

The Effects of Part-Time Work on the Students' Academic Performance During Covid-19 Pandemic: A Logistic Regression Analysis

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Abstract: In early 2020, the COVID-19 pandemic has caused Malaysia to face serious challenges in various sectors, including the education sector. This pandemic has also caused major concerns among students in Higher Education (HE). They are facing problems in academic performance and financial stress regarding their university enrolment. It can be seen that in Malaysia, 76 percent of the students acquire financial resources from full-time jobs, part-time jobs, scholarships, and study loans. Therefore, this study emphasized the effects of part-time work on the academic performance among full-time students. This research mainly focuses on students in Universiti Teknologi MARA (UiTM), Kota Bharu, Kelantan. By using stratified random sampling technique, an online survey with self-administered questionnaire consisting of five sections was distributed to 113 undergraduate students as a sample. A logistic regression approach is used to investigate the relationship between gender, number of working hours, skills, learning time, social time, and social networking sites towards academic performance. Hence, social time and social networking sites are the only variables that significantly contribute to the predictive ability of the model.

Keywords: academic performance, logistic regression, part-time work

1 Introduction

New coronavirus disease (COVID-19) first began in Wuhan, China, in December 2019. The rapid spread of COVID-19 has called for pandemic reporting by the World Health Organization (WHO) on March 11, 2020 [1,2]. Since its outbreak, universities all around the world have to shut down their campuses [3] and COVID-19 has threatened the mental and physical health among societies as well as the university students [4,5]. As a result, education at all levels, including both undergraduate and postgraduate level, have been significantly affected and disrupted the learning of over one billion students in 129 countries around the world [6,7]. Many universities around the world have postponed or cancelled all campus events to minimize gatherings to reduce the transmission of the pandemic [8]. They have stopped face-to-face teaching [9] and currently replacing it with online distance learning. Many areas are affected worldwide and there is concern about losing this whole semester or more in the future. [10].

According to Kapasia et al. [2], school closures due to the pandemic outbreaks contribute an unprecedented impact on students' education and schools' survival. Hussiin [11] said that COVID-19 has actually affected students in many ways, including finance, education, time management and health. Aristovnik et al. [12] stated that students are among the population groups who have experienced dramatic impacts from the first wave of the pandemic in the first four to five months of 2020. This leads to huge changes in their daily lives, and perhaps even more alarmingly, in the outlook for their immediate and distant future. The end date of the outbreak is not yet known. For this reason, educational institutions around the world have decided to use the technical resources available to create e-learning materials for students in all areas of academia. [13]. This is not only making it easier for students to study at any time, but it also allows them to acquire immediate feedbacks [14].

Furthermore, the online platform will be beneficial in encouraging academic staff to continue their give-and-take actions to maintain dynamic and sustainable development for the development of online learning [15]. As an urgent measure to reduce the spread of the pandemic, most higher education institutions in Malaysia are temporarily closed and they limit the number of students admitted. Currently, the teaching and learning process is conducted online until a time to be determined later by the Malaysian Ministry of Higher Education. (MOHE) [16].

Aristovnik et al. [12] presented a study on how students perceive the impacts of the initial wave of the COVID-19 crisis in early 2020 on various aspects of their lives globally. The study revealed that students with certain socio-demographic features (male, part-time, first-level, applied sciences, lower living standard, from Africa or Asia) were significantly less satisfied with their academic work/school life during the crisis, whereas female, full-time undergraduate students and students with financial issues were generally most affected by the pandemic in terms of their emotional life and personal circumstances. However, the growth in the number of working students began before the epidemic and their difficult student life has been observed in recent years. This is due to the high cost of living, educational fees, accommodation fees, and other factors. Nazri [17] said that the reason why students start working part-time is to cover their expenses such as backup allowance and for additional pocket money.

According to Sani [18], out of ten students, nine of them are working part-time due to lack of pocket money during their studies in Malaysia. Furthermore, globally, the percentage of students working part-time is very high with 83 percent. Moreover, it also stated that in 15 countries including Malaysia, over 10,000 parents, and 1500 students undergo a lack of financing stability despite already receiving funds from their parents to pay for their graduate or postgraduate studies. This is because of the university fees, accommodations, transportations, and education resources [18]. According to Latini [19], Malaysian students would like to spend large proportion hours a day average to work part-time rather than spending time at the library and studying at home. Moreover, Latini [19] also stated in another research that working part-time more than 20 hours per week will impose a negative impact on the students' grades [19]. Hence, this study aims to investigate the effects of part-time work on the academic performance of full-time students. This research mainly focuses on students in Universiti Teknologi MARA (UiTM) Kota Bharu. This research aims to study the difference in the proportion of academic performance based on gender, to determine the association between hours of working part-time and academic performance, and to identify the factors (gender, number of working hours, skills, learning time, social time, and social networking sites) that influence students' academic performance.

2 Literature Review

A Academic Performance

Ali [20] stated that there is a difference in the impact of part-time work on academic performance between domestic students and international students. He also agreed that students acquire experience and work skills from the job, but he believed that spending too much time on the job distracts students from their studies that can cause poor academic achievement in school. If the students can manage the time between work and study, the impact of part-time work on academic performance would be either positive or negative. This is because there are students who work part-time and perform better in the study and score better in the academic performance than other students who do not work part-time. The students work part-time because they think their parents feel burdened with the costs of university tuition fees that are higher than they expected. Based on the findings, 10 percent of the students believed that part-time jobs diminish their study time. Another 90 percent of the students believed that part-time jobs do not affect their study time. But, if the students work more than 20 hours per week, it can minimize their study time which may have a negative influence on their academic performance.

Based on the study by Salamonson and Andrew [21], the research aimed to examine the impact

of part-time work of nursing students towards academic achievement. The students' academic achievement for two nursing subjects (nursing and pathophysiology practice) were collected by this study. The analysis showed that students who did not work part-time scored higher results in both nursing and pathophysiology practice rather than students who worked part-time. Hence, this study showed that part-time work is not significantly related to the students' academic achievement. Otherwise, a study in Japan presented the percentage of students working increases each year, and proportion of part-time work relative to the monthly income of college students is also growing [22]. Previous research on the health of working students also showed that working part-time for long periods of time can lead to mental health problems, and it has often been noted that this can lead to lower academic performance.

B Skills

A study by Martin and McCabe [23] investigated the skills developed by hospitality and tourism postgraduate students who are working part-time. From the findings, it showed that overall, 86 percent of respondents noticed that doing part-time work increased their skills. The worked part-time because they wanted to earn money for their living costs, to increase their practical skills regarding their courses, and to gain new experiences. Overall, this study analyzed that skills will be divided into three types which are personal, core and process skills. Personal skills include self-assurance and presentation skills. Core skills are language and communication skills while some examples of process skills are time-management and team-working skills.

However, it is different from the Patton and Smith's [24] statement in which their study was to find out whether working part-time affected students' skills. From the analysis, they found that the students were unlikely to be able to improve students' skills. It was because they did not arrange their shift properly and they did not come to their workplace on time. Hence, it can be said that several potential risks need to be avoided to increase the skills of someone.

C Learning Time

According to Tetteh and Attiogbe [25], merging academics with working is a bad idea. This is due to the time for studies will be lessened, students do not have much time to focus on their study and this can affect their academic performance negatively. Furthermore, it also makes the students to face problems in finding a suitable time to study. This is because students must be committed to their working place to achieve the highest requirement of ranks within the job.

Tetteh and Attiogbe [25] also stated that it is obviously shown that when the students are working so hard and spend most of their time working part-time, they do not have much time to think deeply about their studies and academic performance unless the students are genius enough to perform in their studies even though they are busy and tired. So, this gives a bad impact on academic performance. When the students were asked to answer the questionnaire about the challenges that they face during working part-time and their studies, the majority (41%) said that they did not have much time to study due to excessive work requirements. This implies that if the students combine their part-time work with the learning time, their academic performance will be significantly affected.

D Social Time

According to Karatas [26], 12 students agreed that working part-time affected their social lives negatively because they spent more time in social lives as compared to studying. The results showed that academic success has negative effects on the working lives of students and their studies. If the students fail to spend sufficient time on their studies, projects, and assignments, their friends and lecturers tend to label them as irresponsible and incapable. Most of the students who work full-time and who are public servants are facing more problems in attending classes as compared to the those who work part-time.

Wang et al. [27] emphasized the effects of student employment on their social time. From the

findings, the researchers found that part-time students are two times more likely to join curriculum society rather than students who do not work part-time. It shows that employed students show more interest in joining the extra curriculum activities rather than the unemployed ones. Moreover, employed students notice that they are 0.54 points and 0.4 points less closed to their father and mother respectively. Therefore, it can be said that doing a part-time job damages the relationship between family members because they feel that they are not closed enough to their family members anymore.

E Social Networking Sites

Saleh and Kado [28] conducted a study that aimed to determine whether social networking sites affect the academic performance of students. The study showed 64 percent of the students thought that social networking sites do not affect their study time. It also can be said that the students believed that social networking sites do not affect their academic performance and 77 percent of the students think that using social networking sites can influence their academic performance. From the analysis of data obtained, there is a strong negative correlation between social network sites and academic performance.

Based on the results from a study by Morello [29] which aimed to determine the effects of social networking sites on students' academic performance in Lyceum of the Philippines – Laguna. the time spent by students on social networking sites and academic performance have a significant positive relationship. The study also found that the lesser time spent on studying, the higher time will be spent on social networking sites. 70.1 percent of the students thought that social networking sites helped to enhance students' academic performance, and another 29.9 percent thought that it did not contribute in enhancing their grades. The reason why social networking sites boosts academic performance is that social networking sites can help them to communicate and discuss with their classmates and adviser regarding their homework and assignments. The reason why social networking sites do not help to improve academic performance is because it takes time for the students to study. If the time spent on visiting social networking sites increases, students' GPA also increases, this means social networking sites contribute to the attainment of higher grades.

F Gender

Barron and Anastasiadou's [30], research which mainly focused on the tourism and hospitality students at universities in Scotland who work part-time. It can be seen that the number of female participants (63%) is higher than male participants. From a chi-square test, it showed that there is a difference between males and females and part-time employment (p -value = 0.39). Hence, it can be said that female students who are working part-time outnumbered male students.

According to Carney et. al [31], which aimed to give a greater understanding of the improvement of academic achievement of the student population based on their gender. Hence, it is analyzed that based on the T-test, there is a significant difference between the means of the sample which are 3.56 to 3.68. It can be said that there is not enough evidence to conclude that there is a difference in the average GPA between males and females. Hence, this study showed that there is no significant difference in academic achievement based on gender.

According to the presented results from various global studies, in the context of academic work/life, the COVID-19 crisis has had a strong impact on male students, part-time students, undergraduate students, applied sciences students, and students with a lower living standard. Further, when considering emotional life and personal circumstances, predominantly female, full-time, undergraduate students and students with financial problems were affected more negatively by the pandemic [12].

G Hours of Working Part-Time

The study from Rochford et al. [32] also stated the same objective which is to investigate the interaction between hours of part-time work and academic performance. From the analysis, it found that almost half of the sample indicated that they worked 11 to 20 hours per week. Next, when the hours of work were added in the regression model, it showed that the total variance was increased from 17 percent to 22 percent of the dependent variable. These findings showed that higher number of working hours contributes negative impact on the students' academic performance of.

According to Salamonson et al. [21], this research emphasized the relationship between hours of part-time work and academic performance which was measured by the grade point average (GPA) of nursing students. From one-way ANOVA results, it revealed that there is a difference between the hours of part-time work and mean GPA since the p-value is equal to 0.001. It also can be said that the mean hours of work are negative and significant predictors to GPA among year three nursing students.

3 Methodology

The population of students who work part-time is 206 undergraduate students. The researchers used the Raosoft application to determine the sample size. Thus, the target sample that has been calculated from this application with a 5 percent of margin error and 95 percent confidence interval is 113 respondents. By using stratified random sampling technique, an online survey with self-administered questionnaire consisting of five sections was distributed to 113 undergraduate students as a sample. After the data cleaning process, only 110 respondents were applicable. Therefore, the analysis was based on that sample. The respondents are full-time students in UiTM Kota Bharu who are working part-time were selected from the semester March 2020 until July 2020. Moreover, the exclusion criterion for this study is the respondents of full-time students who are not working part-time and part-time students in UiTM Kota Bharu. This study also excludes industrial training students. The questionnaire was adapted from Barron et al. [30], Manthei et al. [33], Tetteh et al. [25], and Wang et. al [27].

The data were analysed using Statistical Package for the Social Sciences (SPSS) software to obtain the most precise analysis output. The method used is descriptive analysis and logistic regression. Binary logistic regression analysis is used to describe the relationship between independent variables (gender, number of working hours, skills, learning time, social time and social networking sites) towards academic performance (response variables) that have only two categories [34]. The category that states the success event ($Y = 1$) which is excellent (CGPA of respondents are 3.50 and above), and the category that states the failure event ($Y = 0$) for otherwise (CGPA of respondents are 3.49 and below) [35]. Gender is recorded as "0" for males and "1" for females. Meanwhile, hours of working part-time are recorded as "1" for one to three hours, "2" for four to six hours and "3" for seven to nine hours and "0" for more than ten hours. Logistic regression does not require any specific assumption on the distributional form of the independent variable. Logistic regression is much more robust when these assumptions are not met. The general model in logit form of logistic regression is given by in Eq. (1).

$$\text{logit}(p) = \ln(\text{odds}) = \ln\left(\frac{p_i}{(1-p_i)}\right) = e^z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k \quad (1)$$

Where:

$i = 1, 2, \dots, k$

β_0 = is the intercept (the value of Y when all $X_i = 0$)

β_i = the parameter of the model

p_i = the probability of (Y =interest), $P(Y=1)$

Figure 1 shows the theoretical framework of this study that consists of a dependent variable (academic performance) and six independent variables (gender, hours of working part-time, skills, learning time, social time, social networking sites).

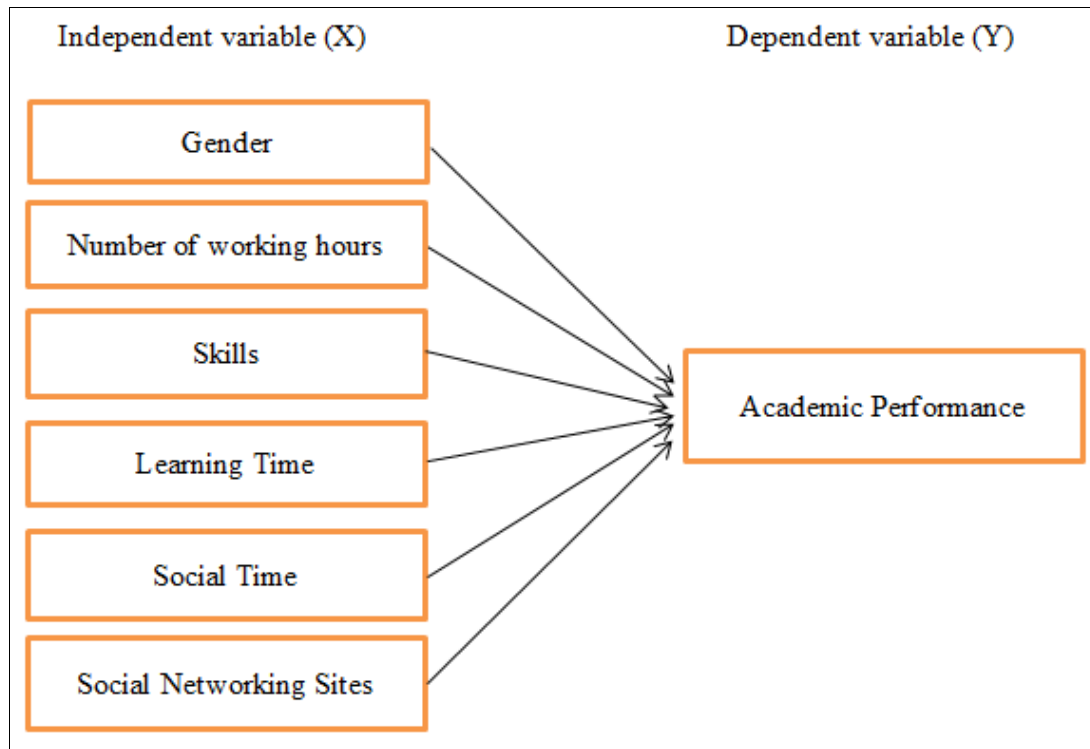


Figure 1: Theoretical Framework

4 Findings and Analysis

A Data

The data of students' academic performance in UiTM Kota Bharu who are working part-time were used in this study. The students' academic performance data includes 110 respondents that were obtained from the survey research questionnaire adapted from previous studies. The questionnaire consists of five sections which are demographic profile (Section A), skills (Section B), learning time (Section C), social time (Section D), and social networking sites (Section E). The data consisting of nine variables have been recorded. The students' academic performance (CGPA) as a response variable is divided into two categories which are excellent and not excellent. The predictor variables are characteristics of prospective students who involve in part-time working during the study. Factor gender, working hours, Skills, Learning time, social time, and Social Networking Sites. Table 1 shows the data description.

Table 1: Relation of Variables Presented in Student Performance Study Data

Variable	Nature	Description
CGPA	Binary	0: Excellent 1: not excellent
Gender	Binary	Male/Female
Working Hours	Ordinal	3 levels
Skills	Interval	10 levels
Learning time	Interval	10 levels
Social Time	Interval	10 levels
Social Networking Sites	Interval	10 levels

B Descriptive Statistics

Collected data is analysed by descriptive statistics. Different categories of demographical information are revealed in Table 2. As evident from Table 2, out of total of 110 respondents, the majority of the information was gathered by female respondents as females were 86.36% out of total. When respondents were analysed in terms of an hour of work, respondents working part-time between 1 to 3 hours were found to represent 36.36%. Data indicates that 10% of the respondent worked over 10 hours. 67.27% of the respondents worked in the retail business. Meanwhile, those working in the hospitality sector take up 11.82% and the other 20.9% are in the services sector. The majority of the respondents, 54.55%, stated that they worked part-time to earn money said that they were working part-time to earn money. Next, it is followed by acquiring new experience with 32.73%.

Table 2: Demographic profile

Variable	Frequency	Percent
CGPA	Binary	0: Excellent 1: not excellent
Gender		Male/Female
Male	15	13.64
Female	95	86.36
Working Hours		
1-3	40	36.36
4-6	32	29.09
7-9	27	24.55
10 above	11	10.00
Respondents' Working Sector		
Retail	74	67.27
Hospitality	13	11.62
Services	23	20.91
Reasons of Working Part-Time		
To earn money	60	54.55
To increase practical skills	13	11.82
To gain new experience	36	32.73
To increase knowledge	1	0.91

C Logistic Regression

First and foremost, all of the variables were included in the model. From Table 3, based on p -value of Wald test, only two variables are significant which are social time (Wald test = 9.482, p -value = 0.002) and social networking sites (Wald test = 7.221, p -value = 0.007). Since all the p -value is greater than α (0.05), therefore variables gender, working 1-3 hours, working 4-6 hours, working 7-9 hours, skills learning Time are removed from the model.

Table 3: Variables in the Equations (Actual Model)

Variable	Parameter Estimate	Wald Test	p -value
Constant	- 4.321	1.829	0.176
Gender (Female)	- 0.164	0.042	0.837
Hours (1 to 3)	0.955	0.655	0.418
Hours (4 to 6)	0.676	0.306	0.580
Hours (7 to 9)	1.068	0.764	0.382
Skills	0.104	0.015	0.902
Learning Time	- 0.114	0.026	0.872
Social Time	- 1.594	9.482	0.002
Social Networking Sites	1.705	7.221	0.007

The logistic equation as shown in Eq. (2).

$$\begin{aligned} \log(\text{academic performance}) = & -4.321 - 0.164(\text{Gender}) + 0.0955(\text{Working 1-3 hours}) + \\ & + 0.676(\text{Working 4-6 hours}) + 1.068(\text{Working 1-3 hours}) + 0.104(\text{Skills}) - 0.114(\text{Learning Time}) \\ & - 1.594(\text{Social Time}) + 1.705(\text{Social Networking Sites}) \end{aligned} \quad (2)$$

Table 4: Variables in the Equations

Variable	Parameter Estimate	Wald Statistic	p-value	Exp(B)	95% of Confidence Interval	
					Lower	Upper
Constant	- 3.586	2.641	0.001	0.028		
Social Time	- 1.614	10.930	0.003	0.199	0.076	0.518
Social Networking Sites	1.708	9.094	0.104	5.517	1.818	16.738

The final model of logistic equation as shown in Eq. (3).

$$\log(\text{academic performance}) = - 3.586 - 1.614(\text{Social Time}) + 1.708(\text{Social Networking Sites}) \quad (3)$$

By using backward stepwise, based on Table 4, after one by one variables were removed from the model, there are only left two variables in the model which are social time and social networking sites with the Wald statistics are 10.930 (p -value = 0.001) and 9.094 (p -value = 0.003) respectively. Therefore, it can be said that social time and social networking sites variables contribute to the model since the p -value less than significance value (0.05). Next, increasing in the social time, the odds for the student's academic performance will tend to not excellent (CGPA is 3.49 and below) increases at the 5.025 (1/0.199) times. However, the odds for excellent performance (CGPA is 3.50 and above) is increased 5.517 times when the value of social networking sites increased. Lastly, there are significant differences in academic performance among the social time (0.076 and 0.518) and social networking sites (1.818 and 16.738) since both confidence intervals do not include zero values.

5 Conclusions

In order to determine the factors affecting students' academic performance in UiTM Kota Bharu who are working part-time, the logistic regression model was used in this study. Therefore, to achieve the study objective, 110 respondents were obtained from the survey research questionnaire. It has been found that two variables are significant to academic performance which are social time and social networking sites. Moreover, based on the model performance, other factors need to be included for future studies to increase its prediction correctness and accuracy in estimation. In addition, another approach should be applied in the future to improve the study results.

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