

## The Relationship between Facebook, Religiosity and Academic Performance

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### Abstract

*Our study empirically examines the effect of student activities on Facebook and religion on academic performance. We extend prior research in this area in a number of ways. First, given the paucity of the research in this area particularly from the Asian context, we provide the evidence from developing country like Malaysia. Second, our sample drawn from Sultan Idris Education University in Malaysia, where graduates from these universities are unique since they are expected to be able to work in both education and industry environment, and presumed to play significant roles in shaping the development of future student's intellectual at the Malaysian secondary school and Malaysian economy in general. Third, we control for religiosity aspect when examining the association between Facebook and academic performance, something that has been predominantly neglected by the prior studies. Fourth, unlike prior studies that circulating around the Christian sphere in measuring religiosity, we provide evidence from the Islamic perspective where the act of worships and practices are much more comprehensive rather than the Christian counterparts. Fifth, we examine whether Facebook activities and religiosity are complementary or substitutive each other in improving student's academic performance. Our sample comprise of 60 undergraduates. Our result exhibit that students with high number of friends on Facebook and frequent engagement on Facebook activities, such as sharing links, send message, posting photo, tagging video as well as spending long hours on Facebook generally are associated with lower academic performance. Our results also reported that student's engagement in religious activities promotes better academic performance. When we examine the potential interaction effect between Facebook and religiosity, our result revealed that religiosity is effective in reducing student's interest on Facebook, hence lead to better academic achievement. In other words, religious student will be less interested in joining activities on Facebook and make them more perform than their counterparts. Our findings from this study should be able to assist the university management in shaping university policies and curriculum to regulate and manage student's activities in order to enhance overall student's quality. Moreover, the findings from this study are also of use to the policy maker such as Malaysian Communication and Multimedia Commissions to regulate the policy on the student's access and activities on Facebook.*

**Keyword:** Facebook; Religiosity; Academic Performance; University management

### Introduction

Our study empirically examines the association between Facebook, religiosity and student's academic performance. We acknowledge that the researches on Facebook are of particularly important since prior literature in this area is lacking (e.g., Junco, 2012; Stollak et al. 2011) especially from the non-US context. Since its introduction in 2004, Facebook is now becoming one of the most popular social networking sites among the youth (Stollak et al. 2011) that create a platform for the users to meet and socialize virtually. Therefore, it is crucial to understand how this virtual social activities influence student's academic behavior. To date, this association is ambiguous because prior studies provide inconclusive findings with respect to the link between student's use of Facebook and their academic performance.

We are concern about the implication of Facebook on the student's performance due to several undisputable facts. In this instance, Facebook is one form of the cyber threat that is presumed to be influential to both emotional and physical aspect of the students because it is one of the cheapest and effective cyber bully mechanisms that can be used by students to threaten their peers. For example, Tyler Clementi, a student at Rutgers University in the US had committed suicide in September 22, 2010, a day after his roommate spread the rumours in his social networking site that Clementi is a gay and he (Clementi roommate) had recorded a video of the sexual behaviour between Clementi and his gay partner. In another case, Keeley Houghton from the UK, has been put in jail in 2009 for three months over the death threat that she posted in the Facebook to Emily Moore, a schoolmate that Houghton had been bullied since four years ago. In a related issue, Megan Gillian, a girl in the UK, had committed suicide by swallowed handful of painkillers after reading her classmates posting complaining about Gillian clothing and appearance. Such harassment or propaganda can badly affect Gillian emotion because it had been posted in a public domain and can be easily access by Gillian schoolmates.

Moreover, Facebook can be functioned as one of the informal and uncontrollable platform for students to invent and involve in a negative and moral degradation programme such as wild party, chaos and upraising. For example, 16 years old Aneesh Shukla invited his friend through the Facebook to join his wild party at his home when his parents are away. His invitation turns to chaos when a group of partygoers came to his house and throwing hard objects to the windows, making noises, shocking his neighbours and let his parent USD1.5 million home badly damage after the tragedy. In a related event, 1,600 partygoers came and make chaos in front of a house of 16 years old girl that cancelled her 16<sup>th</sup> birthday party in last minutes. In order to protect the girl's family, 100 policeman were instructed to be there to control the situation. All of these negative effects of Facebook are not only detrimental to the youth, but it also affects the family, society and community as well as the government in general. Several other crimes involved rape, harassment, stalking and fake online shopping had also been linking to the use of Facebook. Although the advantages of Facebook are widely acknowledged, it is imperative to note that, in general, Facebook brings more harm than good to the quality of student's life. Therefore, policymakers in the University and government need to educate the students about ethics and attitudes on social networking sites, including Facebook.

In Malaysia, Section 233 of Malaysian Communication and Multimedia Act 1998 and Section 114A of the (amendment) Evidence Act 1950 that has been gazetted on 31 July 2012 concentrated on disciplining the internet users to not to misuse of the internet and to avoid spreading harmful contents on the public domain. Unlike in the US and in the UK, these laws are rarely been used in the Malaysian context and it should also be extended to the youth, who are the main users of social networking site and to society at large.

We concentrated on the undergraduates from public universities in Malaysia because the graduates from public university such as Universiti Pendidikan Sultan Idris (UPSI) are mainly designed to be teachers and will be channelled to the secondary school in Malaysia, hence suggesting that any activities that student's engage, whether they are formal or informal, are presumed to be integrated and absorbed as a part of learning process to shape their knowledge, perception, belief and behaviour, that will be directly or indirectly disseminated to the secondary student's in Malaysia. Therefore, a study on the undergraduate's behaviour on Facebook is crucial to understand its implication on their academic performance, while at the same time we acknowledge that graduates need to be fully equipped with relevant knowledge and skills in order for them to act as a role model and effectively contribute to the development of their secondary students eventually.

Our result will be particularly important to the policymakers in the Universities and higher institution in Malaysia and the government in general. To be specific, we expect that the findings from this study should be able to assist the university management in shaping university policies and curriculum to regulate and manage student's activities on in order to enhance overall student's quality, particularly related to the activities that students engage on Facebook. Moreover, the findings from this study are also of use to the policy maker such as Malaysian Communication and Multimedia Commissions to regulate the policy on the student's access and activities on Facebook.

In regard to the role of religiosity in improving academic performance, prior studies mainly rely on Christian parameters where the acts of worship are circulating among church attendance and church activities. We extend prior literature by concentrating on the Muslim viewpoint, where the concept of religion is not only bounded by the act of worship, but also should be integrated holistically as the way

of life. As such, a Muslim should not only try hard to avoid sinful activities such as back-biting, consume alcohol and adultery, but also should manage their time wisely and try to put very best effort in performing their responsibilities by using all capabilities in hand. In a Muslim book, a *Quran*, Chapter (*Surah*) No. 103, describe that the winners are those who have faith and spend their time by doing righteous deeds, teaching the truth and of patience and constancy. This in turn, will make a Muslim become more sensitive about the daily activities that they are engaged in.

Our research may contribute to improve the university policy and curriculum. In particular, if this study found that Facebook activities are negatively associated with student's academic performance, it is alarming that the access on Facebook among students should be restricted. Nonetheless, if this study revealed that Facebook activities increases student's academic outcomes, it is obvious that other costly mechanism that the university use so far (e.g. myGuru in UPSI) should be replaced by Facebook and lecturers also should be train on how to use Facebook interactively and efficiently as one of the learning tools. Moreover, if the latter is the case, university should increase their bandwidth access on Facebook to ensure that the learning process run smoothly.

With regard to the impact of religiosity on academic performance, our research might be beneficial in shaping and designing the university curriculums that are related to increase student's knowledge, piousness and righteousness. This is in corroboration with the highest objectives of the Sultan Idris Education University (in particular) and other universities in general, that is to produce pious graduates that can contribute to the development of the country. This effort can possibly assist the university in achieving its objective. In general, such changes on current university policies and student's curriculum are expected to enhance student's communication skills, knowledge and overall student's quality.

## **Literature Review and Hypotheses Development**

### ***Facebook and Academic Performance***

There is a lack of studies on Facebook and academic performance from the Asian context given that majority of the literature is concentrated on the US or western countries. This, in turn, underscores the need of research from the Asian viewpoint, where religious practices and access on Facebook are different as compared to the US and western counterparts. Moreover, past researches provide a conflicting and inconclusive finding with respect to the link between Facebook activities and academic performance, although both of them based on the similar country i.e., the US. For example, Junco (2012) and Stollak (2011) US study reported that there is a negative relationship between student's time on Facebook and their academic performance, while Kabre and Brown (2011) revealed that longer hours on Facebook has insignificant influence on the student academic performance in the US. In brief, there is no clear evidence on the link between Facebook activities and academic performance according to the prior literature.

Furthermore, prior literature in this area suffers from several shortcomings such as failure to control for religiosity effect when examining the association between Facebook and academic performance (e.g. Hamat et al. 2012; Grosseck et al. 2011), heavily concentrated on the student's perception on Facebook *per se* without proper identification of what they are doing (e.g. Hamat et al. 2012), focused on a small set of sample (e.g. Grosseck et al. 2011) and merely use simple statistical analyses such as descriptive statistics and correlation to examine the data (e.g. Hamat et al. 2012; Grosseck et al. 2011).

In Malaysia, Hamat et al. (2012) examine student's perceptions on their use of social networking sites. Using 6,358 undergraduates and postgraduates as their respondents, their findings demonstrated that majority of students mainly use Facebook for the purpose of socializing rather and academic. A substantial portion (43.7%) of students also agreed that the usage of social network sites does not affect their academic outcomes. Moreover, Hamat et al. (2012) also revealed that majority of student using social networking sites for informal learning process (e.g. contacting coursemate for arranging group discussions, to discuss academic work or to ask for assistance). Similar to Hamat et al. (2012), Grosseck et al. (2011) Romanian study also reported that student's mainly use Facebook for social purpose rather than for academic purpose. Using 131 respondents, Grosseck et al. (2011) further revealed that majority of their respondents use Facebook every day, hence indicating the sign of addiction to Facebook at certain extent.

In the US, Junco (2012) examines the association between student's activities on Facebook and their academic performance by using 1,839 respondents. His research demonstrated that there is a negative relationship between students' spending hours on Facebook and their academic outcomes. This suggests that the higher the number of hour's student spent on Facebook, the lower the grades that they will receive. He also revealed that student's performance also decreases with students' frequency on updating their status on Facebook. This finding is in corroboration with Stollak et al. (2011) US study which reported that student's grades in college decrease with longer hour on Facebook. They also revealed that majority of students spend longer hour on Facebook daily as compared to other social networking sites such as YouTube, blog, Twitter, MySpace and LinkedIn. In a same vein, a study by Kirdschner and Karpinski (2010) also demonstrated that there is a significant negative effect between student's use of Facebook and their grades in the US. Moreover, they also reported that Facebook users tend to spent less time on their study than their counterparts. Nonetheless, not all of the US researches are in agreement with respect to the impact of Facebook on academic outcomes. For example, another research from the southern part of the US, Kabre and Brown (2011) exhibited that the number of hours on Facebook is not associated with students' academic outcomes or the quality of life among 209 college students. This indicates that more research needs to be done to explain the impact of student's choice of activities and their academic performance.

### ***Religiosity and Academic Performance***

Prior studies in religiosity and academic performance are very limited and majority of them focused on the Christian viewpoint (e.g. Kang and Romo, 2011) while studies based on Islamic environment is lacking. While studies on the Christian regime are much more focused on general act of worship such as the church engagement and church attendance (e.g. Kang and Romo, 2011), their findings obviously cannot be generalised to other religion such as Islam. In this instance, our study will be concentrated on the Islamic viewpoint, where the act of worship is much more comprehensive and holistic (e.g. compulsory and non-compulsory of act of worship). Compulsory act of worship comprises of pray 5 times a day, fasting in the month of Ramadhan, almsgiving (*zakat*) at 2.5% of wealth and perform Hajj in Mecca once in a lifetime. The non-compulsory act of worships including additional praying and fasting beyond obligatory requirements for the believer (Muslim).

Cannon et al. (2005) investigate the association between religiosity and academic performance at Brigham Young University. Using correlation analysis, they found that student's academic performance increases with intrinsic religiosity and decreases with extrinsic religiosity. This finding suggests that types of religiosity are influential to student's academic process. Nonetheless, it is important to note that they are not analysing the data using multivariate analyses, hence we are unable to grasp whether their result is maintained after controlling for other factors (e.g., gender, family education, Facebook activities). Cannon et al. (2005) describe "personal belief systems" as a part of intrinsic religiosity while extrinsic religiosity refers to "a passive or social" religiosity (p. 14). They also explained that example of question related to intrinsic religiosity is "I enjoy reading about my religion" while questions related to measure extrinsic religiosity such as "I go to church because it helps me make friends" (p. 13).

In Los Angeles, Kang and Romo (2011) examine the relationship between religiosity and (i) depression (ii) risky behaviour and (iii) academic achievement. Using 248 Korean American adolescent as respondents, their findings demonstrate that religiosity increases the grades for male students while increases the depression among the female students. Jeynes (1999) examine the relationship between religiosity and academic performance using 24,599 Black and Hispanic children in the US in the year 1988 to 1992. He reported that highly religious children perform better in academics than their counterparts.

### ***Hypothesis Development***

#### ***Facebook Activities***

According to Kirschner and Karpinski (2010), students nowadays tend to study and to access the social networking sites simultaneously. This multitasking behavior, not only increases student's chance of doing mistakes and reduce time efficiency (Ophira et al. 2009), but also affect the outcome of their productivity (Xu, 2008). Given that the sound academic outcome largely depends on the amount of time

devoted for academic purpose (Chickering and Gamson, 1987), it is argued that student who spend less time studying have a greater propensity to suffer lower grades than students who are dedicated at studying. Facebook activities are basically addictive (Stollak et al. 2011) and on average will eat student productive hours unconsciously. This in turn will reduce student's amount of hours on studying, consequently lead to lower academic achievement.

Prior studies exhibit that student's use of Facebook is negatively associated with their grades (e.g. Choney, 2010; Kirschner and Karpinski, 2010; Junco, 2012), reduce their study hours (Kirschner and Karpinski, 2010), and perform less than the non-Facebook users. Therefore, student's commitment on Facebook can affect their study hours and consequently reduce their academic performance. With that, our first hypothesis is;

**H<sup>1</sup>:** *Ceteris paribus*, there is a negative relationship between Facebook activities and academic performance

### *Religiosity Commitment*

From the Islamic point of view, hardworking is one of the highest virtues that believers should attain and it has been clearly mentioned in the Qur'an and *hadith*. In this instance, *Hadith* is the sayings and practices of Prophet Muhammad (peace be upon him). For example, Muslims are encouraged to seek for Allah's protection from laziness and anxiety, working hard every day so that the small sin could be forgiven, avoid begging to people. Allah loves those who are highly determined on their jobs, use all capabilities in hands for the benefit of mankind and try to manage and spent time wisely. Thus, Islam is one of the religions that inspire and promote their believers to work hard in order to attain success, not only in this world, but also in the hereafter. We recognize that Islam is not the only religions that promote hardworking, discipline and time management. We concentrate on Islam because from Malaysian context in general and Sultan Idris Education University in particular, other religions such as Christian, Buddhism and Hindu are outnumbered compared to Islam.

The association between religiosity and hard work has also been recorded by prior literature. For example, Elci (2007) demonstrated that the correlation between religiosity and hardworking is significantly positive based on his study in Turkey. In addition, research has also shown that student's grades (among boys) increases with their engagement on church which developed their personal spirituality (Kang and Romo, 2011). Moreover, prior study also indicates that religious students outperformed non-religious students in academic and this result is robust after controlling for demographic factors such as gender, socioeconomic and student's background (Jeynes, 1999).

Given that religiosity is found to be associated with hard work (e.g. Elci, 2007) which eventually lead to success, we posit that student who are more religious will work harder and perform better in their academic as compared to the non-religious students. Hence, our second hypothesis is:

**H<sup>2</sup>:** *Ceteris paribus*, there is a positive relationship between religious commitments and academic performance

### *Facebook and Religiosity*

Jeynes (1999, p. 463) opines that the more religious the student, the more they tend to protect themselves from "undisciplined and harmful" activities that can possibly affect their academic performance. With that, we predict that religious students have a stronger self-control to not to socialise and interact with their friends and relatives (e.g. on Facebook) without any specific purpose that can contribute to improve their academic performance given that they value the time, hard work and effort differently as compared to the non-religious students. In other words, they will be more sensitive about all activities that they intend to engage and will make judicial judgement on them. Hence, we argue that religiosity possibly moderates the link between Facebook and academic performance. To test this hypothesis, we will create an interaction terms FACE\*RELI. Hence, our third hypothesis is;

**H<sup>3</sup>:** *Ceteris paribus*, there is an interaction effect between religiosity commitment and Facebook activities on academic performance

## Research Methodology

### Sample and Research Design

Our sample comprise of 60 undergraduates UPSI. We will ask our respondent about their Facebook and religious activities during the academic year 2011/ 2012 using a set of questionnaire. We concentrated on undergraduate students because college students within the age of 18-24 are mainly active users on Facebook and it is accelerating at 74% per annum (digitalbuzz, 2011, as cited in Grosbeck et al. 2011, p. 1426).

We focused on Facebook rather than other social networking sites (e.g. Twitter or mySpace) because Stollak et al. (2011) found that 78% of their respondents spent more time on Facebook rather than other social networking sites (e.g. You Tube, blogs, Twitter, MySpace and LinkedIn). This indicates that Facebook outperformed other social networking sites among college students.

### Instrument

We divide our questionnaire into 3 main sections:

Part I: Questions related to student's profile and academic background

Part II: Questions related to Facebook activities

Part III: Questions related to religious commitments

### Model

$$ACADEMIC = FBSCORE + RELISCORE + FBSCORE * RELISCORE + CONTROLS + e$$

Table 1: Variable Definitions

<i>ACADEMIC</i>	=	<i>Student's Cumulative Grade Point Average (CGPA) at the end of semester II 2011/2012</i>
<i>FBSCORE</i>	=	<i>Facebook activities during semester II 2011/2012</i>
<i>RELISCORE</i>	=	<i>Religiosity commitments during academic year (semester II, 2011/2012)</i>
<i>FBSCORE*RELISCORE</i>	=	<i>Interaction terms between Facebook and religiosity</i>
<i>CONTROLS</i>	=	<i>A set of control variables including gender, year of study, age and family socioeconomic.</i>
<i>e</i>	=	<i>Error terms</i>

### Statistical Analyses

We analysed our data using descriptive statistics to understand the patterns of our data. Pairwise Correlation analysis will be used to identify the coefficient correlation between all variables. Further test using t-test or Mann-Whitney U test will be employed to understand the different mean between two groups of sample (e.g. male vs female). Finally, we will run multivariate regression to see the impact of Facebook and religious commitment on academic performance by controlling for the set of comprehensive control variables.

## Results and Discussions

### Descriptive Statistics

In Table 2, we present the descriptive statistics for all variables related to Facebook, academic performance and religiosity. In our study, FBSCORE is the mean for all Likert-scale marks related to Facebook usage and activity while RELISCORE represent the mean for all Likert-scale marks related to religiosity activities. Our Likert scale is from 1-5. The mean for age is 21.95, with a minimum of 20 and maximum of 26. The income of the student’s family is within the range of RM250 to RM7000. In terms of location, majority of the respondents come from the rural area. With regard to gender, female dominates the respondents and this is a pretty fair view of the gender population in any universities in Malaysia particularly, and in any part of the world, generally. In respect to academic performance, four different measures are used (i.e., mid-term exam, coursework, final exam and total results). The mean for mid-term exam result, coursework, final exam and total results are 14.54, 33.03, 23.37 and 70.95 respectively. The mean for overall FBSCORE is 48.98, with the minimum of 34 and maximum of 62. The higher the FBSCORE indicates that the students are more active in engaging activities on Facebook. The lower the FBSCORE exhibit that students engage less in facebook activities (i.e, playing games, posting status, etc). Concerning RELISCORE, the mean for this variable is 231.63, with the minimum of 154 and maximum of 281. The higher the RELISCORE indicates that the higher the student’s engage in religious activities, thus might improves their level of piousness and righteousness and vice versa.

Table 2: Descriptive Statistics

Variables	Mean	Minimum	Maximum	25% perc	50% perc	75% perc
Age	21.95	20	26	21	22	22
Income	RM1830	RM250	RM7000	RM700	RM1119	RM2500
Location	1.683	1	2	1	2	2
Gender	1.866	1	2	2	2	2
Mid	14.54	6	19	13	15	17
Coursework	33.033	30	36.5	31	33.5	34
Final	23.37	12.7	32.38	20.47	23.97	25.71
Total	70.95	56.18	82.3	65.455	72.31	76.32
FBSCORE	48.98	34	62	44.5	48	54
RELISCOR E	231.63	154	281	219.5	235	248

### T-Test

Table 3: T-test

Variables	Groups	Mean differences	P-Value
FBSCORE	1 (N=8)	45.75	P=0.1425
	0 (N=52)	49.48	
RELISCORE	1 (N=8)	205.75	P=0.0009***
	0 (N=52)	235.62	
Total	1 (N=8)	68.28	P=0.2214
	0 (N=52)	71.36	

We present our T-test results in Table 3. In t-test, we examine the mean differences between two different groups (i.e., male=1, female=0). In Table 3, we can see that FBSCORE and Total marks didn't show any significant different between male and female group. However, RELIScore indicates significant different between male and female at  $p < 0.01$ , whereby, the mean of religiosity for female students is 235.62, which is higher than the male counterparts, that is 205.7.

### ***Regression on Facebook and Academic Performance***

#### ***Linear Regression Analysis***

We present the result for linear regression analysis on the implication of facebook and academic performance (measured using Mid-Term exam results) in Table 4. It can be seen that gender is positively related to mid-term academic performance, thus suggesting that female perform better than the male in mid-term exam. This finding is reported consistently in all model (i.e., Model 1, 2 and 3) of Table 4, at  $p < 0.05$ ,  $p < 0.05$  and  $p < 0.01$  respectively. In model 2, our result also reported that frequent visit to Facebook reduces the mid-term exam result (coef= -1.778,  $p < 0.05$ ). Moreover, our results in Table 4 also recorded that there is a significant positive association between posting video (coef=1.35,  $p < 0.05$ ) and getting information (coef=2.207,  $p < 0.05$ ) on Facebook and mid-term exam results. This suggest that the higher the student post videos and getting information on Facebook, the better they performed in their mid-term exam. Given that we are not specific about what kind of information that student search on Facebook or what kind of video that they share on Facebook, we are unable to draw any conclusion based on this limited information. However, we suggest that posting beneficial video and getting beneficial information can possibly increase student knowledge and capability, hence improving their grades in mid-term exam.

In Table 5, we substitute mid-term exam result with coursework mark that basically represent long-term student's achievement which covers an entire semester. Our main variables reported significant negative relationship between length of stay on Facebook (coef= -0.489,  $p < 0.1$ ) and posting photo on Facebook (coef = -0.788,  $p < 0.05$ ) and the coursework mark. This finding suggest that the longer the student spent time on Facebook, and the frequent they posting photo on Facebook, the lower the coursework mark that they received. This implies that, long hours on Facebook reduce student ability to focus on the coursework activities (e.g. assignment, quizzes, etc), hence lead them to gain lower coursework mark compared to their counterparts. Moreover, if student posting photo frequently, it will significantly affect their study time, hence will affect their coursework performance. Other control variables such as age (coef= 0.444,  $p < 0.1$ ) and income (coef=0.0004,  $p < 0.05$ ) reported significant positive association with coursework mark. This indicate that the higher the student's age and family income, the better the coursework mark that they will receive.

With regard to Table 6, we employed final exam result as a proxy for academic performance. Our results exhibit that several main variables – that are posting video (coef=1.46,  $p < 0.05$ ), and using Facebook to get information (coef=2.385,  $p < 0.01$ ) offers significant positive relationship with final exam results, while several other variables reported significant negative association with final exam, including number of friends (coef=-2.077,  $p < 0.05$ ), share links (coef=-2.538,  $p < 0.05$ ), send message (coef = -1.216,  $p < 0.05$ ), tagging video (coef = -1.553,  $p < 0.05$ ) and communication with teachers (coef= -1.672,  $p < 0.05$ ). This results generally suggest that spending more time on Facebook for the purpose of sending message, share links, tagging video, and communication with teachers on Facebook and large number of friends reduce student tendency to gain high marks during final exam.

In Table 7, where overall results (by combining the mid-term, coursework and final exam marks) is used as a proxy for academic performance, our results reported mainly similar results with our findings in Table 6, where length of stay (coef= -1.903,  $p < 0.05$ ), share links (coef= -3.195,  $p < 0.05$ ) and communication with teachers on facebook (coef= -3.219,  $p < 0.05$ ) reported significant negative relationship with overall marks, while posting videos (coef=3.308,  $p < 0.05$ ) and getting information through Facebook (coef=4.507,  $p < 0.05$ ) reported significant positive association with overall marks.



Table 4: Linear Regression on the relationship between Facebook and Mid-Term academic performance

Variables	Model 1 Coef (t-stat)	Model 2 Coef (t-stat)	Model 3 Coef (t-stat)
Age	-0.232 (-0.77)	-0.277 (-0.77)	-0.263 (-0.58)
Income	-0.00001 (-0.12)	0.0000612 (0.36)	0.00044 (1.57)
Location	-0.6443 (-0.88)	-0.6211 (-0.80)	-0.467 (-0.40)
Gender	<b>2.549**</b> <b>(2.25)</b>	<b>3.039**</b> <b>(2.49)</b>	<b>3.973***</b> <b>(2.94)</b>
MembershipDuration		1.414 (1.57)	0.3006 (0.24)
FrequentVisit		<b>-1.778**</b> <b>(-2.10)</b>	-1.67 (-1.68)
Lengthstay		-0.307 (-1.03)	-0.68 (-1.30)
No.friends		-0.002 (-0.00)	-0.558 (-0.69)
Playgames			0.464 (0.96)
Poststatus			-0.625 (-0.76)
Sharelinks			-0.38 (-0.64)
Sendmessage			-0.183 (-0.37)
Commenting			0.147

			(0.27)
Chatting			-0.676 (-0.91)
Checkingsomeone			-0.161 (-0.28)
CreatingRSVP			0.0213 (0.03)
Postphoto			-0.332 (-0.57)
Tagphote			-0.836 (-1.21)
Viewphoto			-0.539 (-0.73)
Postvideo			<b>1.35**</b> <b>(2.38)</b>
Tagvideo			0.169 (0.26)
Viewvideo			0.591 (1.15)
Getinfo			<b>2.207**</b> <b>(2.26)</b>
Comteachers			-1.047 (-1.46)
Meetnewpeople			0.391 (0.47)
_cons	<b>15.972**</b> <b>(2.21)</b>	20.008 (2.10)	21.941 (1.66)

N	58	58	58
F	2.42	1.76	1.62
Prob>F	0.0601	0.1075	0.0992
R <sup>2</sup>	0.0950	0.1908	0.4381

Note: Figures in non-parentheses (parentheses) is the coefficient (t-statistics).

Table 5: Linear Regression on the relationship between Facebook and Coursework Academic Performance

Variables	Model 1	Model 2	Model 3
	Coef (t-stat)	Coef (t-stat)	Coef (t-stat)
Age	0.266 (1.65)	0.247 (1.14)	<b>0.444*</b> <b>(1.74)</b>
Income	0.00001 (0.07)	0.0000557 (0.28)	<b>0.0004**</b> <b>(2.05)</b>
Location	-0.2266 (-0.38)	-0.163 (-0.27)	0.4488 (0.67)
Gender	-0.7051 (-0.93)	-0.561 (-0.65)	-0.894 (-0.99)
MembershipDuration		-0.3448 (-0.46)	-0.213 (-0.33)
FrequentVisit		-0.785 (-1.21)	-0.604 (-0.86)
Lengthstay		-0.245 (-1.19)	<b>-0.489*</b> <b>(-1.95)</b>
No.friends		0.1965 (0.58)	-0.038 (-0.08)
Playgames			0.2089 (0.60)
Poststatus			-0.081

			(-0.16)
Sharelinks			-0.274 (-0.54)
Sendmessage			-0.1803 (-0.46)
Commenting			0.5314 (1.26)
Chatting			0.5049 (1.05)
Checkingsomeone			0.6625 (1.4)
CreatingRSVP			-0.647 (1.40)
Postphoto			<b>-0.788**</b> <b>(-2.13)</b>
Tagphote			-0.486 (-1.10)
Viewphoto			-0.195 (-0.40)
Postvideo			0.4919 (0.94)
Tagvideo			0.186 (0.38)
Viewvideo			0.287 (0.78)
Getinfo			-0.085 (-0.16)
Comteachers			-0.5003

			(-1.15)
Meetnewpeople			0.31 (0.72)
_cons	<b>28.83***</b> (7.32)	<b>34.19***</b> (6.40)	<b>28.56***</b> (3.94)
N	58	58	58
F	0.85	0.70	4.65
Prob>F	0.5002	0.6909	0.0000
R <sup>2</sup>	0.043	0.106	0.4842

Note: Figures in non-parentheses (parentheses) is the coefficient (t-statistics).

Table 6: Linear Regression on the relationship between Facebook and Final Exam Academic Performance

Variables	Model 1	Model 2	Model 3
	Coef (t-stat)	Coef (t-stat)	Coef (t-stat)
Age	-0.141 (-0.33)	0.038 (0.08)	0.5088 (0.89)
Income	0.00064 (1.81)	<b>0.0007*</b> (1.97)	<b>0.001***</b> (3.49)
Location	0.349 (0.28)	0.4413 (0.36)	-0.198 (-0.17)
Gender	2.2880 (1.64)	<b>2.963**</b> (2.06)	<b>3.969*</b> (2.01)
MembershipDuration		-0.515 (-0.31)	-0.92 (-0.80)
FrequentVisit		-0.663 (-0.46)	0.4048 (0.40)

Lengthstay		-0.369 (-1.00)	<b>-0.732*</b> <b>(-2.00)</b>
No.friends		<b>-1.162*</b> <b>(-1.87)</b>	<b>-2.077**</b> <b>(-2.41)</b>
Playgames			-0.449 (-0.66)
Poststatus			-1.141 (-1.13)
Sharelinks			<b>-2.538**</b> <b>(-2.7)</b>
Sendmessage			<b>-1.216**</b> <b>(-2.29)</b>
Commenting			0.643 (0.81)
Chatting			0.0401 (0.06)
Checkingsomeone			0.295 (0.42)
CreatingRSVP			-0.421 (-0.53)
Postphoto			-0.802 (-1.15)
Tagphote			-0.101 (-0.12)
Viewphoto			-0.385 (-0.61)
Postvideo			<b>1.46**</b> <b>(2.08)</b>

Tagvideo			<b>-1.553**</b> <b>(-2.09)</b>
Viewvideo			0.854 (1.21)
Getinfo			<b>2.385***</b> <b>(3.07)</b>
Comteachers			<b>-1.672**</b> <b>(-2.2)</b>
Meetnewpeople			0.986 (1.49)
_cons	20.45** (2.03)	25.57** (2.02)	21.433 (1.57)
N	58	58	58
F	1.28	1.16	4.26
Prob>F	0.2906	0.3420	0.001
R <sup>2</sup>	0.0704	0.1564	0.6229

Note: Figures in non-parentheses (parentheses) is the coefficient (t-statistics).

Table 7: Linear Regression on the relationship between Facebook and Overall Academic Performance

Variables	Model 1	Model 2	Model 3
	Coef (t-stat)	Coef (t-stat)	Coef (t-stat)
Age	-0.107 (-0.15)	0.0082 (0.01)	0.6903 (0.69)
Income	0.0006 (1.32)	<b>0.00085*</b> <b>(1.84)</b>	<b>0.0021***</b> <b>(3.66)</b>
Location	-0.523 (-0.29)	-0.343 (-0.20)	-0.216 (-0.11)

Gender	4.1321 (1.66)	<b>5.442**</b> <b>(2.18)</b>	<b>7.052**</b> <b>(2.36)</b>
MembershipDuration		0.5546 (0.20)	-0.832 (-0.35)
FrequentVisit		-3.226 (-1.38)	-1.878 (-0.91)
Lengthstay		-0.922 (-1.42)	<b>-1.903**</b> <b>(-2.22)</b>
No.friends		-0.968 (-0.84)	-2.675 (-1.69)
Playgames			0.224 (0.21)
Poststatus			-1.847 (0.21)
Sharelinks			<b>-3.195**</b> <b>(-2.26)</b>
Sendmessage			-1.579 (-1.64)
Commenting			1.322 (1.01)
Chatting			-0.131 (-0.10)
Checkingsomeone			0.797 (0.77)
CreatingRSVP			-1.046 (-0.70)
Postphoto			-1.922 (-1.65)



Tagphoto			-1.424 (-0.93)
Viewphoto			-1.119 (-0.73)
Postvideo			<b>3.308**</b> <b>(2.44)</b>
Tagvideo			-1.197 (-0.88)
Viewvideo			1.733 (1.53)
Getinfo			<b>4.507**</b> <b>(2.59)</b>
Comteachers			<b>-3.219**</b> <b>(-2.29)</b>
Meetnewpeople			1.687 (1.21)
_cons	<b>65.265***</b> <b>(3.76)</b>	<b>79.77***</b> <b>(3.51)</b>	<b>71.93**</b> <b>(2.58)</b>
N	58	58	58
F	1.80	1.64	3.26
Prob>F	0.1419	0.1386	0.0009
R <sup>2</sup>	0.0526	0.1436	0.5629

Note: Figures in non-parentheses (parentheses) is the coefficient (t-statistics).

### ***Regression on Religiosity and Academic Performance***

Table 8: Linear Regression on Religiosity and Academic Performance

	Model 1 Coef (t-stat)	Model 2 Coef (t-stat)	Model 3 Coef (t-stat)	Model 4 Coef (t-stat)
DV	Mid	Coursework	Final	Total

Religiosity	0.0051 (0.26)	<b>0.0378***</b> (3.49)	<b>0.0537***</b> (2.90)	<b>0.0966***</b> (2.70)
Age	-0.245 (-0.78)	0.1717 (0.89)	-0.275 (-0.64)	-0.348 (-0.45)
Gender	2.415* (1.99)	<b>-1.688***</b> (-2.77)	0.8908 (0.75)	1.617 (0.74)
Income	0.000 (-0.06)	0.000085 (0.62)	<b>0.0007**</b> (2.25)	<b>0.0008*</b> (1.99)
Location	-0.649 (-0.87)	-0.267 (-0.5)	0.2906 (0.25)	-0.627 (-0.37)
_cons	<b>15.302**</b> (2.00)	<b>23.913***</b> (5.55)	13.455 (1.33)	<b>52.67***</b> (2.96)
N	58	58	58	58
F	1.84	5.09	3.15	3.82
p>F	0.1217	0.0007	0.0148	0.0051
R-sq	0.0964	0.2240	0.1499	0.1535

Note: Figures in non-parentheses (parentheses) is the coefficient (t-statistics).

We present the regression result between religiosity activities and academic performance in Table 8. We used mid-term exam, coursework, final exam and total marks for dependent variables in Model 1, 2, 3 and 4 respectively. As finding, our result exhibit that religiosity is positively related to academic performance (measured using coursework, final exam and total marks) at  $p < 0.01$ ,  $p < 0.01$  and  $p < 0.01$  respectively. This suggest that the higher the student engage in the religious activities, the better they performed in their academic performance. Our R-squared is within 0.0964 to 0.1535. Income show significant positive link with academic performance, as indicated in Model 3 and 4. In other words, students from high income family perform better than students from low income family.

### ***Interaction between Facebook and Religiosity on Academic Performance***

Table 9: Linear Regression on the Interaction between Facebook and Religiosity on Academic Performance

	Model 1 Coef (t-stat)	Model 2 Coef (t-stat)	Model 3 Coef (t-stat)	Model 4 Coef (t-stat)
DV	Mid	Coursework	Final	Total
FBSCORE*RELISCO RE	<b>0.0053***</b> (3.32)	<b>0.0034***</b> (3.81)	-0.0026 (-1.22)	<b>0.0062*</b> (1.72)
RELISCORE	<b>-0.248***</b> (-3.01)	<b>-0.123***</b> (-2.84)	0.176* (1.83)	-0.195 (-1.11)
FBSCORE	<b>-1.257***</b> (-3.47)	<b>-0.822***</b> (-3.90)	0.396 (0.81)	<b>-1.684**</b> (-2.08)
Age	-0.378 (-1.1)	0.0634 (0.28)	-0.107 (-0.23)	-0.422 (-0.48)
Gender	3.645*** (2.77)	-1.303 (-1.70)	1.558 (1.09)	3.9008 (1.55)
Income	0.0002 (1.30)	0.00023 (1.69)	<b>0.0008*</b> (1.94)	<b>0.00128**</b> (2.69)
Location	-0.493 (-0.63)	-0.112 (-0.24)	0.423 (0.39)	-0.183 (-0.11)
_Cons	<b>78.83***</b> (3.85)	<b>67.89***</b> (6.32)	-0.761 (-0.03)	<b>145.96***</b> (3.37)

N	58	58	58	58
F	3.46	5.25	2.62	3.60
P>F	0.0014	0.000	0.011	0.0010
R-Squared	0.2950	0.382	0.321	0.2875

Note: Figures in non-parentheses (parentheses) is the coefficient (t-statistics).

We present the interaction results (FBSCORE\*RELISCORE) on academic performance in Table 9 above. In model 1, 2, 3 and 4, we employed different measures for academic performance (i.e., mid-term exam results, coursework, final exam results and overall results respectively). Table 9 revealed that there is a significant positive relationship between FB\*religiosity and academic performance when we used mid-term exam ( $p < 0.01$ ), coursework ( $p < 0.01$ ) and overall result ( $p < 0.1$ ) as dependent variables. This finding indicates that when students engage in religious activities, they are less interested to Facebook activities, hence will increase their academic performance. In other words, high religiosity interact with their tendency in reducing Facebook usage, hence, provide them with more opportunity to score in their academic. This might occur because (1) students are very busy engaging in religious activities, hence, they have less time to Facebook, or (2) their religious activity motivate them to reduce non-beneficial activities such as facebookking.

### Conclusion

Our study empirically examine the relationship between facebook and religiosity on academic performance. We measure academic performance using three different proxies that are mid-term exam, coursework mark, final exam mark and overall mark. Using undergraduate student as sample, our result exhibit that students with high number of friends on Facebook and frequent engagement on Facebook activities, such as sharing links, send message, posting photo, tagging video as well as spending long hours on Facebook generally are associated with lower academic performance. Our results also reported that student’s engagement in religious activities promotes better academic performance. When we examine the potential interaction effect between Facebook and religiosity, our result revealed that religiosity is effective in reducing student’s interest on Facebook, hence lead to better academic achievement. In other words, religious student will be less interested in joining activities on Facebook and make them more perform than their counterparts.

Our finding will be of use to the policymakers in the Malaysian university particularly. To be specific, we need to regulate student’s internet usage on Facebook in order for them to gain better result in academic performance. Our study is also subject to several limitations. First and foremost, our sample, that is 60, is fairly small to generalize the whole population of the university students. This can be improved by increasing the number of respondent in future. Moreover, further analysis using factor analysis can possibly give us better idea in understanding the implication of religiosity commitment on academic performance.

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