Vygotsky' (1978) sociocultural theory fits this study because it includes student cooperative learning, peers mentoring and collaborative learning programs, which are comparable to the online peer learning. Taken together, therefore, this theory is employed because of its enriched theoretical implications which favour of online peer learning as addressed in this study.

# 2.5.4 Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh et al. (2003) suggested a unified model named Unified Theory of Acceptance and Use of Technology (UTAUT) in accordance with eight prominent models in Information Technology. This theory combines elements of all models to include the model of PC utilization (MPCU) (Triandis, 1977; Thompson, Higgins & Howell, 1991), the technology acceptance model (TAM) (Davis, 1989), the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975), the theory of planned behavior (TPB) (Ajzen, 1991), the combined TAM and TPB (C-TAM-TPB), (Taylor & Todd, 1995), the motivational model (MM) (Davis, Bagozzi & Warshaw, 1992), the social cognitive theory (SCT) (Bandura, 1986; Compeau & Higgins, 1995), and the innovation diffusion theory (IDT) (Moore & Benbasat, 1991; Rogers, 2003).

According to this theory, effort and performance expectancy, facilitating conditions and social influence are measurements of use behavior or behavioral intention that sex, age, voluntariness and experience of usage have a moderating impact on IT acceptance. It is also emphasised that UTAT is capable of explaining student's mlearning acceptance (Jairak, Praneetpolgrang & Mekhabunchakij, 2009). In this respect, it also argued that universities administrations have to concentrate on the well-fit design of a m-learning system that goes well with perceptions.

This theory encompasses four major IT use behavior determinants and four moderators as core relationships. The following figure 2.3 illustrates UTAUT theoretical model. It also demonstrates the four main constructs includes effort expectancy, facilitating conditions, performance expectancy and social influence.



Figure 2. 3: UTAUT Model adopted from Venkatesh et al. (2003)

Since online peer learning involves the use of certain technology like social media, the UTAUT is employed to show the level of acceptance of new technology for such learning environment. In this model, it is proposed that knowing benefits through the use of technology, users will adopt it. It is also projected those surrounding users may influence their decisions to adopt the technology. If the adoption occurs, it is expected that the performance of the adopters will be enhanced. However, only some of the components of UTAUT were used that reasonably related to online peer learning. Namely, the present study incorporated performance expectancy and social influence. Other factors such as effort expectancy were excluded because it has the same meaning and function of academic self-efficacy (Venkatesh et al., 2003; Bright, Kleiser & Grau, 2015). In addition, facilitating conditions were also excluded because are related to an institution that provides services rather than to individuals who use the service (Venkatesh et al., 2003).

The choice of UTAUT in the present study is based on its theoretical appeal built on the eight most well-known models that accept new technology. For this reason, the researcher employed this model to strengthen the inadequacies of other models since it has the high exploratory power of 70% (Marchewka, Liu & Kostiwa, 2007: Min, Ji & Qu, 2008; Chang, Lou, Cheng & Lin, 2015). Such relevance is clearly supported by the fact that, this model was designed to test the individual rather than the organizational acceptance of new technology (Venkatesh et al., 2003).

Moreover, it is employed as it seems to acknowledge that acquisition of knowledge and skill through active peer helping and supporting (Topping, 2005) depends on, among other things, the degree to which an individual trusts that using the system will help him or her to attain improvements in expected work performance (Venkatesh,Thong&Xu, 2012). This understanding suggests that online peer learning for promising academic achievements is not automatic. Therefore, this theoretical appeal will be used in this study to investigate factor influence academic achievement in online peer learning among undergraduates at the university.

In line with this study, UTAUT theory is also selected and incorporated to underpin the theoretical frame. Specifically, the researcher has focused on its components of performance expectancy and social influence because of the following reasons: First, performance expectancy component accommodates technology users' perception as the necessary ground to determine the usefulness of a given technological tool (Venkatesh et al. 2003). This understanding is very important for this study since it may support the definition of the extent to which undergraduate students, as learners perceive the use of social media tools as technology towards realizing what is called by Tan (2013) as a desired learning goal. In this respect, the appeal to the individual's satisfaction with the performance as the pre-requisite in adopting a new technology becomes a central theme in consideration.

Another reason is that performance expectancy enjoys the quality of being the strongest factor influencing technology us in UTAUT theory. According to Wong, Teo and Russo (2013) on interactive Whiteboard Acceptance: Applicability of the UTAUT Model to Student Teachers and Thowfeek and Jaafar (2013) performance expectancy is the strongest factor out from the rest in sustaining users' perceptions of technology as outline in the UTAUT theory. Equally, Al-Suqri (2015) is opined that the performance expectancy and social influence showed a positive association with the intention and use of social media. This is opposite to other UTAUT variables like effort expectancy and facilitating conditions which, according to Al-Suqri (2015) showed a negative association with the intention and use of social media. Based on the said advantages, the researcher selected performance and social influence in order to get a strong framework to support theoretical background of the conceptual framework of this study on peer learning and academic achievement.

In addition to that, the two UTAUT variables have been selected because of their close relation. According to Brown and Venkatesh (2005) social influence is positively related to performance expectancy, meaning that stronger social influences cause consumers to perceive a technology as more useful (higher performance

expectancy), resulting in stronger usage intentions (Venkatesh, 2000; Venkatesh et al., 2003).

From this observation, it can be reasoned that in UTAUT social influence has significant status in influencing individual's intentions to maximize the use of technology. One implication is that the two variables cannot be separated towards investigating undergraduate students' influencing factors when held in online peer learning via social media. In sum, those two variables and other components from above reviewed theories are used as salient factors to give a better understanding of the factors that influencing undergraduate students' academic achievement while practicing online peer learning via social media.

Taken together, four theories, namely, cognitive theory of learning, social cognitive theory, sociocultural theory and Unified Theory of Acceptance and Use of Technology (UTAUT) are fixed as key theories with key their related concepts to under pin the structure of this study. Consistent with the objectives of this study, it was assumed in general that these theories had now proven the essence of students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration for learning and reputable academic achievement. In the present development of technology, university lecturers and students both undergraduates and postgraduates can use social media tools, with ease alternating between texts, sound, video and other applications whenever required (Wong, Teo & Goh, 2014). This is a justified reason that to incorporate the said theories towards researching predict factors influencing undergraduate students' academic achievement while practicing online peer learning via social media tools as an earlier reviewer.

The following suggested theoretical framework serves as the basis to see clearly the variables of the study. It showed that there are combinations of factors, including academic self-efficacy, performance expectancy, social influence and collaboration influencing academic achievement in online peer learning. From the reviewed theories, the researcher hoped to contribute in the field of sociology of education a general theoretic frame that put together the use of more than one social media tools such as Facebook, Twitter and YouTube, and adding knowledge behind countless of factors behind students' academic achievements or outcome (Zimmerman, 2003; Wong et al., 2014) in the cultural context of non-Western country like Malaysia. The following theoretical framework in Figure 2:1 is in order:



**Figure 2.3: Theoretical Framework** 

# 2.6 Conceptual Framework

In order to better understand reasons for undergraduate students' use of social media tools, there is a need to focus on factors influencing students' academic achievement while practising online peer learning. As shown from the reviewed related literature, the factors discussed in this study are based on the cognitive theory of learning, social cognitive theory, sociocultural theory and UTAUT theory. In terms of the main purpose of this study, examining factors influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities, there were six main factors involved academic self-efficacy, performance expectancy, social influence, peer feedback, peer engagement and collaboration. In the context of this study, the following descriptions of each factor fit the discussions:

# 2.6.1 Academic Self-Efficacy

Academic self-efficacy is described as individuals' belief of what they are capable of doing (Bandura, 1982). In social cognitive theory, academic self-efficacy is considered as the key variable to influence individuals' beliefs in a way to determine the degree of motivations, emotional reactions, thought patterns, and supports in making important decisions (Bandura, 1997, 1982). To date, it is established that

technological use and acceptance highly relies on individual academic self-efficacy (Straub, 2009) which can act as substitution of one's thought control in computerized usages (Venkatesh & Davis, 1996).

As a result, there are researchers such as (e.g. Chang &Tung, 2008; Hsu, Wang & Chiu, 2009; Mew & Money, 2010) who maintain that use of online tools, learning websites, and technological application depends on students' academic self-efficacy. In this respect, the more individuals perceived academic self-efficacy, the higher the goals individual set and become dedicated to fulfill them (Wood & Bandura, 1989). Other researchers thought the significant relationship between performance as the dependent variable and perceived self-efficiency as independent variables in the study of the web based environment (Wang & Newlin, 2002). The review of those studies suggests the centrality of academic self-efficacy is evident. For that reason, as one factor, it was included in this study as the attempts to understand individual undergraduate students' use of social media tools to realize academic goals.

Some researchers (e.g. Lai et al. 2012) have incorporated computer academic selfefficacy as a factor that influences students' use of technology in Hong Kong. Other researchers (see Joo et al., 2012; Joo et al., 2013) investigated the influence of academic self-efficacy on academic achievement from 248 and897 respondents, respectively, and found that academic self-efficacy has a significant and direct influence on the academic achievement of students. These findings suggest that academic self-efficacy is a strong predictor of academic achievement.

This observation is supported by Diseth (2011) who found the significant direct influence of academic self-efficacy on academic achievement. Elsewhere, Ho et al. (2010) examined the influence of self-learning competency on learning the outcome. Their findings revealed that here is a direct and significant influence between the two variables. Similarly, Din et al. (2012a) found self-directed learning has a positive effect on information retrieval.

In general the findings from the reviewed studies seem to conclude that students' confidence to get engaged in educational related activities can lead to higher academic achievement (Greene, Miller, Crowson, Duke, & Akey, 2004; Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2007; Denissen, Zarrett, & Eccles, 2007). It is possible, that researchers who are concluding students with high level of academic self-efficacy have higher academic achievement.

However, the suggested conclusions must be interpreted with caution because other emerging evidences seem to question that relationship. For instance, Robinson (2006) investigated the influence of academic self-efficacy on academic achievement among students. Data were collected from 198 respondents. The findings show that academic self-efficacy does not influence the academic achievement. This finding has important implications for studying the undergraduates' use of social media tools. From a practical perspective, students usually look for more academic support and are willing to share their academic value in the bid to succeed in learning. Besides, the reviewed literature implied that students love challenging learning environment if they have more self-confidence and beliefs in themselves (Greene et al., 2004; Wigfield et al., 2007; Denissen et al., 2007). This understanding is important in addressing students' academic self-efficacy while practicing online peer learning via social media. Taken together, and consistent with the scope of this study, the combination of cited findings provides ground to assume that undergraduate students can persist to face challenges and place considerable times, efforts and values online peer learning for academic achievement when their academic selfefficacy is relatively better. This study is conducted with that assumption in mind.

### 2.6.2 Peer Engagement

Peer engagement here is referred to the extent of students' physical and mental strength dedicated to learning and academic performance (Astin, 1984). It is in the records that social media use can, facilitate and assist students' peer engagement and learning (Tervakari et al., 2012) and improve students' subsequent academic results (Novo & Calixto, 2009). In this respect, no wonder such researchers at Ab Jalil (2010) put it rightly, that students can learn from each other by being engaged in online discussion.

More specifically, O'Brien (2010) found that students express interest in using Facebook as part of the classroom experience. Strangely, the same research found no identified difference in student peer engagement for Facebook compared with those who did not use it as part of the course. A possible explanation for this might be that those studied students engaged in Facebook did not consider academic achievement in the process. In another place, researchers, including (Flowers & Flowers, 2008; Stewart, 2008; Wang & Holcombe, 2010) found that academic achievement is highly influenced by students' peer engagement. That can be seen through time devotion, efforts, and energy to improve their academic achievement (Greene et al., 2004; Stewart, 2008). Therefore, it can be concluded that Facebook peer engagement can lead to better academic achievement when commitment to that end is well established among students as users.

Krause and Coates (2008) conducted a study on the influence of peer engagements on academic achievement. They incorporated academic engagement, peer engagement, students-stuff engagement, intellectual engagement, online engagement scale, and beyond class engagement scale. Data were collected from 3542 respondents. The findings indicated that all types of engagement, influence academic achievement of students. In practice, peer engagement appeared the strongest predictor of academic achievement followed by online engagement scale. Elsewhere, Wise et al. (2011) investigated the influence of social engagement on academic engagement from 390 respondents. The findings show that social engagement increases academic engagement and lead to better academic achievement. Similarly, Al-Rahmi and Othman, (2013) investigated the influence of peer engagement of social media on students' satisfaction and performance from 134 respondents. It was found that peer engagement has a high correlation with the satisfaction of using social media. In another research focus, Al-Rahmi and Othman (2013a) investigated the influence of peer engagement in social media on students' academic performance and found it impacts on student's collaboration. A possible explanation for these observations is that peer engagement has considerable influence to students' academic achievements.

A recent study (see Al-Rahmi, Othman & Musa, 2014) has reported that peer engagement influence students' satisfaction and performance and found a positive influence on both. Elsewhere, a study by Rashid and Rahman (2014) has investigated the use of social media in developing inner design of students' creativity and involvement in online learning activities. The findings show proficient inner architects through Facebook that influences students' creativity. It seems possible that with a limited amount of research available in this area, it can be reasoned accurately that use of social media has potentials to improve students' peer engagement.

However, how, why, and to what extent does this experience occurs among undergraduate students in Malaysian context has not been clearly established yet. Therefore, this study sets out to identify influences of peer engagement in online peer learning via social media on undergraduate students' academic achievement at the university under study. That is important at least in this study in order to establish the extent of influences that peer engagement can positively support the undergraduates' academic achievement through online peer learning.

## 2.6.3 Performance Expectancy

Performance expectancy is defined as the degree to which students believe that information system and technology assists them in obtaining a better academic achievement. Reviewed literature (Cho, Cheng & Lai, 2009; Liu et al., 2010) has discovered that performance expectancy of information system can assist students' learning. That is because learning performance and outcome have significant positive influence on students' intention of using them continuously (Cho et al. 2009; Liu et al., 2010).

In the same line of observation, other researchers (see Yeung & Jordan, 2006; Chen et al., 2007; Roca & Gagn & 2008; Hashim, 2008) identified significant positive impacts of performance expectancy in particular to e-learning over employees' satisfaction, attitudes, and intentions towards learning in the workplace. In addition to that, a study conducted by Al-Rahmi et al. (2014) investigated the influence of perceived usefulness on the students' satisfaction and academic achievement. The

findings indicated that perceived usefulness, influence students' satisfaction and academic performance positively. Another study by Mali and Hassan (2013) found that usefulness significantly influence on the student's intention of using Facebook for academic purposes.

The recent study by Leng et al. (2011) found perceived usefulness is one of the strongest factors that link to the use of social media for academic purposes among students in Malaysia. There is also a study by Suki et al. (2012) of factors influencing behavioral intention to use Facebook. Data were collected from 200 students in the Universiti Science Malaysia. The findings showed that perceived enjoyment, perceived ease of use, and perceived usefulness all impact attitudes toward the continuance intention use of Facebook for academic purposes. There is no doubt that evidence from these studies suggests the relationship of performance expectancy and students' use of social media in the context of learning.

However, with a different study focus and objectives, caution must be applied; as such findings might not be transferable to other students in other universities. For instance, Al-Rahmi and Othman (2013) conducted a study about perceived usefulness of using social media to students' satisfaction and found no correlation between the two variables. Based on that observation, further research should be conducted to investigate undergraduates' performance expectancy in online peer learning in the bids to improve their academic achievement. From this ground, therefore, this study is suggested to focus performance expectancy of online peer learning and extent of positive social influence on academic achievement among Malaysian undergraduates.

## 2.6.4 Social influence

Social influence is one of the four constructs of UTAUT, and it was defined by Venkatesh et al. (2003) as "the extent to which a person perceives that important other believe he or she should use a new information system". According to Qin, Kim, Hsu and Tan, (2011) social influence occurs when those, who surrounded an individual, influence his or her decision. This is in agreement with social learning theory by Bandura (1977) that individuals learn from each other through communications with friends. This is to say that when an individual decides whether to adopt or reject an innovation, the effects of decisions upon individual's relationship with others in the group are considered (Mugny, Butera, Sanchez-Mazas, & Perez, 1995).

In another version, Davis (2000) asserted that social order is a critical method of shifting individual's intention to make use of modern technology. For instance, Mustaffa et al. (2011) conducted an exploratory study at UKM University in Malaysia from 200 undergraduate students. The result indicated that the use of Facebook as a tool for academic purposes was strongly influenced by the peer pressure. This finding has important implications for investigating online peer learning.
There are also sociological studies that have empirically found that parents influence is very important for students (Stewart, 2008; Speight, 2009; Fallon, 2010). For example, the parental influence was found one of the most important factors that drive students' academic achievement (Multon, Brown & Lent, 1991). Other researchers have found peer influence to each other has the potential to academic achievements too. As, Astin (1993) found that peer group put forth strongest influence on behavioral, cognitive and psychological of peers.

There is also a study in M-learning which indicates the social influence of friends and family members to have a significant relationship to students' decisions to adopt it or not (Wang et al., 2009; Yu, 2012). One of the issues emerging from these findings is that the influence of peer of each other is a significant factor to make them use or not using a certain technology or application. These observations corroborate the findings of a great deal of the previous studies that social influence plays an important role in user adoption of multi-person applications and technologies (Hsu & Lu, 2004). So far, however, there has been a relatively little discussion about social influence and undergraduates'' online peer learning. Thus, this study is set in the attempts to investigate the social influence of online peer learning to the academic achievement of Malaysian undergraduate students.

# 2.6.5 Peer feedback

Peer feedback also known as peer learning, peer cooperative learning, peer assessment, peer review, and peer revision, is an indication of interpersonal process among status equals (peers) in which feedback is given to and received from others aimed at enhancing performance and knowledge through peer-centered interaction (McGroarty & Zhu, 1997; McLuckie & Topping, 2004; Topping, 2005; Van Gennip, Segers, & Tillema, 2009). Peer feedback is individualized and timely in peer assessment process (Topping, 1998). It has greater immediacy; frequency and size compensate the absence of a high quality response from qualified staff members. Some studies focus on the quality of peer feedback in relation to pursuing better learning and more academic success. For instance, it is reported that a brief feedback on marketing can maximize openness student's confidence, peer reviewing process and consequently learning outcomes (Smith et al., 2002).

Moreover, forms of feedback can impact on students learning differently (Topping, 1998). In this respect, electronic feedback can increase lecturers' ability to provide rapid feedback in the large course and enhance overall social interaction to learning (De Raadt, Toleman, & Watson, 2005). Elsewhere, Chen et al. (2009) investigated the influence of many variables related to peer assessment, observation and peer feedback. The findings indicated that peer feedback has no significant influence on the reflection level or academic achievement. In addition to that, Ab Jalil, McFarlane, Ismail and Rahman (2008) pointed out that assisted performance in the online exchanges could offer insights into the learning that can take place in the online discussion and offer one way of recognizing meaningful online interaction.

In the same vein, Razak and Lee (2012) pointed out that the positive feedback from peers help students and stimulate further ideas. The combinations of the cited findings and observations seem to provide support for the research premise that peer feedback is good for peer learning and even negative feedback when constructively reflected can inspire students for better achievement. So far, however, research to date has not yet addressed that experience in relation to undergraduates in Malaysian universities. From that reviewed background, this study is conducted to investigate the influences of online peer learning feedback via social media to undergraduates' academic achievement the university under study.

#### Collaboration 2.6.6

Collaborative e-learning within an educational setting can be explained from a constructivist view of learning associated to Vygotsky's (1986) zone of proximal development. This relates to learner's level of understanding and cognitive development through social interaction and collaboration from expert guidance and capable peers. Collaboration can be defined as an active construction of knowledge where learners share ideas and information through a pair or group communication.

According to Haythornthwaite (2006), collaboration is related to working together towards a common goal. For that reason, it aims at regulating a coordinated effort of all group members to regulate their activity and learning (Arnold, Ducate, Lomicka, & Lord, 2009). Kahiigi et al. (2012) explain that peer review process within collaborative e-learning environment involves students having access to their peers' work and providing each other with feedback in a context that can be accessed with flexibility. This strategy is an advantage for learners since, as Cantoni, Cellario and Porta (2004) explain they can customize learning material to their own needs, have more control over the learning process, and have the possibility to understand the material, leading to a faster learning curve. The observations from these cited studies indicate that collaboration has the potential to support undergraduates' online peer learning in the bids to improve academic achievements.

That observation is in line with a study by Barnard et al. (2008) on the influence of collaboration in an online course on the academic achievement. In that study, data were collected from 204 online respondents. The findings revealed that collaboration between students in an online course has a significant influence on the academic achievement. In another study, Al-Rahmi and Othman (2013a) focused on the influence of collaboration and students' academic performance. The findings showed that collaboration between students in social media has positive influences on academic achievement.

Similarly, collaborative learning was investigated by Al-Rahmi et al., (2014) at the UTM University in Malaysia. The findings showed that collaborative learning tends to influence students' satisfaction and performance. In that respect, the use of SNS in fostering collaboration between learners and professionals is perceived positively by students (Rashid & Rahman, 2014). Based on the above observations it can be

reasoned that further research is needed in this area. This study is done with the focus on collaboration in online peer learning and its influence on undergraduates'' academic achievement at the university under study.

#### **Conceptual Framework**

The conceptual framework of this study presented in figure 2.4 is based on the literature and previous studies.

#### **Independent Variables (IV)**

#### **Dependent Variable (DV)**

(Influential Predictors of Academic Achievement via Online Peer Learning)



# **Figure 2.4: Conceptual Framework**

# 2.7 Summary

This chapter highlights issues related to the prevalence of social media, use of social media among university students, a survey of Malaysian literature on the said aspect and the relationship between social media use and academic achievement. It also addresses conceptions of peer learning, online peer learning, and online peer learning dimensions, online peer learning in higher education, online peer learning and academic achievement.

Besides, there are also discussions of the factors influencing online peer learning and academic achievement as attached in various learning theories, including cognitive learning theory, social cognitive learning theory, social, cultural theory and UTAUT theory which is specific to technology use. Issues related to such factors as academic self-efficacy, peer engagement, performance expectancy, social influence, peer feedback and collaboration were discussed in the efforts to add understanding about online peer learning participation and the ways students define their roles and relationships towards learning goals.

The literature on the above cited issues and related works on factors influencing academic achievement via online peer learning through the use of social media including Facebook, Twitter, YouTube and Instagram were thoroughly reviewed. The review for this study was guided by research objectives focused on the following: First, it focused on students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration while practicing online peer learning via social media among undergraduate students in UPM. Secondly, it focused on the relationship of students' peer engagement, academic self-efficacy, social influence, peer feedback and collaboration with students' academic achievement while practicing online peer learning via social media among undergraduate students in UPM. Thirdly, it focused on factors that influencing students' academic achievement while practicing online peer learning via social media among undergraduate students in UPM. Thirdly, it focused on factors that influencing students' academic achievement while practicing online peer learning via social media among undergraduate students in UPM.

From the reviewed literature, it was found that social media use has the potential to help students' learning and academic achievement while their commitments are central towards their goals at university community. In addition, it was also revealed that there are growing evidences from published researches acknowledging the pervasive nature of social media across the global and in Malaysian contexts of higher learning institutions.

Yet, it was found that the study in the combination of factors from different learning theories influencing academic achievement in online peer learning among undergraduate students of one of the Malaysian public and Research Universities is lacking. The researcher also found that there is missing element of social relations when social media tools are mentioned in the context of facilitating online peer learning. In fact, it was found that literatures have not previously nor currently offered considerable focus to undergraduates from Malaysian public university context multiracial background. Based on that observation, therefore, this study was conducted focusing on influential predictors of academic achievement in online peer learning among Malaysian undergraduate students. This chapter then proceeds to the next chapter on research methodology in the attempts of achieving the objectives of this study.

### **CHAPTER 3**

#### **RESEARCH METHODOLOGY**

#### 3.1 Introduction

The purpose of this present study is to examine the predictors influencing undergraduate academic achievement using social media. The predictors' factors were academic self-efficacy, peer engagement, peer feedback, collaboration, social influence, performance expectancy and academic achievement. This chapter will discuss the research methodology to be achieved in this study. Also, the research designs of this study, the location of study, population and sample size, instrumentation, validity and reliability, pilot study and final study, data collection procedure, and data analysis will be presented.

#### 3.2 Research Design

Research design clarifies the structure of the study in which the researcher intended to do research and helps the researcher to answer research questions (Ary et al., 2013). One of the objectives of this study is to determine the relationship between the variables under investigation. According to Lodico, Spaulding, and Voegtle. (2010) correlation research is designed to identify and measure the relationship between variables. In addition, the other objective is to find the causal effect of the independent variables on the dependent variable. According to Hair, Black, Babin, Anderson, and Tatham (2006), multiple regressions allow the exact examine how a specific combination of several variables can predict a dependent variable.

# 3.3 Location of the Study

UPM is one of the five research universities in Malaysia, and it is among the renowned public universities (Ministry of Higher Education, 2014). The university is selected as a case study of this research due to its importance. It was chosen as it has received recognition from Managing Information Strategies (MIS) magazine in 2007 which certifies UPM as the 25th in rank out of 100 ICT users in Asia and UPM ranks 4th among institutions of higher education in Asia and the first amongst other institutions of higher education in Malaysia. UPM is also chosen because it has 4,686 international students (UPM Portal, 2016) which grant the opportunity to gain local and international perspectives on the online peer learning using social media. It can be seen that the university has a large community and diverse environment in terms of race, gender, ethnicity, and nationality. ICT usage among the top priority of UPM and more than 97% of undergraduates in Malaysia are using Facebook (Alhazmi & Rahman, 2013). Thus, this study is conducted at UPM on undergraduate student.

 $\bigcirc$ 

# 3.4 Research Population

Population defined as the complete group of individuals, things of interest or events that the researcher wishes to explore (Sekaran, 2006), or the total number of the population that interested in particular research (Fredrick, 2011). The population of this study is undergraduate students in UPM as one of the public universities in Malaysia. According to the administration office of the university, academic and the International office (See Appendix A), the number of undergraduate students in 2014- 2015 are 17,582. Table 3.1 shows the dispersion of the research population from the respective seventeen faculties that existed in the university.

 Table 3.1: Dispersion of UPM Undergraduates According to Faculties (2014 – 2015)

	2013)	
N.	Faculties	Population Size
1	Veterinary Medicine	511
2	Engineering	1,667
3	Design And Architecture	535
4	Food Science And Technology	593
5	Medicine and Health Sciences	1,085
6	Science	1,706
7	Biotechnology and Bimolecular Sciences	670
8	Computer Science and Information Technology	708
9	Forestry	562
10	Agriculture	1,258
11	Environmental Studies	432
12	Centre of Foundation Studies for Agricultural Science	739
13	Agriculture and Food Sciences	1,780
14	Economics and Management	1,176
15	Educational Studies	1,379
16	Human Ecology	986
17	Modern Languages and Communication	1,795
	Total	17,582

Source: Administration office of UPM, academic and the International office

# 3.5 Sample Technique

Sampling is defined as a process of selecting a number of individuals from a population, preferably in such a way that the individuals are representative of the larger group from which they were selected (Fraenkel, Wallen & Hyun, 2012). This study deployed a proportional stratified sampling technique which defined as the process of selecting subgroups with the same proportion of the population (Fraenkel, et al., 2012). Using the proportional stratified sampling in this study would ensure that sub-groups of undergraduates from different faculties in UPM would present results in the same proportion as they were in the population.

#### 3.6 Sample Size

The population of this research covers all undergraduate faculties at UPM. Thus, each faculty in this study is considered as a stratum. In each stratum, a randomly selected sampling technique is employed. This is because each of the respondents has an equal opportunity to be chosen as a representative of the stratum. As stated by Cochran (1977), the sample size of the population (17,582) of this research at the margin error of 5% and degree of confidence of 95% is 376 respondents. The process of calculating the sample size based on the formula given by Cochran (1977) is shown below.

n=

Where:

no: sample size =  $\frac{t^2 s^2}{d^2}$ 

t= value for selected alpha level of 0.025 in each tail 1.96

s = estimate of standard deviation in the population = 1.25

d= acceptable margin of error for Mean

$$n = \frac{(1.96)^2 (1.25)^2}{(5*0.03)^2}$$
$$= \frac{(3.84) (1.25)}{0.023}$$
$$= 260.45$$
$$N = \frac{n}{1+\frac{\pi}{2}} = \frac{260.45}{1+\frac{260.45}{2}}$$

$$=\frac{260.45}{1.015}=256.60$$

Due to the uncertainties of the response rates, 120 questionnaires were added to cover 376 samples as recommended by (Salkind, 1997; Barlett, Kotrlik & Higgins, 2001). Although over sampling may lead to the increase in costs of a survey, but it seems necessary in certain conditions (Fink, 1995). In a situation where the sample obtained is less than the target sample, the variances of estimates can increase, and this could affect the outcome of the analysis (Cochran, 1977). In other words, over sampling is preferable in surveys than having fewer samples in a giving population (Barlett et al., 2001). In lieu of the above, 376 questionnaires were administered to

UPM undergraduate students, out of which 328 were correctly filled and retrieved from the respondents and were used for this study.

Population Size (Undergraduates in UPM - Second Semester- 2014 - 2015) = 17582

Minimum Sample Size Based on Cochran (1977) for Continues Data = 257

Added Data = 46 % increased

Collected Data =376

Analyzed Data = 328

The sample size (Table 3.2) for each faculty was calculated based on the percentage of the faculty in the population. For example, the population size of the faculty of educational studies is 1,379, which account for 7.8% of the total population. Since the sample size of this research is 376, the percentage of the faculty (7.8%) multiplied by the total sample size (376) will lead to 29 respondents from the faculty of educational studies (376\*7.8% = 29). The calculation of the sample size for all faculties is given in Table 3.1 above. The 376 response is considered sufficient for this study, and the response rate is predicted to be high due to the fact that the researcher personally collects the data by distributing the questionnaire directly to the respondent and not via online means such as an online questionnaire.

 Table 3.2: The Sample Size for UPM Undergraduates According to Faculties

 (2014 – 2015)

NO.	Faculties	<b>Population</b>	Percentage	Sample
		Size	%	Size
1	Veterinary Medicine	511	2.9%	11
2	Engineering	1,667	9.5%	36
3	Design And Architecture	535	3%	11
4	Food Science And Technology	593	3.3%	12
5	Medicine and Health Sciences	1,085	6.1%	24
6	Science	1,706	9.7%	37
7	Biotechnology and Bimolecular Sciences	670	3.8%	15
8	Computer Science and Information Technology	708	4%	15
9	Forestry	562	3.2%	12
10	Agriculture	1,258	7.6%	27
11	Environmental Studies	432	2.5%	9
12	Centre of Foundation Studies for Agricultural Science	739	4.2%	17
13	Agriculture and Food Sciences	1,780	10%	37
14	Economics and Management	1,176	6.6%	25
15	Educational Studies	1,379	7.8%	29
16	Human Ecology	986	5.6%	21
17	Modern Languages and Communication	1,795	10.2%	38
	Total	17,582	100%	376

# **3.7** The Instrumentation

An instrument of the study is a method that helps the researcher in social science studies to collect data (Fraenkel et al., 2012). There are various instruments in research, but the most common and popular instruments are questionnaire, interview and observation. It is argued that the questionnaire is more valid in the way that ensures respondents confidentiality and participants may be more comfortable in providing an accurate answer to the questions.

In this study, the instrument is a questionnaire that is divided into two parts: part A and part B. Part A with one section collected demographic information through eight closed-ended questions. Part B consisted of six sub-sections, which measured the constructs of the study (factors influence academic achievement in online peer learning with social media, which include academic self-efficacy, peer engagement, peer feedback, collaboration, social influence and performance expectancy). These constructs were measured by 52 items from which (8) were self-developed and 44 were pre-established (see Appendix B). Table 3.3 illustrates the components of the questionnaire.

Part	Section	No. Items
А	Background Information	8
В	Factors Influence academic achievement	44
Total		52

### Table 3.3: The Components of the Questionnaire

#### 3.7.1 Section A: Background Information

This section looks for finding information related to the context of the respondents. Questions such as gender, age, education, social media application (choose only one to identify the widely use application at UPM), computer, and time spend on social media will be addressed to the respondents.

# Academic Achievement (GPA)

Academic achievement was measured on the basis of the students' grade point average (GPA) scores for the semester in which the study was carried out (2014 - 2015), In UPM, learning program is based on the grade point average system as results for study. The measurement consists of one question "What is your GPA?" For analysis purposes, GPA was categorized based on five groups as given in Table 3.4 below.

Table 3.4: Distribution of the Samples According to their Current CGPA (2014-<br/>2015)

Academic Achievement (GPA)	Likert scale	
Less than 2	Unsatisfactory	
2.01-3.00	Satisfactory	
3.01-3.50	Good	
3.51-3.75	Very good	
Above 3.75	Excellent	

Source: Universities and University Colleges Act 1971. The Constitution of UPM, Academic Matters for Undergraduates, Rules 2014, (P. 54, 55, 56).

# 3.7.2 Section B: Factor Influence academic achievement in Online Peer Learning

This section includes six subsections. Each subsection addresses the related statement to find the respondents' perception of the factors that influence their academic achievement in online peer learning via social media. There are several Likert scales such as five-point Likert scale, seven point Likert scale, and ten-point Likert scales among others. Five point Likert scale use fixed choice response formats and are designed to measure attitudes or opinions (Bowling, 1997; Burns, & Grove, 1997). These ordinal scales measure levels of agreement/disagreement. In addition, the majority of the adapted measurement in this study has used five point Likert scale (Refer to Table 3.5).

All items were rated on a five-point Likert scale of potential responses ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). This means, the respondents could opt for "1= Strongly Disagree", "2= Disagree", "3=Neutral", "4=Agree", "5=Strongly Agree" to determine their attitude towards using online peer learning through social media (See Appendix A).

The Likert five-point rating scale was used as follows:

(1) Strongly Disagree
 (2) Disagree
 (3) Neutral
 (4) Agree
 (5) Strongly Agree

Table 3.5 shows a summary of the measurement of the variables. It shows variables of the study as well as the number of items and source from which the measurement adopted.

Variables	Number of	Sources	Likert
	Items		Scales Used
Academic Self-Efficacy	6	Li, (2012)	5
			Likert scale
Peer Engagement	6	Welch and White (2012)	5
			Likert scale
Peer Feedback	6	(NSSE) survey instrument	5
			Likert scale
Peer Learning	5	(NSSE) survey instrument	5
			Likert scale
Collaboration	7	So and Brush (2008)	5
			Likert scale
Social Influence	6	Ajjan and Hartshorne, (2008)	5
			Likert scale
Performance Expectancy	7	Ajjan and Hartshorne, (2008)	5
			Likert scale

# Table 3.5 Subsection items for Part B in the questionnaire

#### **1- Academic Self-Efficacy**

The first subsection includes the measurement of the academic self-efficacy. This measurement is adapted from Li (2012) and it consists of six items. A five-point Likret scale was used to assess the statement of the measurement where

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral
- (4) Agree
- (5) Strongly Agree

# 2- Peer Engagement

The second subsection is related to the peer engagement, and it measures the peer engagement of the respondents in the online peer learning via social media. The measurement is adapted from Welch and White (2012) with seven items to measure the variable. The measurement is assessed using a five-point Likret scale where:

(1) Strongly Disagree
 (2) Disagree
 (3) Neutral
 (4) Agree
 (5) Strongly Agree

Permission to use the measurement in this study was obtained via email from the original author and given in the Appendix (F).

# **3-** Peer Feedback

The third subsection is related to peer feedback. It aims to assess the importance of peer feedback for students to use the online peer learning via social media. The measurement adapted from the National Survey of Student Engagement's (NSSE) survey instrument, the College Student Report with getting permission from Indiana University and it consists of nine items. The items are assessed using a five point-Likert scale where:

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral

(4) Agree

(5) Strongly Agree

Permission to use the instrument is obtained from the original authors. A copy of the permission is given in the Appendix (F).

# 4- Collaboration

The fourth subsection is related to the collaboration between students, and it aims to collect data related to the collaboration among students on the use of online peer learning via social media. The items are adapted from So and Brush (2008). It consists of nine items and it is measured using five-point Likert scale where:

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral
- (4) Agree
- (5) Strongly Agree

Permission to use the instrument is obtained from the original authors. A copy of the permission is given in Appendix F.

# **5-** Social INFLUENCE

The fifth subsection is related to social influence. It measures the effect of the social influence on the peer, family, and lectures among other to use the online peer learning via social media. The measurement consists of six items, and all of the items were stated positively and adapted from Ajjan and Hartshorne (2008). Items are evaluated using five-point Likert scale where:

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral
- (4) Agree
- (5) Strongly Agree

# 6- Performance Expectancy

The six and last subsection is related to performance expectancy, and it is adapted from Ajjan and Hartshorne (2008) to measure the perception of respondents toward the performance expectancy by using online peer learning via social media. The measurement consists of seven items. It is assessed using five-point Likret scales where

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral
- (4) Agree
- (5) Strongly Agree

# 3.8 Validity and Reliability

Validity and reliability are two important measurements of research that helps the research to be confident in the accuracy of the measurements (Franzen, 2000). In this study, the validity of the measurement was examined along with the reliability analysis for the pilot study and final data reliability.

# 3.8.1 Validity

Validity refers to the degree of which measures adequately represent the true meaning of the concepts. It also determines the accuracy of the measurements (Babbie, 2015). Hair et al. (2006) alerted researchers for the failure of interpreting their data without conducting validity of their study or when they find that instruments are questionable. In the research, the content validity of the instrument was examined. Six experts in the field of sociology, technology acceptance, and education examined the instrument. Experts include Professor Dr. Wong Su Luan, is an expert in teaching and learning with ICT technology acceptance and instrument development; Assoc. Prof. Dr. Ahmad Fauzi Mohd Ayub, is a specialist in Information Technology and Multimedia Education. Assoc. Prof. Dr. Ratna Roshida Ab. Razak is an expert in Civilization; Dr. Nor Aniza Ahmad is expert in Educational Psychology; Dr. Mas Nida Md Khambari is an expert in Information Technology and Educational Technology and Puan Siti Suria Salim, a lecturer in Sociology of Education. (See appendix C for content validity). Based on the feedbacks and comments of the experts, correction and adjustment were made. As a result, some items were deleted, and others were added. Table 3.6 below explains the process of validation.



Variable	No. items before validation	Comments	No. items after validation	Point Likert- scale
Demographic factors	6	<ul> <li>Question 2 and 5 changed to ratio</li> <li>Question 4: Made more options for social media applications.</li> <li>Increase the options and sub-options of question No. 7. And to split some options.</li> <li>Add question number 8 to demographic factors instead of section C.</li> </ul>	8	N/A
Academic		No amendment was suggested for		7-Piont
Self-efficacy	6	this measurement	6	Likert scale
Poor	8	two items	6	5-Piont
Engagement	0	<ul> <li>(- By using social media, I feel part of group students and faculty committed to learning.</li> <li>- There is a positive attitude towards learning among my fellow students in social media).</li> </ul>		Likert scale
		Items were deleted as follow:		6-Piont
		(- Overall, I am satisfied with the		Likert
Peer feedback	7	feedback of my online peers through social media). Other items were added Then Suggested to Add 2 items from Online Peer Learning	6+3	scale
Collaboration	7	Suggested to Add 2 items from Online Peer Learning.	7+2	6-Piont Likert scale 5-Piont
Social influence	6	No amendment	6	Likert scale
		To split the last item (The online peer		
Performance expectancy	6	learning provides an equal chance to all peers to carry out their <b>duties</b> and <b>homework</b> .) and make two. The online peer learning provides an equal chance to all peers to carry out their <b>homework</b> . The online peer learning provides an equal opportunity to all peers to carry out their <b>duties</b> . To distribute the items for other	7	5-Piont Likert scale
Online Peer Learning	5	variables, so, the researcher put it <b>3</b> items ( <b>7</b> , <b>8</b> , <b>9</b> ) for Peer Feedback and put it <b>2</b> of the items ( <b>8</b> , <b>9</b> ) for Collaboration. Eventually, the variable was deleted also based on the suggestion of validators.	5	5-Piont Likert scale

Table 3.6 Panel Experts Comments on the Instrume
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# 3.8.2 Reliability

Cronbach's Alpha is a reliability coefficient that indicates how well the items in a set are positively connected to one another (Sekaran, 2006). The closer of the Cronbach's Alpha is to 1.0, better the internal consistency between the items. However, the value of Cronbach's Alpha should be greater than 0.7 (Sekaran, 2006; Hair et al., 2006). Table 3.5 shows the reliability test of the pilot and the variables of the study. It displays that all the variables have Cronbach's Alpha greater than 0.7, and that means the reliability of both were acceptable.

# 3.9 Pilot Study

Pilot testing of instrument informs deficiencies to be considered for improvement (Gay, Mills, & Airasian, 2006). Consequently, in this research, the researcher has conducted a pilot study in the main library of UPM. A total of 30 questionnaires were handed out randomly to respondents, and they were asked to provide their feedback and comments related to the wording and the clarity of the questions. The feedbacks and comments of the respondents were addressed accordingly.

Moreover, the reliability analysis showed that all the measurements have a Cronbach's alpha higher than 0.07. One item was deleted from performance expectancy to improve the Cronbach's Alpha. Table 3.7 presents the results of reliability analysis for the pilot study and variables (See Appendix C for details of reliability).

Variable	Number of items	Cronbach's Alpha (n= 30)	Number of Items after Pilot Study	Variable Reliability (n= 328)
Academic Self efficacy	6	0.77	6	0.72
Peer Engagement	7	0.78	7	0.77
Peer Feedback	9	0.88	9	0.79
Collaboration	9	0.85	9	0.80
Social Influence	6	0.90	6	0.82
Performance expectancy	7	0.84	6	0.77

Table 3.7: Reliability Test of Pilot Study and Actual Study

# 3.10 Data Collection

This study collected primary data directly from the target respondents, Questionnaires were handed out personally to the respondents at UPM. The questionnaire was first distributed in the department of Educational Studies. Respondents were asked to return back their questionnaires within one day. Then, the survey was systematically distributed in other faculties without exclusion. The sample of this study consists of 376 respondents; therefore, the researcher had done the randomization distribution of the questionnaire (376 questionnaires) at the faculties in the university under study.

A total of 376 returned back. Seven questionnaires were excluded because they were incomplete. A total of 369 questionnaire forms were usable and complete. This made the response rate 97.6%. Sekaran (2006) pointed out that a number of responses between 30 and 500 is sufficient for any academic study. In addition, other researchers who investigated the academic achievement and the usage of social media for online peer learning have used similar sample size. For example, Al-Rahmi and Othman, (2013) used 134 respondents, Li (2012) used 153, Zuffano et al. (2012) used 170 and Diseth (2011) used 177 respondents. Thus, it was concluded that the number of responses in this study is sufficient.

#### 3.11 Exploratory Data Analysis

Data examining, is suggested for missing value, outliers, normality, and multicollinearity to ensure that the data are clear and ready for further analysis (Pallant, 2010). The use of frequency analysis, it was found that seven responses significantly had missing value, and some respondents gave value were not specified in the questionnaire. For example, respondents stated that he uses the social media 24 hours a day. As a result, it was decided to delete the seven responses. These made the complete responses are 369 responses.

The outliers of the data were checked and as a result, a total of 41 responses were deleted because they were identified as outliers. This made the complete and usable responses are 328. Details of the outliers examination are given as follows:

#### **Boxplots**

The boxplots of the variables are given in Figure 3.2 which showed that there is no outlier for all the variables.



Figure 3.1: Boxplots of the variables of the study

# **Histograms**

The shape of histogram indicated that the data was normally distributed for all variables. Figure 3.3 shows that all the histogram of variables of this study formed a bell-shaped distribution. Thus, it is concluded that academic self-efficacy, peer engagement, peer feedback, collaboration, social influence and performance expectancy are normally distributed.



Figure 3.2: Histogram of the Variables of the Study

# Normal Probability Plot (Q-Q plot)

Figure 3.4 shows that, a large number of dots in each Q-Q plot are near the theoretical normality line. Therefore, it means that all variables are normally distributed.



## **Multicollinearity and Singularity**

Table 3.7 shows the singularity and the multicollinearity of the independent variables of this study. It shows that the Pearson correlation coefficient of the independent variables is lower than 0.70. This indicates that the variables (academic self-efficacy, peer engagement, peer feedback, collaboration, social influence, and performance expectancy) can be retained in regression analysis. In addition, the table shows the tolerance and variance inflation factors (VIF) of the variables. The results of VIF for collinearity between variables are presented in Table 3.8. Tolerance less than 0.10 and VIF higher than 10 is a sign on collinearity (Pallant, 2010). Hence, all independent variables have an acceptable relationship with academic achievement. This leads to a conclusion that the assumptions of multicollinearity and singularity are achieved.

Variables	Pearson's (r) Value	Tolerance	VIF
Academic Self –Efficacy	.255	.574	1.741
Peer Engagement	.288	.605	1.652
Peer Feedback	280	.542	1.845
Collaboration	.365	.454	2.200
Social Influence	.285	.601	1.664
Performance Expectancy	.351	.528	1.893

#### Table 3.8: Pearson's r Value, Tolerance, VIF

#### **Skewness and Kurtosis**

Skewedness and Kurtosis value in the range of plus or minus two is acceptable (George & Mallery, 2008). Table 3.9 shows that the value of Skewness and Kurtosis are between the specified ranges of less than absolute two. This indicated that the mean for all variables was normal.

Variable	Skewness	Kurtosis
Academic Self-efficacy	-0.119	0.226
Peer Engagement	-0.363	1.392
Peer Feedback	-0.214	0.567
Collaboration	-0.449	0.593
Social Influence	-0.601	0.966
Performance expectancy	-0.491	0.815

### 3.12 Data Analysis

Following data collection, several procedures were applied in this research to arrange data systematically and utilize computer software to analyze them accurately. After the data had been coded, it was processed through computer software known as (SPSS v. 21). Through which a set of analyses was conducted. The data check for missing value and normality test was conducted. Descriptive analysis was conducted to find the background information of the participants along with the descriptive information about the variables. Moreover, a reliability analysis was conducted to find the Cronbach's Alpha of the variables. The hypotheses were tested using regression analysis. The use of regression analysis is due to the casual relationship between the dependent variables and independent variable (Awang, 2014).

#### 3.12.1 Descriptive statistics

In this study descriptive statistic such as frequencies distribution, and percentage were used to explain meaningfully the respondent's background of information (Age, gender, faculty of the respondents social media application used, time spend on social media and the purpose of using social media and academic achievement), describe the independent variables (Academic self-efficacy, peer engagement, peer feedback, social influence, performance expectancy and collaboration) as well as dependent variable (academic achievement).

# **3.12.2 Inferential Statistics**

Inferential statistics were utilized to evaluate the relationships among main variables according to the specific objectives of this study. Ho (2006) echoed the aim and objective of inferential statistics by highlighting that it is used for hypothesis testing to arrive at valid conclusions. In this study, correlation analysis and multiple regressions were used as inferential statistics.

# **Correlation**

The Pearson correlation was utilized to examine the strength and direction of the relationship between the selected factors and academic achievement. The statistical test was used because the data is normally distributed and the scale of measurement for both the independent and dependent variables are interval scale.

Lodico et al. (2010) provide a guide to the interpretation of strength. Table 3.10 shows the criteria for interpreting the strength of the relationship between two variables.

elation Coefficient (r)	Strength of Relationship
r = 0 to .19	No relationship or weak relationship.
r = .20 to .34	Slight relationship.
r = .35 to .64	Moderately strong relationship.
r = .65 to .84	Strong relationship.
r = .85 or greater	Very strong relationship.
(0 - 1 - 1 - 1 - 1 - 1 - 2010 - 222)	

# Table 3.10: Value and Interpretation of Correlation Coefficient

(Source: Lodico et al., 2010, p.233).

### **Multiple linear Regressions**

Multiple regression analysis was used to determine the effect of the independent variables on the dependent variable. The purpose was to determine those factors which statistically best explained the variability in academic achievement. In other words, these analyses help in identifying which among the factors that can be combined to form the best prediction of academic achievement. A stepwise method was used to achieve this objective. This method was used because the study is an exploratory one and the advantage of this method is that only variables that are significant will appear in the model.



#### 3.13 **Research Data Analysis**

Table 3.11 shows the research question, instrument used, and method of analysis.

Table 3.11: Mapping Research Questions	with Instruments	s and Methods
Research Question	Instrument used	Method of Analysis
What is student's academic self-efficacy with having online peer learning via social media among undergraduate students in UPM?	Section B (Academic Self- efficacy)	Descriptive analysis
What is student's peer engagement off with having online peer learning via social media among undergraduate students in UPM?	Section B (Peer Engagement)	Descriptive analysis
What is student's performance expectancy with having online peer learning via social media among undergraduate students in UPM?	Section B (Performance Expectancy)	Descriptive analysis
What is students' social influence with having online peer learning via social media among undergraduate students in UPM?	Section B (Social influence)	Descriptive analysis
What is student's peer feedback with having online peer learning via social media among undergraduate students in UPM?	Section B (Peer feedback)	Descriptive analysis
What is students' collaboration with having online peer learning via social media among undergraduate students in UPM?	Section B (Collaboration)	Descriptive analysis

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#### 3.14 **Summary**

This chapter has presented the research methodology. This chapter also, highlighted the research design and population, sampling method and technique. In addition, the chapter explained the research instrument and the measurement of the variables and their sources. Data was examined to be prepared for further analysis. Processes of data collection and analysis methods were given and discussed in the chapter.

# **CHAPTER 4**

# **RESULTS AND FINDINGS**

#### 4.1 Introduction

This chapter includes results and discussion based on the objectives of the study as outlined in chapter one. The chapter consists of two sections which include descriptive statistics such as demographic variables, levels of academic self-efficacy, peer engagement, performance expectancy, social influence, peer feedback, collaboration and academic achievement of the respondents, while the second section consists of inferential statistics which include Pearson correlation analysis used to determine the relationship between independent variables i.e. academic self-efficacy, peer engagement, performance expectancy, social influence, peer feedback, collaboration, and dependent variable i.e. academic achievement. Multiple linear regressions were applied to examine the influence of six predicting variables namely; academic self-efficacy (X<sub>1</sub>), peer engagement (X<sub>2</sub>), performance expectancy (X<sub>3</sub>), social influence (X<sub>4</sub>), peer feedback (X<sub>5</sub>) and collaboration (X<sub>6</sub>) on the criterion construct i.e. academic achievement (Y).

### 4.1.1 Demographic Variables of the Respondents

Table 4.1 below presents the descriptive analysis of demographic variables such as gender, age group, the length of stay on social media, social media application, and faculty of the respondents.

Variables	Frequency	Percen
Gender		
Male	122	37.2
Female	206	62.8
Age Group		
18 – 23yrs	252	76.8
24 – 29yrs	74	22.6
30 – 35yrs	2	0.6
Length of stay		
1 - 3 hours	104	31.7
4-6 hours	109	33.2
7-9 hours	41	12.4
10-12 hours	64	19.4
13-15 hours	10	3.3
Social Modia Application		
Social Media Application	205	62.5
VouTuba	205	02.5
Turittan	49	14.9
I willer Whats A nn	0	1.0
WhatsApp	51	15.5
MySpace		.5
Other	16	4.9
Faculties:		
Veterinary Medicine	7	2.1
Engineering	27	8.2
Design and Architecture	10	3.0
Food science and Technology	10	3.0
Medicine and health sciences	17	5.2
Science	35	10.7
Biotechnology	15	4.6
Computer	12	3.7
Forestry	11	3.4
Agriculture	21	6.4
Environmental studies	7	2.1
Foundation studies	16	4.9
Agriculture and food science	38	11.6
Economics and management	23	7.0
Educational studies	23	7.0 8 5
Human ecology	16	0.5 4 9
Madam languages and Communication	25	10.7

# Table 4.1: Demographic Variables of the respondents (N = 328)

# 4.1.2 Gender

The results of the gender distribution of respondents presented in Table 4.1 reveals that male constitutes only 37.2% (122), while female had about 62.8% (206). This indicates that majority of the respondents are female.

# 4.1.3 Age Group

The results in table 4.1 revealed that age group of respondents' ranges between 18 to 35 years. However, about 76.80% (252) of the respondents falls within the age range of 18-23 years old, 22.60% (74) were between the age range of 24-29 years old and only 0.60% (2) attained 30-35 years of age. The Mean age of respondents was 22.21 years ( $\approx$  22 years) with a standard deviation of 3.74 years ( $\approx$ 4 years) which corresponds to those between the ages of 18-23 years.

# 4.1.4 Length of Social Media Usage

The distribution of respondents based on hours spent on social media was categorized into five groups. The results indicate that respondents who spent about 1-3 hours on of their time on social media constitute 31.70% (104), this is followed by the second group of 4-6 hours of usage, 33.20% (109), while the third group include those that spent 7-9 hours with about 12.40% (41), the fourth group of 10-12 hours of usage were 19.40% (64) and finally, the fifth group of 13-15 hours of usage constitutes only 3.30% (10).

# 4.1.5 Social media Application

With regards to the social media application, the results indicate that about 62.50% of the respondents were Facebook users. Those who used YouTube were 14.90% (49), Twitter users were 1.80% (6), WhatsApp users were 15.50% (51), MySpace user was only 0.30% (1), and users of other social media applications were 4.90% (16). The findings show that UPM undergraduate students have access to social media and Facebook which is a tool that is mostly used by the students of the university. However, it is evident in the findings that Facebook is the most frequently used social media application as agreed by the majority of the respondents. This verifies Ainin et al. (2015) findings, who noted that Facebook is the most used social media by students from five Malaysian universities.

#### 4.1.6 Faculty

Table 4.1 shows the distribution of respondents based on their faculties. The results show that respondents from Faculty of Agriculture and food science constitute about 11.60% (38), followed by Faculty of education and science with about 10.70% (35) each. The least number of respondents came from Faculty of Veterinary Medicine and Environmental studies with a score of 2.10% (7) each.

#### 4.1.7 Social Media Usage for Academic Purpose

Table 4.2 shows the use of social media for academic purposes by undergraduate students. The results show that majority of the students use social media to share information with peer 79.30% (260), followed by asking for information from my peer 73.20% (240), discuss related matter with peer 65.90% (216), connect with peer 56.10% (184), ask for help from peers 51.80% (170), participate in academic discussion with people on social media 40.90% (134), connect with lecturers 35.80% (116), and ask for feedback from peers 32.60% (107).

Statement	Yes	No
Share information with my peers	260 (79.3%)	68 (20.7%)
Ask for information from my peer	240 (7 <mark>3.2%)</mark>	88 (26.8%)
Discuss class related matter with my peers	216 (6 <mark>5.9%)</mark>	112 (34.1%)
Ask for feedback from peers	107 (32.6%)	221 (67.4%)
Ask for help from peers	170 (51.8%)	158 (48.2%)
Connect with my peers	184 (56.1%)	144 (43.9%)
Connect with lecturers	116 (35.8%)	212 (64.6%)
Participating in academic discussion with people on social	134 (40.9%)	194 (59.1%)
media		

#### Table 4.2: Social Media Usage for Academic Purposes

This result supports the findings of Chou and Chou (2009) who reported that users of social media are able to link up with each other and share information indirectly or directly in a semi-structured way. Furthermore, it is perceived that social media tools facilitate interaction among students (56%) as well as increase course satisfaction by about 32% (Ajjan & Hartshorne, 2008). Students can benefit from social media as it enhances the sharing of interest, exchange of information and collaboration among students (Mazman & Usluel, 2010).

According to Mazman and Usluel (2010), social media can be used by individuals to acquire knowledge and share information; it facilitates connectivity, creation of content and collaborative information. The result of this study shows that over 80% of the participants agreed that they utilize social media as a communication tool for

their academic work. More so, 67% of the students stated that they "almost all the time" or "often" use social media to help each other with homework and other work that is related to their academics (Dalsgaard, 2014). Facebook does not only enable peer-to-peer learning, but it also supports self-governed activities which are expected of students in higher institutions.

#### 4.1.8 Social Media Usage for Non-Academic Purpose

The use of social media for the non-academic purpose is presented in Table 4.3. The results show that 83.30% (275) of the respondents use social media to connect with friends, this is followed by socializing purposes 67.70% (222), connecting with my family recorded about 64.30% (221), while 58.20% (191) used social media for watching news and 32% (105) participates in general discussion regarding general topic respectively. However, this also shows that most of the undergraduate students engaged in the use of social media mainly for socializing rather than for academic purpose.

Statement	Yes	No
Connecting with my family	221 (64.3%)	117 (35.7%)
Connecting with my friends	275 (83.8%)	53 (16.2%)
Socializing purposes	<mark>222 (6</mark> 7.7%)	106 (32.3%)
Participating in general discussion about general topic	105 (32.0%)	223 (67.5%)
Watching the news	<u>191 (</u> 58.2%)	137 (41.8%)

#### Table 4.3: Social Media for Non-Academic Purpose

The findings of this study are in agreement with the findings of the literature. Students' use of social media in extracurricular activities was found to be distractive to learning, especially among weaker students (Andersson, Hatakka, Grönlund, Wiklund, 2014). In addition, students were less willing to appropriate social media as a formal learning tool, preferring it for course-related communication (Prescott, Wilson and Beckett, 2013) or using it largely for socializing and non-academic purposes (Selwyn, 2009).

Overall, it is necessary to make a clear distinction here between the uses of social media for general (Non-educational) purposes, and their use for educational purposes. Still, the higher success of students could have been the consequence of the fact that successful students usually spend more time learning and using learning aids, including here the social media group as well. In any case, based on the data acquired by this research, we can classify social media groups as a useful learning aid.

# 4.2 Analysis of Levels of Dependent and Independent Variables

The first objective of this study is to find the level of the variables of this study. Similarly, the research questions one to six asked about the level of each variable. In this section, answer the first research objective.

#### 4.2.1 Academic Self -Efficacy

Table 4.4 presents the descriptive analysis of academic self-efficacy. The results show that the mean score value of the items ranges between 3.43 and 3.96. It also shows that participation in online peer learning by answering other questions through social media has the lowest mean score value of 3.43(SD=0.802) while the highest mean score value of 3.96(SD=0.718) is for taking notes from peers when using social media. Nevertheless, the overall mean score value of 3.71(SD=0.47) indicates that the respondents have agreed on the statement of the items, and they have acceptable academic self-efficacy to deal with social media application for the purpose of peer learning.

Items	Mean	SD	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I was able to take notes from			0	5	76	174	73
peers when I participate in	3.96	0.718	0.0%	1.5%	<mark>2</mark> 3.2%	53%	22.3%
online peer learning through							
social media.			1	12	114	174	27
learning by answering others	3 65	0.696	0.3%	3.7%	34.8%	53.0%	8.2%
questions through social	5.05	0.070	0.570	5.170	54.070	55.070	0.270
media.							
I take part in the academic			3	19	76	191	39
discussions with other	3.74	0.775	0.9%	5.8%	23.2%	58.2%	11.9%
colleagues through the use of social media.							
I can explain other students in			1	20	107	171	29
online peer learning through	3.63	0.743	0.3%	6.1%	32.6%	52.1%	8.8%
the use of social media.							
I can tutor other students in			2	38	127	140	21
online peer learning through	3.43	0.802	0.6%	11.6%	38.7%	42.7%	6.4%
the use of social media.			0	_		•••	
I can understand ideas and		0.670	0	7	73	204	44
views shared in online peer	3.87	0.653	0.0%	2.1%	22.3%	62.2%	13.4%
learning through social media.				45			
Overall mean		3	)./1 (SD:	= .47)			

Table 4.4: Academic Self-Efficacy (n = 328)

# 4.2.2 Peer Engagement

Table 4.5 below presents the descriptive analysis in respect to peer engagement. The mean value of 3.81(SD=0.710) and 4.04(SD=0.639) reveals that the respondents agreed on the items of the statement. The use of social media helps me to study with other students has the lowest mean value of 3.81(SD=0.710) while a discussion between peer using social media has the highest mean score value of 4.04 (SD=0.639). The overall mean score value of 3.90(SD=0.45) indicates that the respondents agreed on the statement of the items. It can be concluded that the respondents have relatively high peer engagement in social media activities with peer to discuss related academic matters.

Items	Mean	SD	Strongly Disagree	Disagree	Neutral	Agree	Strongly A oree
The use of social media			0	5	77	197	49
helps me to work with other colleagues on course areas to solve	3.88	0.658	0.0%	1.5%	23.5%	60.1%	14.9%
shared academic							
The use social modia			0	1	57	107	72
helps me to get together with other students to discuss assignments	4.04	0.639	0.0%	0.3%	17.4%	60.1%	22.3%
The use of social media			2	6	<mark>9</mark> 0	185	45
helps me to study with other students.	3.81	0.710	0.6%	1.8%	27.4%	56.4%	13.7%
The use of social media			1	2	68	206	51
helps me to get benefits from other students regarding my study.	3.93	0.641	0.3%	0.6%	20.7%	62.8%	15.5%
helps me to work	3 83	0.751	1	3.0%	09 27 1%	172 52.4%	50 17.1%
regularly with other students on projects during class.	5.65	0.751	0.370	5.070	27.170	52.470	17.170
The use of social media			1	6	71	168	82
helps me to borrow course notes and materials from friends in the same class.	3.99	0.754	0.3%	1.8%	21.6%	51.2%	25.0%
The use of social media			1	8	85	186	48
makes me feel part of a group and more	3.83	0.709	0.3%	2.4%	25.9%	56.7%	14.6%
Overall mean				3.90 (	SD = .45)		
· · · · · · · · · · · · · · · · · · ·				~~~ ()			

# Table 4.5: Peer Engagement (n = 328)

# 4.2.3 Peer Feedback

Table 4.6 illustrates the descriptive analysis of peer feedback in which the respondents placed a high score on the items. The mean score of the items ranges from low at 3.39(SD=0.868) and high at 3.89(SD=0.668). The lowest mean score value of 3.39(SD=0.868) is related to peers in social media always check my homework and provide their feedback. While, the highest mean score value of 3.89, (SD=0.668) is for social media tool which states that give me an opportunity to ask questions whenever possible. The overall mean score value is 3.63(SD=0.46) which indicates that the respondents have agreed on the statement of the items. It can be concluded that the respondents perceive social media as a useful tool to obtain feedback from other peers.



Items	Mean	SD	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The Use of social media helps me to get the answer to the questions that I am	3.86	0.719	0 0.0%	10 3.0%	80 24.4%	183 55.8%	55 16.8%
looking for. Peers in social media offer their help whenever I have a	3.78	0.715	0 0.0%	10 3.0%	96 29.3%	176 53.7%	46 14.0%
problem regarding my study. Peer in social media			2	21	121	153	31
praises me when I do well through social media.	3.58	0.774	0.6%	6.4%	36.9%	(46.6%)	9.5%
Peers in social media always check my homework and provide their feedback	3.39	0.868	6 1.8%	38 11.6%	133 40.5%	123 37.5%	28 8.5%
Peers in social media provide me with feedback that helps to improve my understanding	3.78	0.727	1 0.3%	14 4.3%	83 25.3%	189 57.6%	41 12.5%
Peers in social media provide me with timely feedback on assessment tasks.	3.54	0.667	0 0.0%	18 5.5%	129 39.3%	167 50.9%	14 4.3%
Social media networks give me an opportunity to ask questions whenever possible.	3.89	0.668	0 0.0%	2 0.6%	87 26.5%	184 56.1%	55 16.8%
My academic performance has been reviewed by the peers through social media networks	3.45	0.841	4 1.2%	38 11.6%	119 36.3%	142 43.3%	25 7.6%
I have my performance reviewed on quizzes with other peers via social media	3.46	0.887	7 2.1%	33 10.1%	123 37.5%	131 39.9%	34 10.4%
Overall mean				3.63 (	SD=.46)		

 Table 4.6: Peer Feedback (n = 328)

# 4.2.4 Collaboration

The results presented in Table 4.7 represent the statements in regards to collaboration. The mean score value of the statements ranges from 3.22(SD=0.989) to 3.83(SD=0.747). The lowest mean score value of 3.22(SD=0.989) represents an item which states that collaborative learning experience in social media is better than a face to face learning environment, while the highest mean score value of 3.83(SD=0.747) represents an item which reads that "I discuss ideas from my classes with other peers by using social media tools". The overall mean score value is 3.67(SD=0.47) which indicates that the respondents have agreed on the statements of the items. It can be concluded that peers are using the social media to collaborate regarding academic matters.



Items	Mean	SD	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A collaborative learning experience in social media is better than a face to face learning environment.	3.22	0.989	13 4.0%	70 21.3%	101 30.8%	121 36.9%	23 7.0%
Social media helps me to feel part of the learning community in my group.	3.68	0.719	1 0.3%	10 3.0%	106 32.3%	169 51.5%	42 12.8%
I actively exchange my ideas with my colleagues through the use of social media.	3.73	0.729	1 0.3%	21 6.4%	121 36.9%	153 46.6%	31 9.5%
I was able to develop new skills from other colleagues in my group through the use of social media.	3.71	0.761	1 1.8%	13 4.0%	113 33.8%	158 48.2%	45 13.7%
I was able to develop my knowledge from other colleagues in my group, through the use of social media.	3.74	0.703	2 0.6%	9 2.7%	96 29.3%	187 57.0%	34 10.4%
I was able to develop problem solving skills through peer collaboration in the social media.	3.65	0.710	0 0.0%	13 (4.0%)	122 (37.2%)	161 (49.1%)	32 (9.8%)
Collaborative learning through social media with group members saves my time.	3.77	0.713	0 0.0%	10 3.0%	100 30.5%	174 53.0%	44 13.4%
I discuss ideas from my classes with other peers by using social media tools	3.83	0.747	0 0.0%	10 3.0%	94 28.7%	166 50.6%	58 17.7%
I discuss ideas from my readings with other peers by using social media tools.	3.79	0.751	0 0.0%	15 4.6%	89 27.1%	174 53.0%	50 15.2%
Overall mean			3.6'	7 (SD= .47)			

 Table 4.7: Collaboration (n = 328)
 Particular

#### 4.2.5 Social Influence

Table 4.8 below shows the descriptive analysis of social influence. The mean score value of 3.40(SD= 0.872) and 3.56(SD= 0.861) indicates that the respondents have agreed on the statements of the items. The lowest mean score value is 3.40(SD= 0.872) which represent the item that reads "My family thinks that I should use online peer learning to develop my academic performance", while the highest mean score value of 3.56(SD= 0.861) represent an item which states that "Using social media networks is considered as a symbolic status among my friends". The overall mean score value of 3.48(SD= 0.60) suggests that the respondents have agreed on the statements of the items. However, it can be seen that the mean score value of social influence is relatively lower than other variables. This could be due to the fact that social media is currently popular and students are using this technology intensively. Thus, the effect of others such as lecturers, friends, and family are relatively less intensive.

Items	Mean	SD	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Peers who influence my			3	36	122	146	21 6.4%
behavior would think that I	3.45	0.807	0.9%	11.0%	<mark>37.2</mark> %	44.5%	
should use social med <mark>ia</mark>							
networks to improve my							
academic performance.							
Peers who are important to	0.50	0.010	1	32	130	133	32 9.8%
me would think that I	3.50	0.813	0.3%	9.8%	39.6%	40.5%	
should use social media to							
My family thinks that I			6	40	127	128	27 8 2%
should use online peer	3 40	0.872	1.8%	12.2%	38.7%	39.0%	27 0.270
learning to develop my	0.10	0.071	11070	1212/0	001170	0,10,10	
academic performance.							
Using social media			6	23	119	140	40
networks is considered as a	3.56	0.861	1.8%	7.0%	36.3%	42.7%	12.2%
symbolic status among my							
friends.				• •			
Friends who use social	0.45	0.000	1	29	150	111	37
media for learning have the	3.47	0.820	0.3%	8.8%	45.7%	33.8%	11.3%
record of better							
Lecturers who influence my			1	27	130	140	30.9.1%
behavior think that I should	3 52	0 786	0.3%	8.2%	39.6%	42 7%	50 7.170
use social media networks	5.52	0.700	0.270	0.270	57.070	12.770	
in my learning process.							
Overall mean	3.	.48 (SD= .	60)				

# Table 4.8: Social Influence (n = 328)

#### 4.2.6 Performance Expectancy

Table 4.9 presents the descriptive analysis in respect to performance expectancy. The results show that the mean score value of the items is between 3.62(SD= 0.824) and 3.92(SD= 0.768) The lowest mean score value of 3.62(SD= 0.824) is for the item which indicates that "I feel that using social media networks to improve my satisfaction with my studies", while the highest mean score value of 3.92(SD= 0.768) represents the item which reads that "I think lecturers should use social media tools more frequently in education". The overall mean score value is 3.79(SD= 0.50) which is in agreement with the statement of the items. This indicates that the respondents believe that their academic achievements will improve if they are involved in peer learning by using social media.

Items	Mean	SD	trongly isagree	isagree	Veutral	Agree	trongly Agree
			S D	9	-		Ś
I feel that using social			0	9	<mark>9</mark> 9	171	49
media networks helps me	3.79	0.721	0.0%	2.7%	30.2%	52.1%	14.9%
learn more about my							
subjects.							
I feel that using social			1	27	113	145	42
media networks to improve	3.62	0.824	0.3%	8.2%	<mark>34</mark> .5%	44.2%	12.8%
my satisfaction with my							
studies.							
I feel like I can get better			0	18	91	162	57
grades if I use social media	3.79	0.792	0.0%	5.5%	<b>2</b> 7.7%	49.4%	17.4%
networks.							
I think lecturers should use			0	6	73	189	60
social media tools more	3.92	0.7689	0.0%	1.8%	22.3%	57.6%	18.3%
frequently in education.							
The online peer learning,			0	4	98	173	53
enabling me to access	3.84	0.696	0.0%	1.2%	29.9%	52.7%	16.2%
information whenever I							
need.							
The online peer learning			0	7	94	178	49
provides an equal chance to	3.82	0.700	0.0%	2.1%	28.7%	54.3%	14.9%
all peers to carry out their							
homework.							
Overall mean			3.79	(SD=.50)			

## Table 4.9: Performance Expectancy (n = 328)

From this section, it can be seen that the highest overall mean score value is for the variable peer engagement with overall mean score value of 3.90(SD=0.45), which is followed by performance expectancy with an overall mean score value of 3.79(SD=0.50) academic self-efficacy with 3.71(SD=0.47), collaboration with 3.67(SD=0.47), peer feedback with 3.63(SD=0.46), and lastly social influence with 3.48(SD=0.60) This shows that the respondents' peer engagement level in social media is comparatively high and it could be explained by the fact that users of social media
are constantly using the tool to connect with others, and it is convenient for them to participate or answer questions from their peer.

# 4.3 Relationship between Independent Variables and Academic Achievement

The second objective of this study is to identify the relationships between the independent variables and the dependent variable. For this purpose, the Pearson correlation is utilized. The results of Pearson correlation analysis is presented in Table 4.10. Pearson correlation analysis was used to determine the relationship between independent variables and the dependent variable. The independent variables under consideration include academic self-efficacy, peer engagement, performance expectancy, social influence, peer feedback and collaboration, while the dependent variable is academic achievement.

 $H_{1:}$  There is a significant relationship between academic self-efficacy and academic achievement among the respondents.

The results obtained from Pearson correlation analysis (r = 0.255, p < 0.01) shows that there is a significant positive and medium relationship between academic self-efficacy and academic achievement. Therefore, H<sub>1</sub> is accepted.

 $H_{2:}$  There is a significant relationship between peer engagement and academic achievement among the respondents.

Pearson correlation analysis results (r = 0.288, p < 0.01) between peer engagement and academic achievement indicates that there is a significant positive and medium relationship between the two variables. Thus, H<sub>2</sub> is accepted.

 $H_{3:}$  There is a significant relationship between performance expectancy and academic achievement among the respondents.

The results (r = 0.351, p < 0.01) in regards to performance expectancy and academic achievement reveals that it is significantly positive, and high correlation between the two variables and hence, performance expectancy among the respondent could be determined by their academic achievement. Therefore, H<sub>3</sub> is accepted.

H<sub>4</sub>: There is a significant relationship between social influence and academic achievement among the respondents.

The findings also reveal that there is a significant positive and high correlation between social influence and academic achievement (r = 0.285, p< 0.01). This

indicates the social influence of the respondents is highly associated with their academic achievement, and hence,  $H_4$  is accepted.

H<sub>5</sub>: There is a significant relationship between peer feedback and academic achievement among the respondents.

The results on peer feedback and academic achievement (r = 0.280, p < 0.01) also indicates that there is a significant positive and high correlation between the two variables. This indicates that peer feedback of the respondents is highly associated with their academic achievement and therefore, H<sub>5</sub> is accepted.

H<sub>6</sub>: There is a significant relationship between collaboration and academic achievement among the respondents.

The results of correlation analysis of collaboration and academic achievement (r = .365, p< .01) was found to be significant and positive. This means that the two variables are highly correlated, and hence, H<sub>6</sub> is accepted.

Table 4.10: Pearson Correlation Matrix of Independent	Variables and the
Dependent Variable	

Variables	X <sub>1</sub>	X <sub>2</sub>	<b>X</b> <sub>3</sub>	X <sub>4</sub>	<b>X</b> <sub>5</sub>	X <sub>6</sub>	Y
X <sub>1</sub> (Academic Self-Efficacy)	1						
X <sub>2</sub> (Peer Engagement)	.561**	1					
X <sub>3</sub> (Peer Feedback)	.505**	.456**	1				
X <sub>4</sub> (Collaboration)	.484**	.425**	.600**	1			
X <sub>5</sub> (Social Influence)	.352**	.226**	.472**	.561**	1		
X <sub>6</sub> (Performance Expectancy)	.456**	.443**	.477**	.613**	.525**	1	
Y (CGPA)	.255**	.288**	.280**	.365 <sup>**</sup>	.285**	.351**	1

N.B.: \*\* Significant at 0.01 level of probability (2-tailed).

Overall, it could be concluded that the correlation between all the independent variables and the dependent variable is positive. However, the highest correlation observed was between collaboration and academic achievement; this was followed by the correlation between performance expectancy and academic achievement, and then peer engagement and academic achievement, social influence and academic achievement, peer feedback and academic achievement, and lastly, academic self-efficacy and academic achievement. Also, it could be seen that the correlation between the independent variables is less than 0.70 which indicates that there is no multicollinearity, and all the variables can be retained for regression analysis as described in the next section.



# 4.4 **Predictor Factors of Academic Achievement**

The third objective of this study is to identify the predictors of academic achievement. This objective is fulfilled using the regression analysis. This section responses to the six hypotheses related to predictors of UPM undergraduate's academic achievement in using online peer learning through social media. Multiple regression analysis was used to test the hypotheses and to answer the third objective of this study.

Pallant (2010) suggested that researchers should conduct some preliminary analysis prior to regression analysis. In other words, there are some requirement and assumptions have to be met before moving to regression analysis. In the previous chapters, the following was achieved.

- i) Sample size: Sample size should be adequate for the regression analysis. This study uses a sample size of 328 respondents. Hence the assumption of sample size was achieved according to Sekaran (2006) and Tabachnick and Fidell (2007, p.123).
- ii) Histogram, normal Q-Q plot and scatter plot for all the tested variables were identified as normally distributed. Thus, the assumption of normality was fulfilled. In addition, the linear relationships were identified between the independent variables (self-efficacy, collaboration, peer feedback, social influence, performance expectancy, and peer engagement) and the dependent variable (academic achievement). Thus, the linearity assumption was fulfilled.
- Outliers: The outliers were checked and samples that identified as outliers were removed which made the usable and complete sample of 328 sample. Boxplot diagrams of all the independent variables in Section 3.10 show that the variables of this study have no outliers.
- iv) The correlation coefficient values obtained from the independent variables (academic self-efficacy, collaboration, peer feedback, social influence, performance expectancy, and peer engagement) were greater than 0.10 and less than 0.90. Tolerance obtained by the independent variables is greater than 0.10, and the VIF is less than 10 indicating that the independent variables have an acceptable relationship with the academic achievement. Hence, the assumption of multicollinearity and singularity were achieved.

The purpose of conducting Multiple Liner Regression is to explore the causal relationship between one dependent variable (academic achievement) and few independent variables (academic self-efficacy, collaboration, peer feedback, social influence, performance expectancy, and peer engagement). Multiple Liner Regression is utilized to identify the interrelationship and the direct relationship between the independent variables and the dependent variable (Creswell, 2012, p. 349). In this study, the enter multiple regression is selected, and all the predictors

were included in the analysis at the same time. The enter method is capable of explaining the unique variance in the dependent variable using the independent variables. In other words, the six independent variables of this study (academic self-efficacy, collaboration, peer feedback, social influence, performance expectancy, and peer engagement) were able to explain the variance in the academic achievement.

In multiple Linear Regression analysis, there are three important tables which are a Coefficient table, ANOVA table and table of Model Summary. The coefficient table identified the variables that explain the variation in the dependent variable. A variable that has a significant value less than 0.05 indicates that it is making a significant and unique contribution to the prediction of the dependent variables. However, if the significant value is greater than 0.05, this indicates that the variable is not making a contribution to the dependent variable (Pallant, 2010, p.159).

The result of multiple linear regression presented in Table 4.12 showed that the predictors of academic achievement are academic self-efficacy (t= 2.133, p=0.034), peer engagement (t= 2.300, p=0.022), collaboration (t= 2.723, p=0.007), social influence (t= 4.691, p=0.000), performance expectancy (t= 2.523, p=0.012). These predictors have made significant and unique contribution for the predication of academic achievement. Overall, the model of prediction of academic achievement using the five identified predictors was obtained as follows:

#### $Y = 0.117 + 0.120 X_1 + 0.121 X_2 + 0.169 X_3 + 0.210 X_4 + 0.140 X_5 + \text{\pounds}$

Where:

Y= Academic achievement  $X_1$ = academic self-efficacy  $X_2$ = Peer engagement  $X_3$ = Collaboration  $X_4$ = Social Influence  $X_5$ = Performance expectancy



Referring to the Table 4.11, the statistical analysis showed that the social influence is the strongest contributor to academic achievement ( $\beta$ =0.210), followed by collaboration ( $\beta$ =0.169), performance expectancy ( $\beta$ =0.140), peer engagement ( $\beta$ =0.121), and lastly academic self-efficacy ( $\beta$ =0.120). For example, the value of the beta indicates that an increase of one standard deviation for social influence will lead to an increase of 0.210 of the standard deviation of academic achievement.

		(	C <b>oefficients</b> <sup>a</sup>			
		Unstandardized Coefficients		Standardized Coefficients		
			Std. Error			
	Model	В		Beta	Т	Sig.
1	(Constant)	0.117	0.250		0.469	0.639NS
	Academic self-Efficacy-M	0.120	0.056	0.091	2.133	0.034*
	Peer engagement-M	0.121	0.052	0.116	2.300	0.022*
	Peer Feedback-M	0.015	0.056	0.016	0.268	0.789NS
	Collaboration	0.169	0.062	0.177	2.723	0.007*
	Social Influence M	0.210	0.045	0.277	4.691	0.000*
	Performance Expectancy-M	0.140	0.055	0.152	2.523	0.012**

Table 4. 11: Multiple Linear Regressions on Academic Achievement

a. Dependent Variable: Academic Achievement

N.B.: \* and \*\*, significant at 1% and 5% levels of probability

Table 4.12 shows the ANOVA analysis result for the multiple linear regression models. ANOVA (6, 321) obtained was 18.199 (p=0.000) with a p-value less than 0.05 was obtained indicating that the combination of predictors is significantly predicted the dependent variable.

	Model	Sum of	Df	Mean Square	F	Sig.
		Squares				Ū.
1	Regression	23.467	6	3.911	<mark>11</mark> .381	$.000^{b}$
	Residual	68.985	321	.215		
	Total	92.451	327			
a. Dependent Variable: CGP						
b. Predictors: (Constant), PE_M, ENG_M, SI_M, PF_M, SE_M, COL						

Table 4.12: ANOVA

The model summary in table 4.13 showed that the multiple correlation coefficient (R) was 0.624. Including all the predictors in the enter method in multiple linear regression simultaneously indicated that the adjusted R square ( $R^2$ ) is 0.379 which indicates that the independent variables (Academic self-efficacy, Peer engagement, collaboration, peer feedback, social influence, and performance expectancy) are able to explain about 39% of the variation in the dependent variable (academic achievement).

Table	4.13:	Model	<b>Summary</b>
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Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	P. Value
1	$0.624^{a}$	0.389	0.379	0.428	11.381	$.000^{b}$
a. Predic	a. Predictors: (Constant), PE_M, SE_M, ENG_M, SI_M, PF_M, COL					

As a conclusion, social influence, collaboration, performance expectancy, peer engagement, and academic self-efficacy made a significant unique contribution to the prediction of academic achievement, [F (6, 321)= 11.381, p=0.000,  $R^2$ = 0.379]. The strongest predictor is a social influence.

# 4.5 Summary

This chapter has presented the findings of the study. A descriptive analysis was used to present the demographic information of the respondents along with the descriptive statistic of the variables and their items. Data was collected from 328 undergraduate students of UPM. The main findings of this study have answered the research questions. The finding presents the five factors that are expected to influence academic achievement of undergraduate students.



#### **CHAPTER 5**

# SUMMARY, DISCUSSION, IMPLICATIONS, RECOMMENDATION, AND CONCLUSION

#### 5.1 Introduction

This chapter presents the summary, discussion and implications of this study. This is followed by the practical recommendation for the decision makers to improve the usage of social media and online peer learning to improve the academic achievement of undergraduate students at the university. Recommendation for future work is given and discussed along with the limitation of this study. Lastly, the chapter concludes the findings of this study.

#### 5.2 Summary of the Study

The aim of this study was to determine the factors that are influencing academic achievement in online peer learning among undergraduate students of a public university. The selected factors were academic self-efficacy, peer engagement, performance expectancy, social influence, peer feedback and collaboration.

The research was carried through a survey design. The researcher employed proportional stratified sampling for sampling purposes. The study was carried out among 376 undergraduate students at UPM. The said number represented the total population of 17,582 of undergraduate students studying different undergraduate programmes offered at this university, UPM. Consistent with the scope of this study, online peer learning focused only on the use of social media tools including Facebook, Twitter and YouTube among Malaysian higher education students at the university.

In this study, the questionnaire with two parts; A, and B was used as a research instrument to measure the said selected factors of academic self-efficacy, peer engagement, performance expectancy, social influence, peer feedback and collaboration. Through this instrument, the researcher Part A was on the demographic data (8 items), and part B consisted of six sections, which measured the constructs of the study (academic self-efficacy, peer engagement, performance expectancy, social influence, peer feedback and collaboration, influence academic achievement in online peer learning with social media). The questionnaire was set to measure the five-point Likert type. For a content validation, the researcher selected six content experts from UPM who suggested replacement of some words and phrases and removal of some statements seemed inconsistent with the aims of the study.



For data analysis, the researcher through descriptive statistics used SPSS statistics version 22. Through which a set of analyses was conducted including mean, frequency, standard deviation. Descriptive analysis was conducted to find the background information of the respondents along with the descriptive information of the variables. The hypotheses were tested using regression analysis.

#### 5.3 Summary of Research Findings

Based on a comprehensive analysis, several findings emerged from the study. Starting from the demographic profile and followed with objectives of the study the findings of this study can be summarized as follows:

From the demographic data, the majority of the respondents 62.8 % (206) were female as compared to 37.2% (122). Besides, the overall age group of all respondents ranged between 18 to 35 years old while majority 76.80% (252) fall the age range of 18-23 years old. It is also shown that respondents spent different time length on the social media usage from 1-3 hours about 31.70% (104) as minimum to 13-15 hours about 3.30% (10) as maximum. Equally, it was revealed that Facebook is the most frequently used social media tool application across a significant percentage of respondents. Generally, the evidence emerged that social media tools were used by 80% of respondents as communication tools for academic. Yet, it was also found that use of social media tools to connect with friends 83.30%, socialization 67.70% and 58.20% for watching news in the context of non-academic purposes.

In terms of the first research objective, it was found that peer engagement had the highest overall mean score value of 3.90, performance expectancy with 3.79; academic self-efficacy with 3.71, collaboration with 3.67, peer feedback with 3.63 while social influence had the lowest mean score value of 3.48.

In terms of relationship, all independent and dependent variables were found to be positive correlated. Specifically, collaboration and academic achievement appeared to have the highest correlation as compared to academic self-efficacy and academic achievement which had the lowest correlation. Besides, it was found that the correlation between independent variables was less than 0.70.

In terms of predict factors, social influence ( $\beta$ =0.277, p=0.000)appeared strongest predictor influencing respondents' academic achievement followed by collaboration ( $\beta$ =0.177, p=0.007), performance expectancy ( $\beta$ =0.152, p=0.012, peer engagement ( $\beta$ =0.116, p=0.022) and self- efficacy ( $\beta$ =0.091, p=0.034).

Feedback variable, however, was found to have no significant effect on academic achievement.

## 5.4 Discussion of the Research Findings

This section presents a discussion of the findings of the study. This discussion is based on the objectives of the study.

# 5.4.1 Levels of students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration (Independent variables) and Academic Achievement (Dependent Variable)

The first discussion is based on the following levels of independent and dependent variables.

#### i) Academic Self-Efficacy

The findings indicated that the level of students' academic self-efficacy was between 3.43 and 3.96. This suggests that the respondents were relatively confident to practice online peer learning via social media. At the lowest level of confidence, those students were able to tutor amongst themselves whereas at the highest level of confidence; they were able to use social media tools to take notes from peers as they participate in online peer learning. The important point here is that at both levels of confidence, those students were confident to explore available online opportunities to communicate with their social media tools. That courage could possibly be caused by some reasons.

First, the present established UPM online networked environment throughout the library, classrooms and hostels provide opportune students to develop confidence in using social media tools which are a vital step to online peer learning. The study conducted by Blaschke (2014) also concluded related findings that familiarity to social media technology provides can be used to engage learners in the online classroom, as well as to support the development of learner skills and competencies.



#### ii) Peer Engagement

The findings indicated that UPM undergraduates had relatively high peer engagement in social media activities with peer to discuss related academic matters. From the asked six items, the mean value of 4.04 reflected students who considered the use of social media tools as helpful to get other students discuss assignments. One meaning is that when students' peer engagement level is creatively established and sustained at a high level, a large number of support factors are present which can lead to reasonable academic achievement. In this respect, students need to be engaged during instructions in order to develop the capacity to use social media tools and worth learning capability, in a thoughtful and reasoned manner (Henningsen& Stein, 1997). The findings support empirical evidence byJunco et al. (2011) who divided the students into two sections and found those with a high level of the use of Twitter to experience notable peer engagement and good academic grades. In addition, the findings confirm observations by Chen, Gonyea, and Kuh (2008) that peer engagement defined as student-faculty interaction and active peer-to-peer learning is important to the quality of the learning experience.

The following explanations might explain why student experienced a high level of peer engagement in social media tools found to have considerable academic grades. Those with a high level of peer engagement seemed to prefer communication amongst themselves and related peers in the classroom settings and beyond. Most of them support discussions and getting benefits to their studies from peers. This means that social media tools are powerful to occupy students with learning and can potentially increase student peer engagement. This understanding supports the findings of Richardson (2010), Rheingold (2010) and Kassens-Noor (2012) on Twitter for example that, continuous tweeting nurtures team communication and sustained interactive peer engagement on using social media tools is an issue of importance in the discussion of students' academic achievement.

Interestingly, other students reported at a mean value of 3.81 as a low level of peer engagement. This is revealed by the statement that 'the use of social media helps me to study with other students. One reason can be that those few students seemed to lack of knowledge and willingness to adapt to new techniques. Yet, as Umbach and Wawrzynski (2005) report, while it is an attractive, straightforward experience to lament the low levels of peer engagement among undergraduate students, it is important to know that academically engaged students have always been a minority on campus. Significantly, this study provides evidence to think that level of students' peer engagement on the use of social media tools matters in any fruitful discussion related to online peer learning. For that reason, it is important to discuss the increased level of student's peer engagement together with high-level social engagement in order to appreciate its position to academic achievement.

#### iii) Peer Feedback

The findings indicated that UPM undergraduates are perceived social media activities as a useful platform to obtain feedback from other peers. The mean score value from 3.39 to 3.89 could be due to the reason that peer feedback can be useful opportunity to accommodate peers' different learning styles and cultures. This result indicated that the students frequently through social media check their homework as peers and provide feedback to each one. Besides, the high level of peer feedback in specific may possibly due to considerable meaningful reward or recognition that the undergraduates as peers feel they get for the time and effort they spend on social media to improve feedback practices in UPM. With social media, the students could ease interaction between themselves and across their lecturers. Taken together, said levels of UPM undergraduates peer feedback seemed to offer a sort of interaction that would be used as an important communication stage for students' learning and acquisition of realistic academic achievement. These findings partly support views by Patchan and Schunn (2015) that the level of faculty feedback is important in calculating student achievement.

#### iv) Collaboration

The findings indicated that UPM undergraduates perceived social media activities as a provider of opportunity for rich interaction and connectedness for both academic and non-academic matters. The lowest to the highest level of UPM undergraduate students between mean score value of 3.22 to 3.83 could be due to the fact that once in online setting learners feel that they are assured to social learning even when they are outside campus. For that reason, they feel to be connected even when they are outside the normal classroom setting. This finding fits the argument by Brindley, Walti and Blaschke (2009) that access to education should not mean merely access to content rather; it should mean access to a rich learning environment that provides an opportunity for interaction and connectedness. Collaboration here is one element that seemed to provide that said line of connectedness.

The low to high level of UPM undergraduate's collaboration on using social media for online peer learning could also be due to their established learning styles of group-based, flexibility and culture, which according to Palloff and Pratt (2005) can be accommodated easily since effective collaborative learning values diversity. Another reason can be due to the experience that social media tools seem to provide, a foundation and a useful context for understanding collaborative learning in an online environment (Brindley et al. 2009). Now, by virtue of being in the digital world, it can be reasoned that UPM undergraduates seem to trust interactive sources of knowledge through collaborating with groups of common interest and social networks. Therefore, the given UPM undergraduates' levels of collaboration are a living witness of their conviction and ability to create and sustain learning groups and networks, since as Brindley et al. (2009) establish in knowledge in a collaborative learning environment is shared among learners towards common learning goals or a solution to a problem.



#### v) Social Influence

The findings revealed that UPM undergraduates perceived social media activities can support social influence. Interestingly, the overall mean score value of social influence, however, appeared relatively lower than other variables. One reason can be due to the reason that UPM undergraduates as other university students elsewhere consider, the use of online social networks as intentional social action (Cheung et al., 2011). One meaning is that they are confident to be connected and networked together beyond lecturers' and family directives to team up and learn. In this aspect, the need for proper guidance on the use of social media becomes inevitable. The low mean score level of 3.40 on the statement that "my family thinks I should use online peer learning to develop my academic performance" can be an explanation that family members are worried about freehand use of social media tool amongst students.

The high level of social influence by the mean score value of 3.56 amongst UPM undergraduates could mean the shared feeling that the use of social media, has elements of collective social action sider (Cheung & Lee, 2010). For that reason, peers feel that the use of social media networks is a symbolic status amongst friends. For the sake of discussion and from the above understanding it can be reasoned that the reported high level of social influence is equal to considerable attainment in the process that UPM undergraduates as peers accept the inspiration of social media tools to bring them together as a community of learners for online learning. This confirms what Tu and McIsaac (2002) say that social presence is a measure of the feeling of togetherness that online learners seem to experience in an online setting. Despite being lower than other variables, therefore, social influence adds to the evidence that behavior patterns of students are now moving to the use of multiple social media tools for learning.

#### vi) Performance Expectancy

The findings have shown that UPM undergraduates are supposed that the use of social media tools can support the improvement of their academic achievements. The recorded lowest mean score value is 3.62, and the highest mean score value is 3.92. One meaning is that UPM undergraduates seem to be aware that they enthusiastically construe what Wigfield and Eccles (2000) considers as meanings of their experiences in their achievement contexts. Given that appealing observation, it can then be reasoned that the highest level of performance expectancy as shown by the UPM undergraduates indicate that they see the use of social media tools for online peer learning constitute a base for reasonable academic achievement. This understanding is made without negotiating the practical observations that some students seem to be more open and eager to learn through social media tools than others. In that scenario, the suggestion by Passow (2012) fits the discussion that technology users need first of all sufficient knowledge and skills in order to achieve considerable success.

The low to high level of performance expectancy amongst UPM undergraduates could also mean that the constant advent of social media tools can provide a new

platform for institutions in Malaysia to enhance education through online peer learning. In other words, the expressed UPM undergraduates' levels of performance expectancy could be interpreted as the message requiring accommodation of new way to deliver education without installing complex communications infrastructure(Mtebe & Raisamo, 2014). The said levels above could mean that having needed knowledge and skills of social media tool uses is a pre requisite to achieve better educational results. Therefore, the fastest growing use of social media tools can appropriately be used to accommodate students' performance expectation in higher learning institutions in Malaysia and other countries at large.

# 5.4.2 Relationship between of students' peer engagement, academic selfefficacy, performance expectancy, social influence, peer feedback and collaboration (Independent Variables) and Academic Achievement (Dependent Variable).

The next discussion is related to the relationship between each of the independent variables and each of the academic achievement as the dependent variable of this study as follows:

# 5.4.2.1 Students' Academic Self-Efficacy and Academic Achievement

The results of the students; academic self-efficacy and academic achievement while practising online peer learning via social media showed that there is a significant relationship between those two variables among undergraduate students in UPM. The Pearson correlation analysis is shown as (r=0.255, p<0.01). From the results, it was clearly shown that undergraduates in UPM have significant social confidence and readiness to participate abundantly in online peer learning. Such positive correlation might be due to the regular exposure and use of different of different emerging social media tools, both for learning or leisure quests (Sedek, 2014). In discussing social media use as technology practice, this finding matches with the observation by Wang and Wang (2010) that as students' chances to use the technology in many times contributes more experiences and learning skills on the way. That observation sounds more vital in the line of understanding of students' online peer learning dynamics in achieving academic goals.

A study conducted by Liemu, Lau and Nie (2008) seemed to report related findings. The findings of their study on a sample of 1475 students participated in the study on the role of academic self-efficacy, task value, and achievement goals in predicting learning strategies, task disengagement, peer relationship, and achievement outcome showed that students' academic self-efficacy predicted mastery, performance approach, and performance- avoidance achievement goals. Discussed in the context of this study, it sounds reasonable to bring the point in the discussion those UPM undergraduates have beliefs on the extent to which they are self-confident and assertive enough in using social media tools for online peer learning. It is on this ground that we can see the said matching extent with the said previous study. That is because positive students' academic self-efficacy should be considered as one of the

key components for what Liemu et al. (2008) calls as understanding students' achievement. Therefore, understanding changing relationship of students' academic self-efficacy is important in telling how a student can persist in online peer learning even at a time when the use of social media tool appears in line with comprehending difficult learning tasks.

#### 5.4.2.2 Students' Peer Engagement and Academic Achievement

The students' peer engagement and academic achievement while practising online peer learning via social media was another relationship sought in this study. The results were shown through Pearson correlation analysis results (r=0.288, p<0.01). One meaning was that UPM undergraduates were very much engaged in using social media tools expecting to achieve high academic achievement. In this sense, it can be said that most of those UPM undergraduates were skillful enough in the process of what Sedek (2014) describes as downloading e-books and creating presentations via technology, a thing that has a positive relationship with academic achievement (Gunuc, 2014). Basically, the findings of the present study suggested that in order to promote the relationship of students' peer engagement and academic achievement while practising online peer learning through the use of social media two scenarios must be interlinked. The first situation needs the students to have essential prior knowledge linked with relevant curriculum and engaging learning tasks in place. It is important that all these issues match with students' interests and expectations consistent with the aspired educational achievement.

The second condition is that students' peer engagement in practising online peer learning need to relate students' goals and willingness to persist. At this respect, students' peer engagement needs to be seen as an opportunity, to what is said by Sullivan and McDonough (2007) as students' meaningful participation in learning for reasonable accomplishment. These findings suggested that UPM undergraduates showed particular interests on maintaining their peer engagement with peers while learning. One possible explanation for such findings is that the use of social media tools as a platform for online peer learning is highly engaged such that most of those UPM undergraduates feel that, their academic achievements are not affected (Kolek & Saunders, 2008).Therefore, lecturers need to consider changing of teaching approaches in favour of students' active, engaged participation and sharing consistent to achieving education success at the university level of education.

#### 5.4.2.3 Students' performance expectancy and Academic Achievement

The students' performance expectancy and academic achievement were another interested thing in this study. The results showed that (r=0.351, p<01) meaning that there is significant positive relationship and high correlation between the said variables. A possible explanation for these findings might be that UPM undergraduates have developed prior expectations that their interactions with peers is vital for learning. That experience has created a sense of self-fulfilling perceptions and perpetual convictions that the use of social media tools along peer learning can

assist them to realise their academic expectations. This sort of relationship suggested that the higher the students' expectations were for networked peers, the higher their achievement. These results seemed to be consistent with the research by Cho et al. (2009), and Liu et al. (2010) performance expectancy can assist students' learning. In essence, the message here emerges that having higher expectation is an asset to the realisation of higher academic achievements.

Those undergraduates in UPM showed high expectation in performance needs to cope with the rate of peer interactions consistent with changing uses of social media tools. In this respect, having positive performance expectancy was found critical, in online peer learning (Cho et al., 2009). These findings suggested that, most of the respondents had a particular interest in online peer learning as reflected by a commitment on using different versions of social media tools. These findings indicated that the respondents were inquisitive enough to capitalise their networked learning environment at UPM expecting to learn and achieve the considerable academic outcome. In practice, such students' beliefs were important in changing their behaviours consistent to such ingredients confirming the first expectations. Within the present scope of discussed academic achievements, it is comprehensible that undergraduate students need to be prepared to have constructive expectations for positive learning performance. This confirms prior evidence by Hashim (2007) and Yeung and Jordan (2006) that there is a significant positive impact on performance expectancy and students' academic achievements. Hence, it is good to have positive expectations for significant academic achievement.

#### 5.4.2.4 Students' Social Influence and Academic Achievement

The students' social influence and academic achievement were researched in this study. It is shown in the findings that Pearson correlation between social influence and academic achievement is given as (r=0.285, p<0.01). One meaning of these findings is that UPM undergraduates were socialized by peers and other people with whom they were associating on a daily basis to the extent of developing acceptable commitments to online peer learning. In this respect, it can be reasoned that the peers that UPM undergraduates interact with and spend the time to share knowledge, skills and experiences through social media tools set parameter for their academic achievement. For that reason, social influence is an important component in discussing students' achievements. Similar findings were reported by Korir and Kipkemboi (2014) on a study examined the impact of the school environment and peer influence made a significant contribution to the students' academic performance.

The importance of social influence for academic achievement is evident because of being vital in helping students' learning and understanding. The research shows that students who trust their peers and teachers are more motivated and as a result perform better in school (Eamon, 2005). This might be due to the reason that having constructive interactions with peers both inside and outside formal setting is important in the attempts of developing a feeling of being secured which offers vital

ground for judging their performance. These findings seemed to be consistent with other studies by Korir and Kipkemboi (2014) and Qin et al. (2011) that relationship of social influence to learning is an issue of importance because it guides individual decisions and reaction to achieved learning outcome. More captivatingly, elsewhere it is reported that peer support seemed to be more leading compared to parental and teacher support both positively and negatively (Ganotice Jr.& King, 2014). Therefore, it is vital for university students to have friends who display constructive attitudes toward learning and overall academic achievement.

#### 5.4.2.5 Students' peer feedback and Academic Achievement

The students' peer feedback and academic achievement were another important combination studied in this research. The results on peer feedback and academic achievement (r=0.280, p<0.01) was recorded to confirm the significant relationship between those two variables. Peer feedback seemed to appear as an essential aspect of the UPM undergraduates' learning process. This means the said peer feedback could be thoroughly related to student's academic development. The current study findings could be due to the reality of the time that university learning offers what seems to be a station stage in students' life. It serves as a linkage stage between elementary stage and higher education of the learner. It is a vital sub-system of the educational system as it provides the workforce for the national economy (Ahmad, Saeed & Salam, 2013).

These findings seemed to be consistent with another study by Hattie and Timperley (2013) that peer feedback is one of the most powerful influences on learning and achievement both positive and negative. This finding could be due to the reasons that peer as teacher feedback could be run as responses for students' performances. In this respect, it can be used to know how peers respond to other peers as students upon demonstration of knowledge, reasoning, skill or performance (Hattie & Timperley, 2013). For that reason, peers are obligated to encourage meaningful construction of knowledge and understanding of the concepts useful to the academic achievement.

Furthermore, even lecturers could be encouraged to opportune undergraduate students with constructive and engaging learning tasks to discuss their ideas about subjects through social media tools. That could be positive attempt towards meaningful online peer learning. As O'Connell (2010) maintains that where people work in relationships and in which each individual experiences mutual dependencies, they achieve more individually. Thus, with caring peer feedback, it could be likely for peers to achieve significant academic results.

## 5.4.2.6 Students' Collaboration and Academic Achievement

The students' collaboration and academic achievement were another significant mixture studied in this research. The results of Pearson correlation analysis of the two variables showed (r=.35. p<0.1).One meaning might be that studied UPM undergraduates were keen to participate in online learning via the use of social media tools with strong feelings of connection. This finding suggests that most students had positive feeling consistent a sense of belonging and trust between peers as a way to recognize their collaboration as a valuable learning experience for academic achievement. Interestingly, although students in this study were able to meet face-to-face with other peers at UPM learning setting, still they seemed to display a strong feeling and need to engage in online social interaction. This was perhaps due to the social, cultural settings in Malaysia as non-Western context encourages community living and interactions amongst people.

Similarly, the results of the present study are consistent with those of Wong (2001) who studied the effects of collaborative learning on students' attitude and academic achievement in learning computer programming. The findings of that study revealed that students performed better on achievement and were more positive toward learning programming activities when they were working in collaborative groups than when they were working on the same activities individually. Elsewhere, Adekola (2014) with the focus on collaborative learning method and its effect on students' academic achievement in reading comprehension found that male low achievers performed better than their female counterparts when exposed to collaborative learning in comprehension. From the said findings it can be the reason that it is possible when students would be given opportunities to collaborate they can develop the sense of social presence through online peer learning in line with the social media tools they use at the given time.

#### 5.4.3 Factors Influencing Academic Achievement in Online Peer Learning

The third research objective of this study focused on the factors that affect the academic achievement of the peer using social media. Factors of this study were identified, and they were namely, academic self-efficacy, peer engagement, performance expectancy, social influence, and collaboration are influencing the academic achievement among the sample undergraduate students at UPM. The discussion of the factors is as follows:

#### 5.4.3.1 Academic Self-Efficacy

The first hypothesis of this study was academic self-efficacy in online peer learning via social media influences on students' academic achievement at UPM. This hypothesis was accepted. In the result of this study, academic self-efficacy has an influence on academic achievement via online peer learning. This result is in agreement with the published studies (Ho et al., 2010; Diseth, 2011; Din et al., 2012;

Joo et al., 2013). It is important for the student to have a high level of academic selfefficacy because it increases their confidence and their desire to participate in an academic discussion or cooperation that leads to better academic achievement. A student with a high level of academic self-efficacy is motivated to provide their opinion and help other to solve problems because they believe that they have the knowledge required to participate in peer learning activities such as online discussion or answering a question related to the course at the university.

#### 5.4.3.2 Peer Engagement

The second hypothesis of this study was peer engagement in online peer learning via social media influences on students' academic achievement at UPM. The results of this study indicate that this hypothesis was accepted in the sense that peer engagement is an effective factor influencing academic achievement. In reviewing literature, findings of other researchers indicated that peer engagement has a significant effect on academic achievement. In this respect, Krause and Coates (2008), suggested different types of peer engagement including academic engagement, peer engagement, students-staff engagement, intellectual engagement, online engagement scale, and beyond class engagement scale that can be used in practice and can affect the academic achievement of the student. In addition, the finding of Wise et al. (2011) showed that social engagement increases academic engagement, which leads to better academic achievement. It is shown that peer engagement is the strongest predictor of academic achievement followed by online engagement scale. Another study by Al-Rahmi and Othman (2013a) found peer engagement influence on students' collaboration which effects on academic achievement.

In the context of this study, that established consistency may be due to the fact that peer engagement has an element of an individual's internal drive to take action. Such internal drive or motivation to Vansteenkiste, Lens, and Deci (2006) is found to be a strong predictor of high academic achievement. Another reason for this consistency may be due to the fact that the sampled students like in other undergraduates in Malaysian public universities are encouraged to practice peer engagement and community participation in both academic and non-academic activities, as an element of learning and developing leadership skill (Said, Pemberton & Ahmad, 2013). For that reason, it can be linked that students' peer engagement is an important element for academic achievement provided it is given the opportunity to develop and grow among students.

#### 5.4.3.3 Performance Expectancy

The third hypothesis of this study was performance expectancy of online peer learning via social media influences on students' academic achievement at a UPM. In this study, performance expectancy was accepted as an effective factor in academic achievement among the undergraduate students at UPM. It seems possible that these results affirm the point that students' academic achievement depends on strongly upon students' perception of the usefulness (which is similar to performance expectancy (Venkatesh et al., 2003)) of online peer learning. In this respect, for considerable student academic achievement to take place, it sounds necessary that social media tools are used in an appropriate manner.

The findings of this study are consistent with other researchers such as Al-Rahmi et al. (2014) who found that perceived usefulness influence students' satisfaction and the academic performance positively. Similarly, the findings concur with the idea of Leng et al. (2011) that perceived usefulness is one of the strongest factors that link the use of social media for academic purposes in Malaysia. Elsewhere, Mali and Hassan (2013) found that usefulness is significantly influencing intention to use Facebook for academic purposes. Taken together, these findings suggest a role for performance in promoting academic performance among undergraduate students in the context of reasonable use of social media tools.

#### 5.4.3.4 Social Influence

The fourth hypothesis examined the effect of the social influence on online peer learning via social media on students' academic achievement at a public university under study. Results showed that social influence was a notable factor that influenced online peer learning and academic achievement among undergraduate students at UPM. This result seemed to suggest that convincing power of one group of students taking part in online peer learning could influence other students to join the process and make a difference in the academic achievement.

Besides, the studies undergraduate students also revealed a considerable degree of believes that by joining in groups for online peer learning they can get, a new informative source (Venkatesh, et al. 2003). These findings are in agreement with an exploratory study conducted by Mustafa, et al. (2011) in Universiti Kebangsaan Malaysia (UKM). In specific to Facebook as a social media tool, they found its use was strongly influenced by peer pressure. Moreover, studies that have been conducted in fields similar to social media and online peer learning found there is a positive and significant influence of social influence on the adoption of new technology. Wang et al. (2009) found a significant influence of social influence of social influence on the adoption to students' academic achievement.

#### 5.4.3.5 Peer Feedback

The fifth hypothesis focused on the effect of peer feedback on online peer learning via social media on students' academic achievement at UPM. In contrast to considerable earlier reviewed findings, however, this study did not find a significant influence of peer feedback on students' academic achievement. Hence, the hypothesis was rejected.

In contrary, studies conducted by De Raadt et al. (2005) and Ab Jalil et al. (2008) noted that the influence of peer feedback on academic achievement is positive and significant. Specifically, Ab Jalil et al. (2008) suggests that assisted performance in the online exchanges can offer insights into the learning that can take place in the online discussion and offer one way recognizing of the meaningful online interaction. In the same vein, De Raadt et al. (2005) seem to stress the point that electronic peer feedback empowers lecturers to produce feedback, promote social interaction and encourage higher order learning for students. In the context of this study, this combination of findings seems to provide some support for the conceptual premise that age matters for effective peer feedback on online learning and students' academic achievement.

However, in agreement with the findings of this study, the study of Chen et al. (2009) found that peer feedback has no effect on academic achievement. Chen et al. (2009) investigated through observation method the influence of many related variables with peer assessment, observation and peer feedback. Their findings also showed that peer feedback has no significant influence on the reflection level or academic achievement. It is, therefore, likely that such influences exist to matured individuals who have a common language of expectations.

#### 5.4.3.6 Collaboration

The sixth hypothesis focused on the influence of collaboration in online peer learning via social media on students' academic achievement at UPM. Findings showed that collaboration is an effective factor influencing academic achievement. In this case, this hypothesis was accepted. This finding supports previous research into this area which links collaboration and students' academic achievement. Barnard et al. (2008) conducted a study on the influence of collaboration in an online course and students' academic achievement. The findings showed that collaboration between students in an online course has a significant influence on the academic achievement. Similarly, Al-Rahmi and Othman (2013a) studied the influence of students' collaboration and students in social media influences positively students' academic achievement.

Moreover, collaborative learning was investigated by Al-Rahmi et al. (2014) at the UTM in Malaysia. The findings showed that collaborative learning influences the students' satisfaction and their performance. This consistency of findings between the present research and reviewed previous studies may be due to the intelligent observation that the 21st century is reflected by the rapidity of active means of communications, through Internet connection among students of higher educational institutions (Al-Rahmi et al. 2014). In addition, Tervakari et al. (2012) pointed out that collaboration is a major issue for effective utilization of online peer learning. This indicates the importance of collaboration between peers. Garton (2008) commented that collaboration between peers is important for cognitive change to occur (Garton, 2008). Returning to the sixth hypothesis posed at the beginning of this study, it is now possible to state that when properly used social media tools have potentials to improve students' academic achievements.

# 5.5 Implications

## 5.5.1 Practical Implication

Based on the descriptive analysis that has been conducted on the variables and their items, the following recommendations can be given to the decision makers to enhance the utilization of social media and online peer learning.

# 5.5.1.1 Academic Self-Efficacy

The findings of this study can be utilized by the decision makers at UPM. Factors that can affect the academic achievement were identified based on empirical approach. Decision makers at the UPM are advised to focus on academic self-efficacy because it is important for effective utilization of social media among undergraduates. UPM can increase the academic self-efficacy of a student by training them and holding workshops to sharpen their skills of using new technology so that they can grab the benefits of social media to enhance their academic achievement.

# 5.5.1.2 Peer Engagement

Based on the descriptive analysis and the mean score value of the variable peer engagement, it is recommended for the decision maker at UPM to regulate the use of online peer learning via social media so that students can work with each other during the class time. Creating such culture can increase the students' participation and cooperation under the supervision of their lecturers. To train students to be more engaged in the productive discussion via social media, lecturers can give homework and assignment that enforce students to develop the skills of working with each other in social media. A head of the group can be assigned to monitor the work of students, and the final summarized report can be sent to the lecturer. Based on the report, lecturers can reward those who have been highly engaged in the groups, and this will motivate others to increase their peer engagement.

#### **5.5.1.3 Performance Expectancy**

Descriptive analysis showed that students have concern over their grade when they are using social media. The university is recommended to set the role of using social media and to educate the students on the role and benefits of social media tools. The university can create a page or a portal for a specific class or subject, which is administrated by the lecturer of the subject. Extra point or rewards can be given to students who participate and provide relevant and useful knowledge to other students. This could enhance the knowledge sharing between students and encourage their cooperation. Students' knowledge of their effective participation which is also rewarded by their lecturers helps them to answer their peer questions.

#### 5.5.1.4 Social Influence

A research conducted by Yong et al. (2011) shows that the awareness of the benefits of social media in the academic field still moderate. This study shares the same opinion. Students and their families must be conscious of the use of social media. The university is recommended to hold a seminar or public lectures to increase public awareness. It could also be increased by cooperation with national television to produce materials that can lead to better understanding of the use of social media in the academic field. In this transition period, where the role of social media is still ambiguous, students can play a major role in enlightening their families with the role of social media.

## 5.5.1.5 Collaboration

Collaboration between peer must be encouraged by rewards and by enforcing positive behavior. The university and lecturers can play a vital role in this process. The university can enlighten the students and encourage them to collaborate. Lecturers can assign groups to work together via social media. Developing this skill is important for students to shift from traditional or face-to-face collaboration to an online one. The benefits of online collaboration are the peers might be available at any time and can participate from anywhere. This flexibility could lead to the better academic performance of the peer and better utilization and deployment of their time.

#### 5.5.2 Theoretical Implications

The unified theory of acceptance and use of technology (UTAUT) by (Venkatesh et al., 2003) has proposed that the social influence and performance expectancy are keys indicators for using the technology. This study has determined that performance expectancy has a strong influence on the academic achievement via online peer learning. This could be explained as the perceived benefits of the online peer learning have a strong influence on the use of technology, which leads to greater academic achievement. Similarly, the social influence of peers on each other and the influence of lecturers and the management of the university have an effect on the students' usage of online peer learning which affects their academic achievement. These findings confirm the applicability of the UTAUT in peer learning studies. It also confirms that variable of UTAUT is able to explain the variation in the usage of online peer learning to improve academic achievement.

The present study has found that collaboration between peer would result in higher academic achievement. This is in agreement with the conceptualization of Sociocultural Theory by Vygotsky (1978). Vygotsky (1978) stated that learning developed as a direct consequence of social interaction. More in detail, Vygotsky confirmed that "knowledge is the first socially constructed and then internalized by individuals". Sociocultural theory can be realized in action in today's classroom through approaches of learning for instance collaborative learning. However, with

the introduction of online peer learning, the collaboration can take place in an online environment and lead to similar results of peer teaching and collaborate with each other. As a result, this study confirms that collaboration between peer in an online environment is valid and able to predict the academic achievement.

Peer engagement of student in online peer learning leads to better academic achievement. The findings of this study support the belief by students that engaging with active and productive online learning will have a positive effect on their academic achievement. Albert Bandura (1977; 1986) in the Social Cognitive Theory, pointed out that people can learn by observing and imitating each other and with positive reinforcement. In the context of this study, to produce such behavior from students, they must be peer engaged in the learning using social media and online peer learning.

The zone of proximal development in sociocultural theory, the peer can collaborate to solve problems and teach each other. Vygotsky (1978) pointed out that learning can take place between peers, and their academic achievement can be influenced by the potential development as showed through problem solving under the adult direction or in collaboration with more capable peers.

#### 5.6 **Recommendations for Future Study**

Studies, which are related to online peer learning, are few. It is recommended that future work expands the study and investigate the online peer learning from different perspectives with a different unit of analysis. The future work is recommended to conduct a qualitative study where an interview with experts can be held to discover the dimensions and issues of online peer learning. This is because previous studies conducted quantitative studies and due to the fact that online peer learning is a new topic and still evolving. A qualitative approach could help in understanding the student usage of online peer learning via social media. Other methods could be to mediate a focus group where experts in peer learning can be asked to discuss the issue of undergraduate online peer learning usage and its effect on academic achievement.

Another area of future work is the sample. In this study, the sample was extracted from UPM. Future work is recommended to expand the sample and conduct study that cover five public or private universities so that the findings could be more generalizable. It is also recommended to conduct a study with different sample where respondents can be categorized based on their field of studies such as to choose stratified sampling technique to study the online peer learning among student from social science and applied science.

This study incorporated six independent variables (academic self-efficacy, peer engagement, social influence, performance expectancy, peer feedback and collaboration) in its framework and studied the influence of these variables on academic achievement. It is recommended for future work that individual construct to be studied with academic achievement. For example, future research can identify the component of peer engagement and test their effect on academic achievement. A similar approach can be followed for another construct such as collaboration.

## 5.7 Conclusion

This study investigated three research objectives. First, it investigated students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration while practising online peer learning via social media among undergraduate students in UPM. Second, it determined the relationship of students' peer engagement, academic self-efficacy, social influence, peer feedback and collaboration with students' academic achievement while practising online peer learning via social media among undergraduate students in UPM. Third, it focused predict factors that influencing students' academic achievement while practising online peer learning via social media among undergraduate students in UPM. These objectives were employed following the discussed problems and need. The survey research design through correlation and multiple regressions analysis was employed to examine the combinations of those factors on influencing academic achievement in online peer learning among undergraduate students of UPM as one of the Malaysian public and Research Universities. Based on the findings and discussions the following can be concluded:

First, there were relatively considerable levels of students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration (Independent variables) and Academic Achievement (Dependent Variable) among researched respondents. Based on such emerging trend, it can be reasoned that proper lecturers' instructional connectional and guide on uses of social media tools can support undergraduates' aspired educational results in higher learning institutions in Malaysia and other countries at large. Ideally, this can be realized when the social, cultural realities and norms of the Malaysian undergraduates as non-Western students are addressed and suitably integrated throughout the process of teaching and learning.

Second, the reported relationship between of students' peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration (Independent Variables) and Academic Achievement (Dependent Variable) is a promising social capital needed for the reasonable setting of higher education. From the findings of each discussed variables, it is evident that social media tools have admirable promises on helping students' learning and understanding towards reasonable students' academic achievement at the university level. Here comes the question of having dedicated lecturers, networked friendly settings and students among other things, to set time to learn and be considerate enough to find workable ways to incorporate related knowledge content without compromising vision, mission and goals of the quality teaching and learning of the Research universities in Malaysian context in specific and in other parts of the world at large.

Third, peer engagement, academic self-efficacy, performance expectancy, social influence, peer feedback and collaboration were accepted as factors influencing academic achievement in online peer learning amongst participated UPM undergraduates. From the forgoing observation, the conclusion can be made that having knowledge related to peer learning through social media tools is a vital experience for both the lecturers and university students themselves. That knowledge can be reasonably employed to improve focus, creativeness and expand wider meaning and implications of using social media tools for online peer learning amongst students who are within normal university settings.

Similarly, this knowledge is needed consistent with the present efforts to educate transform higher education policy and practice in Malaysia to develop students as a primary source of human capital for the country (Ninth Malaysia Plan, 2006-2010). Building from this understanding, it can be reasoned that strong and supportive online networked university setting is needed now and then to improve the discourse on social media tools, online peer learning, and related factors to students' academic achievements in a way to face emerging professional and wired work related challenges.

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### APPENDICES

### Appendix A: Population of the Study from UPM

### Request for the administration to provide the number of undergraduates

EARCHIT	PENGA IIAN PENDIDIKAN
FACULTY	OF EDUCATIONAL STUDIES
UPM/FPP/GS3546	8
October 13 <sup>th</sup> , 2014	
Tuan Haji Rosdi V Head of Administr Academic and Inte Universiti Putra Ma	Vah ration, mational, ilaysia,
Sir,	
REQUEST PERMIS	SSION TO CARRY OUT RESEARCH.
I hereby acknowled of Educational Stu- mentioned below :-	ige that the student mentioned below is a postgraduate student of the Faculty idies, Universiti Putra Malaysia, and he has registered for the course as
Name	: Ibrahim Mohamed
Matric Number	: G\$35466
Programme	: Master Science (Sociology Education)
Course Code	: SPS5999
Title of Course	: Master's Research
Title of Research	<ul> <li>Factors Influancing Student's Academic Achievement in Online Peer Learning among Undergraduates in UPM.</li> </ul>
This student is rec information can be o be very grateful if research.	uired to do a research as the title of research suggests. The required obtained from the research at your organization. Therefore, the Faculty would you could give permission and assistance to this student to carry out his
Your cooperation an	td assistance are deeply appreciated.
Thank you.	
Yours sincerely,	
Report	
UK. NORLIZA CHE Superviser/Advisor	# HASSAN

 $\bigcirc$ 

SEMESTER	FIELD	FACULTY	TOTAL
2014/2015-1	APPLIED SCIENCE	FACULTY OF VETERINARY MEDICINE	511
		FACULTY OF ENGINEERING	1 667
		FACULTY OF DESIGN AND ARCHITECTURE	53
		FACULTY OF FOOD SCIENCE AND TECHNOLOGY	50
		FACULTY OF MEDICINE AND HEALTH SCIENCES	1 080
	BASIC SCIENCE	FACULTY OF SCIENCE	1.70
		FACULTY OF BIOTECHNOLOGY AND BIOMOLECULAR SCIENCES	670
	COMPLITER	FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY	70
	FOCUS AREAS IN LIPM	FACILITY OF FORESTRY	58
		FACULTY OF AGRICULTURE	1 25
		FACULTY OF ENVIRONMENTAL STUDIES	1,00
		CENTRE OF FOLINDATION STUDIES FOR ACRICULTURAL SCIENCE	790
		FACILITY OF AGRICULTURE AND FOOD SCIENCES	1 70/
	SOCIAL SCIENCE	FACULTY OF AGRICOLOGICS AND MANAGEMENT	1,10
	SUCIAL SULACE	EACULITY OF EDUCATIONAL STUDIES	4 970
		FACULTY OF HUMAN ECOLOGY	00
		FACULTY OF HOMAN ECOLOGY	1 70
		PAGETT OF MODERN EANSUNGES AND COMMUNICATION	17.60
			11,004
		Dr. mark	
		Ami	
		0 /	
		LAILAWATI BINTI BAKAR	
		Ketua	
		Bahagian Urus Tadbir Akademik	
		Universiti Putra Malaysia	
		43400 UPM Serdane, Selanonr, Malausia	

## Undergraduate students population in UPM based on faculties (2014-2015)

### **Appendix B: Questionnaire**

### Dear Respondents

This study aims to find the factors that influencing academic achievement in online peer learning via social media. The study also intends to find the influences of online peer learning via social media on academic achievement. As an undergraduate student of the UPM, you have been chosen to answer this questionnaire. It's highly appreciated if you can complete the enclosed survey questions. Please select the answer that best represents your opinion. I would like also to assure you that your answer to the questions will remain confidential.

Lastly, I would like to thank you for your times, efforts, and cooperation.

### Section A: Background Information

Please fill in the following information

- 1. What is your gender?
- □ Male
- □ Female

### 3. Which faculty are you studying?

- □ Faculty of Veterinary Medicine
- □ Faculty of Engineering
- □ Faculty of Design and Architecture
- □ Faculty of Food Science and Technology
- □ Faculty of Medicine and Health Sciences
- □ Faculty of Science
- □ Faculty of Biotechnology and Biomolecular Sciences
- □ Faculty of Computer Science and Information Technology
- □ Faculty of Forestry
- □ Faculty of Agriculture
- □ Faculty of Environmental Studies
- □ Center of Foundation Studies for Agricultural Science
- □ Faculty of Agriculture and Food Sciences
- □ Faculty of Economics and Management
- □ Faculty of Educational Studies
- □ Faculty of Human Ecology
- □ Faculty of Modern Languages and Communication

- 4. Which social media application do you use the most for educational purposes? (Please choose only one)
  - □ Facebook
  - □ YouTube
  - □ Twitter
  - $\Box$  What's app
  - □ MySpace
  - □ Other (Please Specify.....

### 5. How long do you use social media per day?

□ (.....) Hours.

### 6. For what purposes do you use social media?

□Academic purposes

□ Non-Academic purposes

□ I use social media for both, academic purpose and Non-academic purpose

### 7. I use social media for:

### □ Academic purposes

- □ Share information with my peers
- □ Ask for information from my peer
- Discuss class related matter with my peers
- □ Ask for feedback from peers
- □ Ask for help from peers
- □ Connect with my peers
- □ Connect with lecturers
- □ Participating in academic discussion with people on social media

### □ Non-Academic purposes

- □ Connecting with my family
- □ Connect with friends
- □ Socializing purposes
- □ Participating in general discussion about general topic
- $\Box$  Watching the news

### 8- What is your GPA?

( ) out of 4.00

### Section B:

Ĉ

### Potential Predictors that Influence Academic achievement in Online Peer learning in Social Media

Please rate the following statement by ticking the box that best represents your opinion:

Strongly Disagree	Disagree	Neutral	Agree	<b>Strongly Agree</b>
1	2	3	4	5

No.	Items	1	2	3	4	5
		(SD)	(D)	(N)	(A)	(SA)
1	I was able to take notes from peers when I participate in online peer learning through social media.					
2	I participate in online peer learning by answering others questions through social media.					
3	I take part in the academic discussions with other colleagues through the use of social media.					
4	I can explain other students in online peer learning through the use of social media.					
5	I can tutor other students in online peer learning through the use of social media.					
6	I can understand ideas and views shared in online peer learning through social media.					

### **B** (1) Academic Self-efficacy

### **B**(2) Peer Engagement

No.	Items	1	2	3	4	5
		(SD)	(D)	(N)	(A)	(SA)
1	The use of social media helps me to work with other colleagues on course areas to solve shared academic problems.					
2	The use social media helps me to get together with other students to discuss assignments.					
3	The use of social media helps me to study with other students.					
4	The use of social media helps me to get benefits from other students regarding my study.					
5	The use of social media helps me to regularly work with other students on projects during class.					
6	The use of social media helps me to borrow course notes and materials from friends in the same class.					
7	The use of social media makes me feel of a group and committed to learning.					

### **B** (3) Peer Feedback

No.	Items	1	2	3	4	5
		(SD)	(D)	(N)	(A)	(SA)
1	The Use of social media helps me to get the answer to the questions that I am looking for.					
2	Peers in social media offer their help whenever I have a problem regarding my study.					
3	Peer in social media praises me when I do well through social media.					Ы
4	Peers in social media always check my homework and provide their feedback.					
5	Peers in social media provide me with feedback that helps to improve my understanding.					
6	Peers in social media provide me with timely feedback on assessment tasks.					
7	Social media networks give me an opportunity to ask questions whenever possible.	D				
8	My academic performance has been reviewed by the peers through social media networks					
9	I have my performance reviewed on quizzes with other peers via social media.					

# **B** (4) Collaboration

No.	Items	1	2	3	4	5
		(SD)	(D)	(N)	(A)	(SA)
1	Collaborative learning experience in social media is better than a face to face learning environment.					
2	Social media helps me to feel part of the learning community in my group.					
3	I actively exchange my ideas with my colleagues through the use of social media.					
4	I was able to develop new skills from other colleagues in my group through the use of social media.					
5	I was able to develop my knowledge from other colleagues in my group, through the use of social media.					
6	I was able to develop problem solving skills through peer collaboration in the social media.					
7	Collaborative learning through social media with group members saves my time.					
8	I discuss ideas from my classes with other peers by using social media tools.					
9	I discuss ideas from my readings with other peers by using social media tools.					

### **B** (5) Social influence

No.	Items	1	2	3	4	5
		(SD)	(D)	(N)	(A)	(SA)
1	Peers who influence my behavior would think that I should use social media networks to improve my academic performance.					
2	Peers who are important to me would think that I should use social media to learn.					
3	My family thinks that I should use online peer learning to develop my academic performance.					
4	Using social media networks is considered as a symbolic status among my friends.					
5	Friends who use social media for learning have the record of better performance.					
6	Lecturers who influence my behavior think that I should use social media networks in my learning process.					

# **B** (6) Performance expectancy

No.	Items	1	2	3	4	5
		(SD)	(D)	(N)	(A)	(SA)
1	I feel that using social media networks helps me learn more about my subjects.					
2	I feel that using social media networks to improve my satisfaction with my studies.					
3	I feel like I can get better grades if I use social media networks.					
4	I think lecturers should use social media tools more frequently in education.					
5	The online peer learning, enabling me to access information whenever I need.					
6	The online peer learning provides an equal chance to all peers to carry out their homework.					
7	The online peer learning provides an equal chance to all peers to carry out their duties.					

# Appendix C: Content Validity

FAKULTI PENGAJIAN PENDIDIKAN FACULTY OF EDUCATIONAL STUDIES	
9/December/2014	
Dr. Mas Nida binti Haji Md Khambari, JabatanPendidikan Sins & Teknikal FakultiPengajianPendidikan Universiti Putra Malaysia 43400 Serdang Selangor	
Puan,	
PERLANTIKAN SEBAGAI PANEL PENGHAKIMAN INS	TRUMEN
Dengan segala hormatnya ingin saya merujuk kepada perkara di	atas.
Sehubungan dengan itu, saya ingin melantik Puan sebagai pan oleh Ibrahim Mohammed Hamad Amin (NomborMatrik: GS 35- Jabatan Asas Pendidikan , Fakulti Pengajian Pendidikan , Un bawah penyelisan saya.	nel penghakiman instrumen yang dibina 466),pelnjar master Sosiologi Pendidikan, siversiti Putra Malaysia.Pelajar Ijazah di
Tajuk penyelidikan beliau ialah "Factors Influencing Students" Learning among UPM Undergraduate Students."	Academic Achievement in Online Peer
Kerjasama dan sokongan Puan dalam mempertingkatkan kualit ribuan terima kasih.	ti penyetidikan didahului dengan ucapan
Sekian.	
Dr. Norliza binti Che Hassan Jahatan Pendidikan Sins & Teknikal Fakulti Pengajian Pendidikan Universiti Buta Melawin	ž
43400 Serdang Selangor	

G





#### 6/Nov./2014

Dr. Nor Aniza Ahmad Department of Educational Psychology Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor

Through:

Dr.Norliza Bte Che Hassan Department: of Foundation Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor

Dear, Madam

#### REQUEST TO VALIDATE THE CONTENT OF THE QUESTIONNAIRE

1 am Ibrahim Mohammed Hamad Amin (Matric Number: GS 35466) a master student in Sociology of education, Department of Foundation, Faculty of Educational Studies, University Putra Malaysia.

I am currently doing my research entitled (Factors Influencing Students' Academic Achievement in Online Peer Learning among UPM Undergraduate Students) under supervision of Dr.Norliza Che Hassan.

I am writing this letter to seek Dr's kind assistance to be the validation panel of my thesis questionnaires. I would very much appreciate and sincerely hope that Dr. can assist me by checking my questionnaires (instrument).

I will highly appreciate if you are willing to help me in validating this questionnaire.

Yours, Faithfully K 20

Ibrahim Mohammed (GS 35466) MSC student Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor Tel No: 018-3997815 Email: atwar.2010/g/yahoo.com







20 Okt 2013

Dr. Ahmad Fauzi Bin Mohd Ayub Department of Foundation of Education Faculty of Educational Studies University Putra Malaysia 43400 Serdang, Selangor.

Through:

Dr.Norlizah Bte Che Hassan Department of Sociology of Education Faculty of Educational Studies University Putra Malaysia 43400 Serdang, Selangor.

Sir.

#### REQUEST TO VALIDATE THE CONTENT OF THE QUESTIONER

I am Ibrahim Mohammed Hamad Amin (Matric Number: GS 35466), a master student from faculty of Educational Studies, University Putra Malaysia.

 I am currently doing my research entitled "The Relationship between Social Media Use, in Learning and Academic performance among Undergraduates in UPM" under supervision of Dr Norlizah Che Hassan.

I am writing this letter to seek Dr's kind assistance to be the validation panel of my tesis questionnaires. I would very much appreciate and sincerely hope that Dr can assist me by checking my questionnaires (instrument).

I will highly appreciate if you are willing to help me in validating this questionnaire. Thank you.

Yours faithfully,

44 -

Ibrahim Mohammed (GS 35466) MSC student Faculty of Educational Studies University Puma Malaysia 43400, Sordang, Selangor Tel No: 011-16373570 Email: atwar.2010@yahoo.com

Fakuti Pengajan Pendidikan, Universiti Putra Malaysia, 43400 UPM Senteng, Selanger Darul Ehsan, Malaysia (2) 603-6946 8110 4, 603-6948 0119 (2) http://www.educ.upm.edu.my





28/Nov./2014

Associate Professor Dr. Wong Su Luan Department of Foundation Studies Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor

Through:

Dr.Norliza Bte Che Hassan Department: of Foundation Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor

Madam,

#### REQUEST TO VALIDATE THE CONTENT OF THE QUESTIONNAIRE

I am Ibrahim Mohammed Hamad Amin (Matric Number: GS 35466) a master student in Sociology of education, Department of Foundation, Faculty of Educational Studies, University Putra Malaysia.

I am currently doing my research entitled (Factors Influencing Students' Academic Achievement in Online Peer Learning among UPM Undergraduate Students) under supervision of Dr.Norliza Che Hassan.

I am writing this letter to seek Dr's kind assistance to be the validation panel of my thesis questionnaires. I would very much appreciate and sincerely hope that Dr. can assist me by checking my questionnaires (instrument).

I will highly appreciate if you are willing to help me in validating this questionnaire.

Yours, Faithfully The Ibrahim Mohammed (GS 35466) MSC student Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor

Tel No: 018-3997815 Email: atwar.2010@yahoo.com

Fakulti Pangajian Pendidikan, Universiti Putra Malaysia, 43400 UPM Serdeng, Selangor Darul Ehsan, Malaysia
 603-6846 8110 — 603-6948 0119 
 http://www.educ.upm.edu.my





#### 6/Nov./2014

Prof. Madya Dr. Ratna Roshida Ab. Razak Department of Government and Civilization University Putra Malaysia 43400 Serdang Selangor

#### Through:

Dr. Norliza Bte Che Hassan Department: of Foundation Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor

Dear, Madam

#### REQUEST TO VALIDATE THE CONTENT OF THE QUESTIONNAIRE

I am Ibrahim Mohammed Hamad Amin (Matric Number: GS 35466) a master student in Sociology of education, Department of Foundation, Faculty of Educational Studies, University Putra Malaysia.

I am currently doing my research entitled (Factors Influencing Students' Academic Achievement in Online Peer Learning among UPM Undergraduate Students) under supervision of Dr.Norliza Che Hassan.

I am writing this letter to seek Dr's kind assistance to be the validation panel of my thesis questionnaires. I would very much appreciate and sincerely hope that Dr. can assist me by checking my questionnaires (instrument).

I will highly appreciate if you are willing to help me in validating this questionnaire.

Yours, Faithfully SE the

Brahim Mohammed (GS 35466) MSC student Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor Tel No: 018-3997815 Email: atwar.2010/@yahoo.com





#### 18/Nov./2014

#### Siti Suria Salim

Department: of Foundation Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor

#### Through:

Dr.Norliza Bte Che Hassan Department: of Foundation Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor

Dear, Madam

#### REQUEST TO VALIDATE THE CONTENT OF THE QUESTIONNAIRE

I am Ibrahim Mohammed Hamad Amin (Matric Number: GS 35466) a master student in Sociology of education, Department of Foundation, Faculty of Educational Studies, University Putra Malaysia.

I am currently doing my research entitled (Factors Influencing Students' Academic Achievement in Online Peer Learning among UPM Undergraduate Students) under supervision of Dr.Norliza Che Hassan.

I am writing this letter to seek Dr's kind assistance to be the validation panel of my thesis questionnaires. I would very much appreciate and sincerely hope that Dr. can assist me by checking my questionnaires (instrument).

I will highly appreciate if you are willing to help me in validating this questionnaire.

Yours, Faithfully 1 bries

Ibrahim Mohammed (GS 35466) MSC student Faculty of Educational Studies University Putra Malaysia 43400 Serdang Selangor Tel No: 018-3997815 Email: atwar.2010@yahoo.com

### **Appendix D: Reliability Analysis**

### Scale: Academic Self-efficacy

### **Case Processing Summary**

		N	%
Cases	Valid	328	100.0
	Excluded <sup>a</sup>	0	.0
	Total	328	100.0

a. Listwise deletion based on all variables in the

procedure.

### **Reliability Statistics**

Cronbach's Alpha	N of Items
.716	6

Scale: Peer Engagement

### **Case Processing Summary**

		N	%
Cases	Valid	328	100.0
	Excluded <sup>a</sup>	0	.0
	Total	328	100.0

a. Listwise deletion based on all variables in the procedure.

### **Reliability Statistics**

Cronbach's Alpha	N of Items
.768	7

### Scale: Peer Feedback

|--|

		Ν	%
Cases	Valid	328	100.0
	Excluded <sup>a</sup>	0	.0
	Total	328	100.0

a. Listwise deletion based on all variables in the procedure.

### **Reliability Statistics**

Cronbach's Alpha	N of Items
.790	9

### Scale: Collaboration

### **Case Processing Summary**

		N	%
Cases	Valid	328	100.0
	Excluded <sup>a</sup>	0	.0
	Total	328	100.0

a. Listwise deletion based on all variables in the

procedure.

### **Reliability Statistics**

Cronbach's Alpha	N of Items
.801	9

### **Scale: Social Influence**

Case Processing Summary					
N %					
Cases	Valid	328	100.0		
	Excluded <sup>a</sup>	0	.0		
	Total	328	100.0		

a. Listwise deletion based on all variables in the procedure.

#### **Reliability Statistics**

Cronbach's Alpha	N of Items	
.821	6	

### Scale: Performance Expectancy

### Case Processing Summary

		Ν	%
Cases	Valid	328	100.0
	<b>Excluded</b> <sup>a</sup>	0	.0
	Total	328	100.0

a. Listwise deletion based on all variables in the procedure.

### **Reliability Statistics**

Cronbach's	
Alpha	N of Items
.769	6

# **Appendix E: Normality Test**

### **Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>		Shapiro-V	Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Academic Self_Efficacy	.103	328	.000	.982	328	.000
Peer Engagement	.136	328	.000	.976	328	.000
Peer_Feedback	.058	328	.010	.989	328	.017
Collaboration	.064	328	.002	.990	328	.019
Social_Influence	.076	328	.000	.989	328	.012
Performance_Expectancy	.086	328	.000	.983	328	.001

a. Lilliefors Significance Correction

		Statistic	Std. Erro
Academic Self_Efficacy	Mean	3.7139	.02601
	95% Confidence IntervalLower Bound	3.6628	
	for Mean Upper Bound	3.7651	
	5% Trimmed Mean	3.7173	
	Median	3.6667	
	Variance	.222	
	Std. Deviation	.47110	
	Minimum	2.50	
	Maximum	4.83	
	Range	2.33	
	Interguartile Range	.67	
	Skewness	141	.135
	Kurtosis	107	.268
Peer Engagement	Mean	3.9011	.02486
	95% Confidence IntervalLower Bound	3.8522	
	for Mean Upper Bound	3.9500	
	5% Trimmed Mean	3.8952	
	Median	3.8571	
	Variance	.203	
	Std. Deviation	.45022	
	Minimum	2.86	
	Maximum	5.00	
	Range	2.14	_
	Interquartile Range	.57	105
	Skewness	.191	.135
Deen Feedlas -1-	Kurtosis	.066	.268
Peer_Feedback	Mean 05% Confidence Intervell ower Downd	3.03/3	.02586
	95% Confidence IntervalLower Bound for Mean	3.3807 2.6997	
	5% Trimmed Mean	3.0004	
	Median	3 6667	
	Variance	.219	1
	Std Deviation	46841	
	Minimum	2.56	
------------------------	------------------------------------	--------	----------
	Maximum	4.78	
	Range	2.22	
	Interquartile Range	.67	
	Skewness	.087	.135
	Kurtosis	325	.268
Collaboration	Mean	3.6795	.02615
	95% Confidence IntervalLower Bound	3.6281	
	for Mean Upper Bound	3.7310	
	5% Trimmed Mean	3.6740	
	Median	3.6667	
	Variance	.224	
	Std. Deviation	.47363	
	Minimum	2.44	
	Maximum	4.89	
	Range	2.44	1
	Interquartile Range	.67	1
	Skewness	.106	.135
	Kurtosis	258	.268
Social Influence	Mean	3 4822	03317
Social_inituence	95% Confidence IntervalLower Bound	3 4170	.05517
	for Mean Upper Bound	3 5475	
	5% Trimmed Mean	3.4831	
	Median	3.5000	
	Variance	.361	
	Std. Deviation	.60066	
	Minimum	2.00	
	Maximum	5.00	
	Range	3.00	
	Interguartile Range	.83	
	Skewness	010	.135
	Kurtosis	289	.268
Performance_Expectancy	Mean	3.7952	.02779
	95% Confidence IntervalLower Bound	3.7406	
	for Mean Upper Bound	3.8499	
	5% Trimmed Mean	3 7944	
	Median	3 8333	<u>+</u>
	Varianco	252	
	Variance Std. Deviation	.233	
		.30329	<u> </u>
	Minimum	2.50	
	Maximum	5.00	
	Range	2.50	
	Interquartile Range	.67	
	Skewness	.020	.135
	Kurtosis	433	.268

# Appendix F: Permission to use Measurement

## Engagement

6/19/2016

Gmail - Seeking for Permission to use and adapt your instrument

M Gmail

ibrahim mohammed <ibrahimkurd10@gmail.com>

# Seeking for Permission to use and adapt your instrument

Diamond-Welch, Bridget <Bridget.K.Diamond-Welch@usd.edu> To: ibrahim mohammed <ibrahimkurd10@gmail.com> Thu, May 5, 2016 at 3:01 PM

Sure. Make sure to reevaluate the engagement measures (read the article we cite).

Let me know if you need anything.

Bridget Diamond-Welch

Sent from my iPad [Quoted text hidden]



## Permission to use Peer Feedback and Peer Learning



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For The Trustees of Indiana University:

Alexander C. McCormick

Director National Survey of Student Engagement

For Licensee:

Ibrahim Mohammed Student University Putra Malaysia

For Advisor:

NOBINGRÍZAN CHE HASSAN

Dr. Habilianstirunibilik Dr. Molizah Che. Hassan Professor University Putra Malaysia

6 June 2. Plk

27/Moy/2016 Date

MAY 2016

Date

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'n

### **Request asking for permission**

6/19/2016

Gmail - Seeking for Permission to use and adapt your instrument

M Gmail

ibrahim mohammed <ibrahimkurd10@gmail.com>

### Seeking for Permission to use and adapt your instrument

ibrahim mohammed <ibrahimkurd10@gmail.com> To: Bridget.K.Diamond-Welch@usd.edu Thu, May 5, 2016 at 5:50 AM

Dear Sir,

My name Ibrahim Mohammed and I am a master student pursuing my Msc in Sociology of Education in Universiti Putra Malaysia. The title of my thesis is "Influential Predictors of Academic Achievement in Online Peer Learning among Undergraduate Students".

During review of literatures, I came across your article entitled "Twittering to increase student engagement in the university classroom (2012)". I have found your article is valuable and I am requesting for your permission to use and adapt the instrument.

I would be very appreciative if you could grant the permission at your earliest convenience.

Thank you so much for your kindness and assistance

Best regards Ibrahim Mohammed Hamad Amin, Postgraduate in Master of Sociology, Faculty of Educational Studies, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

## **BIODATA OF STUDENT**

Ibrahim Mohammed Hamad Amin was born on 1<sup>th</sup> February 1981 in Sulaimaniah, Kurdistan of Iraq. He is married and bless with two children both male and female.

The student obtained his Bachelor degree of Sociology in Faculty of Humanity Science from the University of Sulaimaniah, Kurdistan of Iraq in year 2005. His area of interest is Educational Sociology.

He is currently a social researcher in the Ministry of Education in Kurdistan of Iraq. He was awarded a scholarship by the Ministry of Higher Education in Kurdistan in March, 2012, to purpose the Master Science in the Faculty of Educational Studies in Educational Sociology program with the Universiti Putra Malaysia in February, 2013. He was opportune to attend many national conferences, seminars and workshops organised by the university.

## LIST OF PUBLICATIONS

- Mohammed, I., & Hassan, N. C. & Ab Jalil, H. (2015).Influential Predictors of Students' Academic Achievement in Online Peer Learning Among Undergraduate Students.( Accepted with Journal of New Media and Mass Communication, ISSN (Paper) 2224-3267 ISSN (Online) 2224-3275.
- Mohammed, I., & Hassan, N. C.(2013). The Relationship of Social Media Use in Learning and Academic Performance among Undergraduates in Faculty of Educational Studies, UPM. GRADUATE RESEARCH IN EDUCATION (GREDUC

2013), greduc2013.upm.edu.myhttp://www.greduc2013.upm.edu.my/PDF%20 Files/Greduc048%20Ibrahim%20Muhamad.pdf





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